



Organization of American States

Department of Sustainable Development
Energy and Climate Change Mitigation Section

CARIBBEAN

FINAL NARRATIVE REPORT

SUSTAINABLE

ENERGY AND CLIMATE CHANGE MITIGATION SECTION
DEPARTMENT OF SUSTAINABLE DEVELOPMENT
SEPTEMBER 24, 2013

ENERGY

PROGRAM



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CARIBBEAN SUSTAINABLE ENERGY PROGRAM

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CARIBBEAN SUSTAINABLE ENERGY PROGRAM

1. DESCRIPTION

1.1 Name of beneficiary of grant contract:

The General Secretariat of the Organization of the American States (GS/OAS)

1.2 Name and title of the Contact person:

Mr. Mark Lambrides
Chief, Division of Energy and Climate Change Mitigation
Department of Sustainable Development
Organization of American States

1.3 Name of partners in the Action:

Caribbean Electric Utility Service Corporation (CARILEC)
Caribbean Community Secretariat (CARICOM Secretariat)
Renewable Energy and Energy Efficiency Partnership (REEEP)

1.4 Title of the Action:

Increasing the Sustainability of the Energy Sector in the Caribbean through Improved Governance and Management, also known as the Caribbean Sustainable Energy Program (CSEP)

1.5 Contract number:

Project 132

1.6 Start date and end date of the reporting period:

November 1st, 2008 – April 30th, 2013

1.7 Target country(ies) or region(s):

The Caribbean Region: Antigua & Barbuda, the Commonwealth of Dominica, Grenada, St. Kitts & Nevis, St. Lucia, St. Vincent & the Grenadines and the Bahamas.

1.8 Final beneficiaries and/or target groups¹

Target groups: Policymakers, electric utilities, and large energy consumers (e.g., the tourism industry) in Antigua and Barbuda, The Bahamas, Dominica, Grenada, St. Kitts & Nevis, St. Lucia, and St. Vincent and the Grenadines.

Final beneficiaries: The citizens (858 429 in total) of St. Lucia, Dominica, Grenada, St. Kitts & Nevis, St. Vincent and the Grenadines, Antigua and Barbuda, and The Bahamas. The general population of each of the project countries will benefit from a reduction in electricity prices, a more reliable electricity supply, reductions in the national demand for electricity, and enhanced economic development through growing opportunities for sustainable energy investments that can contribute to poverty eradication. Local wildlife and the local and global environment as a whole will also benefit as a result of a significant reduction in the consumption of fossil fuels for electricity generation.

1. "Target groups" are the groups/entities who will be directly positively affected by the project at the Project Purpose level, and "final beneficiaries" are those who will benefit from the project in the long term at the level of the society or sector at large.

2. ASSESSMENT OF IMPLEMENTATION OF ACTION ACTIVITIES

Executive Summary

The Final Report is intended to serve as a unified report to highlight all activities and milestones accomplished during the 54 months of the program's execution².

During this time, the OAS/CSEP project team made significant progress in their mission to support the participating countries' efforts to improve market conditions for the development and use of renewable energy and energy efficiency systems by addressing issues such as access to affordable energy, energy efficiency, and the sustainability of energy sources in a coherent and effective manner. The team was able to tailor the assistance provided to meet the specific needs of each participating country. This was done in cooperation with local government officials and all relevant national and regional stakeholders.

The CSEP project's two core categories are:

1) To establish sustainable energy goals and targets as set out in participant countries' national energy policies (NEPs) and/or sustainable energy action plans (SEPs)

Support provided for achieving (1) included:

- Advisory services to establish NEPs and SEPs for each participating country as a means of articulating each nation's intention to incorporate sustainable energy solutions in its overall energy matrix.

Milestones:

- NEPs received Cabinet approval in Antigua and Barbuda, Grenada, St. Kitts and Nevis, St. Lucia and St. Vincent and the Grenadines.
- The SEP of St. Vincent and the Grenadines received Cabinet approval.
- The final draft of Dominica's NEP as well as its SEP was produced.
- The final drafts of Antigua and Barbuda's and St. Kitts and Nevis' SEPs were produced.
- The Bahamas produced a draft NEP.

2) To aid in the removal of any barriers to the widespread implementation and dissemination of the activities outlined in participating countries' NEPs and/or SEPs.

Support provided for achieving (2) included:

- Advisory services to formulate and adopt regulatory frameworks for the utilization of renewable energy and energy efficiency within the individual national energy matrices;

2. The Project was originally designed to be implemented over 36 months, but due to initial delays associated with local conditions in the project countries, and the rescheduling of several tasks, it was decided that the project should be extended. On July 11th 2011, the OAS requested a one year no-cost extension, which was endorsed by the 2010 Result Oriented Monitoring Mission (ROM). Subsequently, on July 10th 2012, a second no-cost extension for a period of six months was requested and approved. The extension was necessary in order to successfully complete all of the project actions as described in the grant agreement. The second extension was needed because of the delays the project encountered while awaiting approval of the final tranche of funding (corresponding to pre-financing year four), which required an interim audit prior to disbursement. Additionally, several activities that had recently been launched required additional time for their successful conclusion.

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- Capacity-building and the transfer of knowledge and skills to relevant stakeholders;
- Technical assistance for the identification, preparation, and commercialization of sustainable energy technologies, as well as assistance for accelerating their dissemination; and
- Advisory services to improve financial conditions for renewable energy and energy efficiency opportunities, including the delivery of demonstration projects in recipient countries.

Milestones:

- Advisory services to formulate Geothermal Resource Development bills were provided to Grenada, St. Lucia, and St. Vincent and the Grenadines.
- 22 technical training sessions and 13 regional meetings as well as various forums and roundtables were provided in participant countries. The technical training sessions consisted of study tours, workshops and seminars. All activities targeted a variety of energy sector stakeholders, including utility managers, government personnel, officials associated with Bureau of Standards organizations, financiers, and educators, especially science curriculum officers attached to ministries of education.
- 10 energy audits were conducted across various participant countries, namely Antigua and Barbuda, Grenada, St. Kitts and Nevis, St. Lucia and Dominica.
- CSEP facilitated favorable market conditions for the deployment of renewable energy and energy efficiency projects and programs in all beneficiary countries. The following achievements were among the most notable:
 - In Antigua and Barbuda, Shirley Heights Lookout, a national park, marked the site of the first solar energy system.
 - In the Bahamas, Compact florescent lamps (CFLs) were provided and distributed to low-income households. Photovoltaic (PV) cells and solar water heaters were also supplied and installed.
 - In Dominica, steps toward developing geothermal resources continue, including a feasibility study for submarine interconnection with Martinique and Guadeloupe.
 - Grenada's first wind farm was launched in Carriacou, a component island.
 - In St. Kitts and Nevis, a 2.2 MW wind farm was inaugurated on Nevis and a final agreement was made for the development of a 5.4 MW on St. Kitts. Furthermore, significant progress has been made toward the development of a 10 MW geothermal project in Nevis.
 - In St. Lucia, CFL light bulbs were replaced with light-emitting diode (LED) bulbs in two public buildings, the Ministry of Infrastructure, and the Port Services and Transport building.
 - In St. Vincent and the Grenadines, a solar energy system was commissioned at the Administrative Building in Kingstown. In addition, two buildings -- the National Archives and the St. Vincent Coast Guard building -- underwent the replacement of T12 light bulbs with energy efficient LED light bulbs.
- Published documents:
 - The Energy Policy and Sector Analysis in the Caribbean (2010–2011)³
 - The Caribbean Educator's Guide to Sustainable Energy Education and Awareness
 - The Teachers' Resource Booklet for Integrated Instruction in Sustainable Energy
 - The Learn and Save Booklet
 - Energy Efficiency Guidelines for Office Buildings in Tropical Climates
 - Financiers' Guide to Sustainable Energy Lending in the Caribbean

3. This document was prepared with the assistance of the National Renewable Energy Laboratory (NREL), and the Renewable and Appropriate Energy Laboratory (RAEL) at the University of California, Berkeley.

The activities implemented by this project (as detailed in 2.1) were organized sequentially according to the two aforementioned core categories. Specific actions and activities were initiated toward the development, adoption, and/or implementation of participant countries' NEPs and/or SEPs based on the progress each country had made toward actioning one or both of these documents. At the time of the initiation of the project's activities, 6 of the 7 participating countries had either already begun or completed the adoption phase of their NEPs and/or SEPs as a result of the prior work of the project applicant and/or its partners.⁴

Additionally, the OAS, through the Eastern Caribbean Geothermal Development Project (Geo-Caraïbes), played a catalytic role in assessing country-driven energy policy reform alternatives in the Caribbean, specifically related to the development of geothermal resources. Geo-Caraïbes was a regional strategy that shaped the conditions for successful deployment of commercially viable geothermal power production and overcame the barriers to the development of geothermal power in Dominica, St. Lucia, and St. Kitts and Nevis. Through the OAS/CSEP and OAS/ECPA, the OAS continued the delivery of legal assistance in this area; as a result, alternatives for energy policy reforms in Grenada, St. Lucia, and St. Vincent and the Grenadines were identified.

The execution of the activities outlined below was facilitated by the OAS headquarters in Washington, and later on through the Regional Coordination Unit (RCU) set up at the OAS National Office and at the CARILEC headquarters in St. Lucia.

The planned activities were completed in accordance with the CSEP Action Plan (available in Section 2.3),

Phase 1: Development of National Sustainable Energy Policies and Action /Plans

Phase 1 was designed to establish NEPs for each of the project countries. Support for this goal was provided via the project teams in each participating country. The NEPs were designed to focus on sound policies and practices that promote energy diversification and a transition away from the exclusive or near-exclusive reliance on fossil fuels to instead incorporate affordable, reliable, and accessible renewable energy technologies and energy efficiency improvements in all sectors.

In this pursuit, the project team reviewed national energy laws and regulations in cooperation with national governments. The team also fulfilled the stipulation that government stakeholder meetings be held in three of the seven project countries⁵. During the course of doing so, the team determined that the meetings were so essential to the development of NEPs that it would proceed to organize consultations in all seven countries⁶.

After several discussions with government stakeholders in each country, it was agreed that the NEP would serve as a long-term instrument consisting of national priorities, targets, objectives and goals. The NEP, then, is a declaration of intent for the government's desired achievements -- in other words, the "What".

It follows that the SEP would serve as the implementation instrument of the government's declaration of intent as stated in the NEP — in other words, the "How" that accompanies the "What". It was suggested that the plan should detail clear measurable activities, specific and appropriate timeframes, details of tasks and responsibilities, and plans for resource allocation, as well as milestones and performance measures or indicators. Targets and activities were classified according to time-scale (short, medium, long-term).

4. The first SEP in the region resulted from a promise made by the St. Lucian prime minister in the year 2000 that committed St. Lucia to becoming a clean energy demonstration nation. In response, the project applicant and a consortium of partners formed the Global Sustainable Energy Islands Initiative (GSEII). GSEII helped St. Lucia prepare an SEP, which outlined specific targets for increasing the use of renewable energy and energy efficient practices, and was formally adopted by Cabinet in 2003. Since then, partner agencies, the CARICOM Secretariat and the German Technical Cooperation Agency (GIZ) through the Caribbean Renewable Energy Development Programme (CREDP), have been actively supporting the development of related policies and legislation in CARICOM Member States, an act which prompted the governments of St. Lucia and St. Vincent and the Grenadines to begin negotiations for the formulation of an NEP and SEP respectively. Following that, Dominica, Grenada, and St Kitts and Nevis approached the GS/OAS and GSEII for the purposes of preparing national SEPs. The GSEII project team undertook efforts to prepare similar targets and actions, but the resulting SEPs have not yet been formally adopted by the appropriate Cabinet.

5. Because other sectors besides the public sector play an integral role in policy formulation and implementation, the project's action plan also called for 6 multi-sector stakeholder consultations to be held. This was done in all of the project countries with the exception of St. Lucia, where it was not necessary because CREDP/GIZ had already conducted several multi-sector consultations there.

6. For more information, please see First Interim Report: 1-Nov-2008 – 31-Oct-2009 and Second Interim Report: 1-Nov-2009 – 31-Oct-2010.

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At the end of the project, the following was noted toward the achievement of the phase 1 goal:

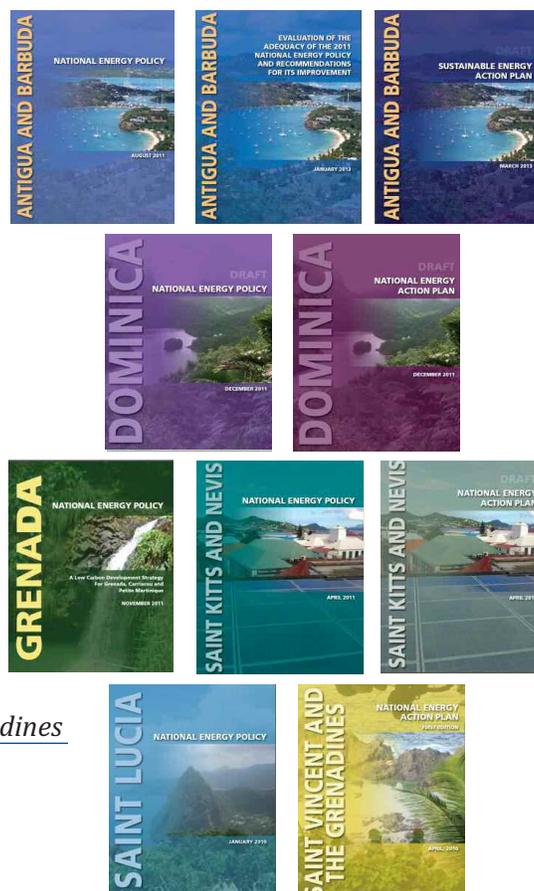
- 5 countries adopted their NEPs via Cabinet.
- St. Vincent and the Grenadines adopted its national energy action plan (NEAP) via Cabinet.
- In Dominica, the project team provided additional assistance to the Ministry of Public Utilities, Energy and Ports in order to revise the NEP and SEP that were presented in 2011. Several attempts were made to facilitate the adoption of both documents, but they are still pending Cabinet approval.

The Bahamian government received a technical assistance grant from the Inter-American Development Bank (IADB) in early 2008, the aim of which was to prepare the first draft of their NEP. CSEP was actively engaged in the process (along with German firm Fichtner Consulting, which was hired to review the draft) and provided financial assistance to hold a multi-sector stakeholder meeting in January 2010 in collaboration with the IADB.

In mid-2012, the government of Antigua and Barbuda requested technical assistance to formulate a sustainable energy action plan (SEAP) in order to direct the implementation of the NEP that was adopted on August 20, 2011. In July 2012, OAS/CSEP hired the British consulting firm IT Power to assist in the development of the SEAP. The SEAP took into account (a) the following five goals of the NEP: energy cost reduction, diversification of energy sources, improvement of the reliability of electricity supply, implementation of measures for environmental protection, and stimulation of new, related economic opportunities; and (b) the following three strategies of the NEP: energy conservation and energy efficiency, developments in renewable energy, and education and awareness outreach. IT Power was able to conduct one mission on which it met with relevant stakeholders to discuss and receive feedback on legal and regulatory barriers and constraints to the aforementioned. On February 19, 2013, the government held a national stakeholder consultation in coordination with IT Power and the RCU manager, the aim of which was to present the final draft of the SEAP as well as receive recommendations on the adopted NEP.

The following is a list of participating countries' NEPs, and in some cases, corresponding energy action plans as well, that were supported directly or indirectly by CSEP:

- *The National Energy Policy of Antigua and Barbuda*
- *Evaluation of the adequacy of the 2011 National Energy Policy*
- *The final draft National Energy Action Plan of Antigua and Barbuda*
- *The final draft National Energy Policy of Dominica*
- *The final draft Energy Action Plan of Dominica*
- *The National Energy Policy of Grenada*
- *The National Energy Policy of Saint Kitts and Nevis*
- *The final draft National Energy Action Plan of Saint Kitts and Nevis*
- *The National Energy Policy of Saint Lucia*
- *The National Energy Action Plan of Saint Vincent and the Grenadines*



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A summary progress related to the NEPs and other energy policy work associated with each project country is provided in Table 1 below.

Table 1: Status energy framework in CSEP-participant Countries

Nation	Regulatory Framework	Legislative and Policy Framework	Status	Date	Comments
Antigua and Barbuda	No independent regulator	National Energy Policy*	Adopted	2011	The goal of the NEP is to reduce the overall energy intensity of the economy by 10%, and achieve a renewable energy penetration of 15% by 2030. The NEP has five priority areas within which to accomplish a set of goals. The priority areas are energy cost reduction, diversification of energy sources, reliability of electricity supply, environmental protection and stimulation of new economic opportunities.
		Sustainable Energy Action Plan*	Final Draft	2013	National efforts have been made to create an interconnection and net metering policy. This effort was led by the national utility, APUA, to allow for small, distributed renewable energy generation sources such as PV and wind to be interconnected to the utility grid. This policy has been approved but instructions regarding introducing the policy to the public are being awaited.
		Antigua Public Utilities Authority Act	Adopted	1973	
Dominica	Independent Regulatory Commission established	National Energy Policy *	Final Draft	2012	The primary objective of the policy is to pursue sustainable energy that is reliable, extends access to energy, and provides energy at the lowest possible cost.

	in 2007 for electricity sector only	Energy Action Plan**	Final Draft	2012	The plan sets out how the government intends to implement the NEP. The goal of the plan is to increase the efficiency and sustainability of energy supply and demand wherever it is economically feasible to do so.
		Electricity Supply Act	Adopted	2006	
		Geothermal Resource Development Bill***	Final Draft	2011	This bill provides for the regulation of geothermal resources with the objective of ensuring sustainable development of the resource, while ensuring its allocation to the uses that are most economically beneficial to Dominica.
		Environmental and Planning Regulations for Renewable Energy***	Final Draft	2010	These regulations allow for the development of renewable energy resources while safeguarding the natural environment and public welfare.
		A Blueprint for Renewable Energy in Dominica***	Final Draft	2010	It serves as a reference document of what a renewable energy (RE) framework should include, and it compares this 'reference framework' to the existing legal and regulatory framework of Dominica. The main focus is on the main rules needed in a RE framework but also on the incentives to attract private sector investments in RE.
Grenada	No independent regulator	National Energy Policy*	Adopted	2011	The NEP promotes the use of indigenous renewable energy sources (geothermal, wind, solar, waste to energy). It aims to have at least 20% of all domestic energy usage based on these sources by 2020, accompanied by a 20% reduction in greenhouse gas emissions from fossil fuel combustion.
		Public Sector Energy Conservation Programme***	Adopted	2010	The program aims to reduce energy wastage by promoting energy conservation in all government ministries. Each ministry was directed to establish an energy management committee, and develop an energy conservation plan targeted at achieving 10% energy savings.
		Geothermal Resource Development Bill**	Final Draft	2012	The government's goal in pursuing geothermal resource development is to stabilize and eventually reduce power costs, in accordance with the strategy and targets set out in Grenada's NEP as well as in the Grenada Vision 2030.

		Electricity Supply Act	Adopted	1994	A replacement act has been in draft since 2001.
Saint Kitts and Nevis	No independent regulator	National Energy Policy*	Adopted	2011	The NEP is intended to clarify the government's position on energy development. It is also intended to foster the development of an appropriate legal, institutional and economic framework as well as management mechanisms for enabling sustainable and economically sound energy activities and services.
		Energy Action Plan**	Final Draft	2011	The purpose of the NEAP is to propose a series of actions to materialize the vision and strategy for Saint Kitts and Nevis' energy future for the period 2010 to 2030. In order to materialize plans for geothermal power (in accordance with the diversification of energy policy objective) is the implementation of an interconnection power cable between Saint Kitts and Nevis.
		Nevis Geothermal Resources and Development Ordinance***	Adopted	2008	In 2004, the OAS through GSEII was able to draft The Nevis Geothermal Resources and Development Ordinance which gives guidelines and regulations for new geothermal development.
		Electricity Act	Adopted	1993	
		Electricity Ordinance	Adopted	1998	
Saint Lucia	No independent regulator	National Energy Policy**	Adopted	2011	The NEP is used as a guiding document and is instrumental in shaping the government's attempts to revise the 1994 Energy Supply Act.
		Geothermal Resource Development Bill**	Final Draft	2012	In 2004, the OAS drafted, through the Geo-Caribes project a Geothermal Resources Development Bill which laid out a framework for all phases of geothermal development: reconnaissance, exploration, drilling, production and energy use. During mid-2011 to early 2012, the OAS reviewed and amended, through CSEP, the 2004 Geothermal Resources Development Bill in coordination with local officials and relevant stakeholders during national consultations.
		Electricity Supply Act	Adopted	1994	The act is set to undergo a complete review in 2013. It is expected that the new act will provide for the entry of independent power producers, and facilitate the easier introduction of renewables into the energy mix without the hindrances which currently exist under the 1994 clauses.

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Saint Vincent and the Grenadines	No independent regulator	National Energy Policy***	Adopted	2009	The NEP envisages improvement in the reliability, accessibility, equitable access and affordability of energy supplies, ensuring energy security, promoting energy conservation, energy efficiency, use of indigenous resources, and diversification of energy sources. Among the targets is to deliver 30% of the projected total electricity output from RE sources by 2015 and 60% by 2020.
		National Energy Action Plan**	Adopted	2010	The policies outlined in the approved NEP have been considered during the preparation of the NEAP, the purpose of which is to outline the actions for SVG's energy future from 2009 to 2030.
		Geothermal Resource Development Bill*	Final Draft	2013	This Bill seeks to make provision for the exploration, development and utilization of geothermal resources in a manner that is economically beneficial, while ensuring the protection of the country's environmental resources.
		Electricity Supply Act	Adopted	1973	
The Bahamas	PUC authority not yet extended to electricity sector.	National Energy Policy and an Implementation Plan ***	In Progress	2011 - 2012	The preparation of the NEP and IP was led by the InterAmerican Development Bank (IDB) with support from CSEP.
		Electricity Act	Adopted	1959	
		Public Utility Commission Act	Adopted	1993	Amended in 1999

Lead by CSEP only, ** Lead by CSEP and CSEP-Partner and * Lead by CSEP-Partner*

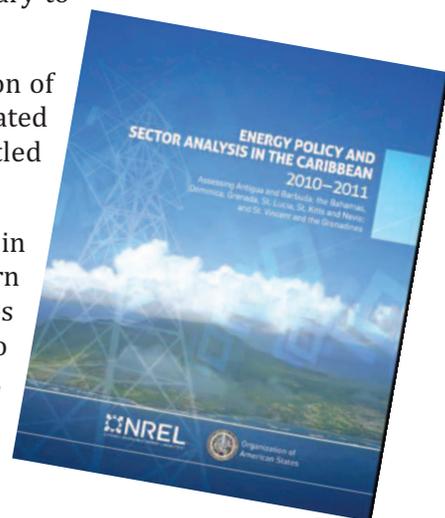
Phase 2: Implementation of NEPs and SEPs

2. a. Adoption of Sustainable Energy Policies and Regulatory Reforms

Phase 2 is designed to facilitate the widespread implementation and dissemination of the activities outlined in the NEPs/SEPs of the participating countries. The adoption of the SEPs is critical as it sets concrete targets for sustainable energy development and use. Further, the plans include action items to be completed in each country including outlining the key policy and regulatory reforms necessary to create the market conditions for such systems.

According to the project document, the project should perform the revision of existing regulatory reforms in at least four countries. This action was initiated through a research study for the seven participating countries entitled *The Energy Policy and Sector Analysis in the Caribbean (2010–2011)*⁷.

Phase 2 expectations also require that the project draft regulatory reforms in at least four countries. The revision of the natural resource laws that govern the rights for the exploration, development, and use of geothermal resources was among the measures identified by the SEPs as critical reform elements to be addressed by the project. This action was conducted in St. Lucia, Grenada, and St. Vincent and the Grenadines, with the assistance of legal consultants who were able to review and prepare geothermal resource development bills for each country.



In St. Lucia, under the Geo-Caribes Project, the OAS drafted the *Geothermal Resources Development Bill*. The Bill laid out a framework for all phases of geothermal development: reconnaissance, exploration, drilling, production, and energy use. At the beginning of 2011, the CSEP project team initiated a dialogue with the government, which confirmed that support from CSEP would be critical to amend the existing draft bill.

The project team contracted Mrs. Karen Dalton, a law policy analyst and legislative drafter who reviewed and proposed recommendations which: (a) comply with the Constitution; (b) comply with St. Lucia's NEP (c) are compatible with other relevant laws, particularly the Electricity Supply Act, the Mineral's Vesting Act, and the Water and Sewerage Act; and (d) protect the Piton World Heritage Site that incorporates the sulphur springs, which have high potential for geothermal resource development. *The Revised Geothermal Resources Development Bill* was prepared based on initial consultation meetings held with the officers of the Sustainable Development & Environment Division of the Ministry of Physical Development during the first site visit which took place on July 11th 2011. The findings of the consultancy included a review of the current legal and regulatory framework, and relevant reports, including the approved 2010 NEP and recommendations from the stakeholders at the consultation meeting held during the second site visit which took place on 25th October, 2011.

In Grenada, the government established a geothermal energy committee (GEC) in 2010. The committee is composed of representatives from the relevant ministries and from the national utility, Grenada Electric Services, Ltd. (GRENLEC). It is intended to provide advice and guidance to the government regarding geothermal development potential in Grenada, and requested assistance from the ECPA Caribbean Initiative under the Energy and Climate Partnership of the Americas (ECPA) (*The Energy Policy and Sector Analysis in the Caribbean (2010–2011)*, pp. 56-57). In 2011, ECPA Caribbean Initiative and the Grenada Geothermal Energy Committee secured the assistance of Castalia Strategic Consultants in preparing the Geothermal Resource Development Bill and Environmental Regulations (Spicegrenada, 2011).

7. The study was the result of a collaborative effort by the staff of the OAS/Department of Sustainable Development, the National Renewable Energy Laboratory (NREL) under the Energy and Climate Partnership of the Americas (ECPA), and the Renewable and Appropriate Energy Laboratory (RAEL) at the University of California, Berkeley. The study provides the baseline for the current energy sector, and suggestions for energy-policy development, and policy implementation, while highlighting renewable energy and energy efficiency opportunities in the seven assessed Caribbean nations.

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As of December 2011, both documents were in a final draft version to be submitted to Cabinet for review. The geothermal project has become a high ranked priority both to the government and to GRENLEC, with particular attention being placed on it during the 2012 Budget Proposal (Grenada Ministry of Finance, 2010). At the end of 2010, the government requested that the OAS continue providing support for the development of geothermal energy in Grenada. The OAS/CSEP prepared an international bid, at which the St. Lucian firm Legal & Drafting Services Ltd. (LDS) was awarded a contract to help the government draft and negotiate a heads of terms (HOT) to set the direction of the development of the geothermal resources. LDS subcontracted several members of Castalia LLC to be part of the LDS-Castalia team that provided this support. The government's goal in pursuing geothermal resource development is to stabilize and eventually reduce power costs, in accordance with the strategy and targets set out in Grenada's NEP and in the Grenada Vision 2030.

The preparation of the HOT was requested in a way that responds to the government's policy and protects its interests while being acceptable to GRENLEC.

The scope of the assignment was to:

1. set the direction for the agreement;
2. draft an HOT for the agreement;
3. discuss and finalize the HOT; and
4. provide contingency for follow-up support on the HOT.

The LDS-Castalia team *drafted the heads of terms*, and provided pre-negotiation support to the government in preparing it. Afterwards, the government and GRENLEC met to negotiate the HOT, with support from the LDS-Castalia team. The HOT set out the parties' intention to conclude a binding geothermal resource development agreement by the end of 2012, and set out the key commercial terms that the parties agreed should be included. The LDS-Castalia team also provided follow-up support, proposing additional legal language for amending the draft Geothermal Bill and Environmental Regulations, and a roadmap with next steps toward concluding a geothermal resource development agreement.

The final HOT is a confidential document in the hands of the government and GRENLEC. It is confidential because the HOT contains the terms that will be part of the Geothermal Resource Development Agreement, a commercial agreement between the government and GRENLEC. However, the government may be contacted if needed to confirm its receipt of the final HOT.

In St. Vincent and the Grenadines, the OAS/CSEP contracted Mrs. Judi Daniel, a legislative drafting consultant. The consultant prepared the *final draft Geothermal Resource Development Bill*, taking into account the recommendations from the two multi-sector stakeholder meetings organized by the Energy Unit, and the OAS-CSEP Project Management Team on December 5, 2011 and February 13, 2012.

The consultations yielded significant value by providing important policy directives and details as to what should comprise the Geothermal Bill. The consultations also provided opportunities to share information as to the definition of geothermal energy and the legal and technical issues pertaining to this aspect of development with the stakeholders. Among the crucial directives were:

- A primary objective of geothermal resource development for St. Vincent and the Grenadines (SVG) is to reduce both the cost of energy to consumers, and the country's reliance on imported fuel. This, however, must not be pursued in a manner that promotes environmental deterioration.
- VINLEC, the sole utility, is to be maintained as the sole transmitter and distributor of energy in SVG.
- A guarantee must be provided to the effect that the power producer will sell energy produced to VINLEC. VINLEC will have right of first refusal for what is offered.
- Ensure flexibility in pricing of energy offered to VINLEC.

- A determination must be made as to whether what is produced is solely for the local market.
- Ensure effectiveness in the institutional arrangements that govern the management of geothermal resources development in the country.
- In crafting the legislation, every effort should be made to ensure that minimal environmental impacts occur particularly as regards protecting natural resources, wildlife habitat in geothermal sites
- Effort must be made to protect wildlife that may be present at exploration sites.
- The procedures and criteria for the award of permits and licences should be clearly set out in the legislation.
- A pragmatic approach must be devised as it pertains to the award of licences and permits to ensure that potential investors have a track record in geothermal energy development and adequate resources available.

After further review, the Bill will be introduced in Parliament in the first half of 2013 (2013 Budget speech by Dr. the Hon. Ralph Gonsalves pp 29).

2.b. Improvement of the Capacity of Energy Sector Stakeholders in Sustainable Energy Deployment, Development, and Use

In the interest of capacity building, the project team reached the areas of sustainable energy deployment, development, and use to a wide range of energy stakeholders via various diverse channels. The sections that follow will detail these.

The project team recognized that electric utility officials, managers, and engineers in the project countries often lack the information necessary to select, develop, and use renewables and efficiency technologies and services within their systems. Gaining technical capacity in the operation and maintenance of renewable technologies would make it much more likely that the systems installed would achieve their full potential. Likewise, it is critical to engage members of the private sector, including academics, financiers, technicians, architects, and engineers to leverage and/or accelerate understanding, awareness and development, use, and investments in this area.

Towards this goal, the project team provided workshops, courses, and seminars to utility managers, commercial sector energy managers, and government personnel. Members of the private sector were trained in the areas of sustainable energy development and awareness.

Additionally, a publication entitled *Energy Efficiency Guidelines for Office Buildings in Tropical Climates* was developed. The Guidelines were intended to help local national standards boards, engineers, and architects understand and implement region-appropriate energy efficiency standards. They also aimed to provide support and guidance for the management of the simultaneously-occurring opportunities and barriers to the use of energy efficiency measures and renewable energy conversion technologies in commercial and public buildings in the Caribbean.

Furthermore, a public awareness strategy entitled the Caribbean Energy Education and Awareness Program (CEEAP) (detailed in 2.b.4.2) was created. It targeted primary and secondary school students as the future energy stakeholders in each of the seven project countries. CEEAP was coordinated through the various ministries of education and other relevant actors.

2.b.1 Hosting Regional Sustainable Energy Financing Seminar

Given the barriers in sustainable energy finance, it is expected that capacity building in this sector will increase the willingness and capacity of the financial community to invest and lend in this area. The project team had several discussions with regional partners to coordinate the delivery of an energy financing seminar. Among them were the Caribbean Development Bank (CDB), the European Investment Bank (EIB) and CREDP/GIZ, since the latter was executing, in partnership with the OECS Secretariat, the Eastern Caribbean Energy Labelling Project (ECEL), which has an activity to promote the inclusion of energy efficiency incentives into credit facilities for low-income sectors and the poor.

The project team, in close collaboration with the Caribbean Community Climate Change Centre (CCCC) and CREDP-GIZ/OECS approached the Caribbean Confederation of Credit Unions (CCCU) to have a dialogue/consultation on the issue of financing renewable energy (RE) and energy efficiency (EE) projects. During the CCCU 55th Annual International Convention, a meeting was held on June 25, 2012 in Montego Bay, Jamaica that brought together a group of nearly 40 credit union CEOs and directors to discuss the economic and non-economic barriers, and encourage frank discussion among the participants regarding practical, affordable

financial mechanisms and innovative ways to overcome the current hurdles that limit investments in RE/EE projects in the Caribbean.



As a follow up to the meeting, a consultation and workshop for Caribbean financiers was held on November 26 and 27, 2012 in St. Lucia. The forum was co-hosted by the European Union funded projects CSEP and the Eastern Caribbean Energy Labelling Project (ECEL), and drew on the support of the CCCU. The workshop was organized and facilitated by Mr. Sean Flannery and Mrs. Christina Becker-Birck of IFOK GmbH and Meister Consultants Group, Inc.

The purpose of the forum was to deepen the attendees' understanding of sustainable energy technology (SET)

options, and develop a way forward for promoting sustainable energy financing in the region. In addition, the consultants were able to present a case study. They also worked in groups to design a sustainable energy loan product for their institutions in order to give financiers the opportunity to express their perception of the barriers to the uptake of SETs, and build bridges for cooperation amongst themselves.

While the workshop was open to a range of financiers, it targeted credit unions because they are the primary lenders to households and have consistently expressed an interest in developing SET products. Overall there was strong representation from credit unions (13 participants), followed by four local commercial banks, as well as a representative from an international commercial bank (The Bank of Nova Scotia), and representatives from the EIB, CREDP-GIZ, and the OECS.

Most participants described their financial institutions (FIs) as having limited or no experience with SET financing. Many participants, however, expressed a desire to learn more about possible SET financing products and marketing tools. In fact, one participant related how his credit union financed approximately US\$26 million in mortgages, but has provided zero financing for SETs. Other participants acknowledged that the

8. The three institutions with experience in SET financing are: Scotia Bank, the Dominica Agricultural and Industrial Development Bank, and the Bank of Saint Lucia.

9. The four institutions that plan to develop and launch a SET financing product are: The FND Enterprise Co-operative Credit Union, Ltd., the Teacher's Co-operative Credit Union in Grenada, the Teacher's Co-operative Credit Union in Saint Lucia, and the University of the West Indies Co-operative Credit Union, Ltd.

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availability of SET financing⁸ needs to increase, but that it is still viewed as “trendy” by many consumers and FIs. Of the participating institutions, only three had experience with SET financing, while most were interested in learning more about SETs in general. Four participating institutions stated that they plan to develop and launch an SET financing product in the near future.⁹

Overall, participant feedback following the workshop revealed satisfaction with the workshop and its agenda. The participants also highlighted suggestions for improvement, including re-convening the workshop in six months with the same participants in order to measure and assess progress made towards increased SET financing. It was also suggested that representatives from the utility sector be included.

It is clear from the feedback that the workshop provided participants with a rare opportunity to network with other financiers and colleagues active in the lending space. The collaborative, knowledge-sharing format of the workshop was appreciated by all participants and allowed the consultants to gather further information and feedback to incorporate into the *Financiers’ Guide to Sustainable Energy Lending in the Caribbean*. Furthermore, the use of real world case studies solidified the participants’ understanding of SETs and SET financing and allowed participants to brainstorm other innovative loan products.

In addition, IFOK consultants also facilitated a wish list brainstorming session with the participants. Key takeaways from this included:

- 1) **Policy:** Participants expressed a desire for mandatory regulation, national coordination of donors, and an increase in environmental taxes on non-EE equipment.
- 2) **Financing:** Participants expressed a desire for additional financing support, in the form of grant funds from development banks, guarantees, and concessional financing or soft loans.
- 3) **Technical Assistance:** Participants expressed a desire for additional technical assistance and support in terms of additional training for loan officers on SETs, assistance with marketing programs and strategy, and financial modeling tools.
- 4) **Marketing:** Participants expressed a desire for marketing assistance with island-wide media and public awareness campaigns that would sensitize the public about SETs. Participants stated that marketing materials such as brochures, workshops, and web-based videos would be useful to provide to members and prospective customers. Participants felt that any educational campaign should be led primarily by the government, but that FIs have a supporting role to play in terms of communicating the SET products they could offer and their associated benefits.
- 5) **Quality Control:** Participants expressed a desire for better quality control and an easier identification process for determining certified, quality, and reasonable cost vendors for SETs. Participants identified that a government entity or independent board could serve as an authority on SETs and certify dealers and provide quality assurance.
- 6) **Web-Based Resources:** Participants expressed a desire for online collaboration and support forums—such as virtual forums, websites, and links to further information and government programs and resources.
- 7) **External Agency Support:** Participants expressed a desire for increased support in terms of public awareness campaigns for SETs from organizations such as OAS and OECS. Participants also expressed interest in getting input from the insurance sector.
- 8) **Cultural Change:** Participants expressed a desire and need for regional cultural changes in order to promote energy conservation and sustainability, starting with younger children.

9) Tools: Participants unanimously requested a financial payback tool, similar to the one highlighted in the Financiers' Guide to Sustainable Energy Lending in the Caribbean. Such an evaluation system would be helpful in the decision-making process that precedes lending.

Based on the information gathered during the workshop, IFOK consultants identified the following activities that can be considered for the future:

- Creating a financial modelling tool that will allow financial institutions to calculate the energy savings, payback periods, and revenue likely to be generated from an SET investment.
- Formulating a financiers' tool kit that includes template loan contracts, lists of reputable vendors, and criteria for evaluating service contracts.
- Developing a centralized, online platform that shares information and resources relevant to FIs on SET investments and financing, including a list of funding windows, grant opportunities, soft loans, and technical assistance FIs can access.
- Continuing support to build consumer awareness regarding SETs through targeted training and communication campaigns. Developing/providing template communication materials for financiers to provide to their customers, or offering train the trainer sessions could help expand consumer awareness of the benefits of investing in SETs.

2.b.2 Hosting Regional Training Workshops for Electric Utility Personnel¹⁰

As part of the capacity building effort, three regional training workshops for electric utilities were planned and conducted.

1. The workshop on regulatory reform in the electricity sector of the Caribbean was held on April 2010 and led by the project partner CARILEC.
2. The Regional Energy Auditing Workshop was held on August 2010 under the "Low-Carbon Communities in the Caribbean" (LCCC) initiative within the framework of the Energy and Climate Partnership of the Americas (ECPA) initiative. The workshop was co-financed by the DOE/NREL and CSEP.
3. The workshop on wind energy systems was held on November 2010 and was led by the project partner CARILEC.

2.b.3 Hosting Regional Renewable Energy and Energy Efficiency Policies Workshop¹¹

The project team carried out, in collaboration with LCCC within the framework of the ECPA initiative the Regional Renewable Energy and Energy Efficiency Workshop at the headquarters of the US DOE's National Renewable Energy Laboratory (NREL) in Golden, Colorado from March 1-2, 2011. Senior ministry representatives and senior utility staff of the participating countries for CSEP and LCCC - Antigua & Barbuda, the Bahamas, Dominica, Grenada, St. Kitts and Nevis, St. Lucia and St. Vincent and the Grenadines - were in attendance at the workshop.

The two-day workshop included expert presentations regarding energy efficiency, transportation and renewable energy alternatives tailored to address Caribbean energy sector challenges and conditions. Participants were given a tour of NREL's facilities so that they could view renewable energy technologies in operation, and hold discussions with key technology, policy and project-financing experts.

10. For more information, please see Second Interim Report: 1-Nov-2009 – 31-Oct-2010.

11. For more information, please see Second Interim Report: 1-Nov-2009 – 31-Oct-2010.

2.b.4 Publication of a Best Practices Manual and Launching a Public Awareness Strategy

Among CSEP regional effort is the provision of training and awareness to change entrenched patterns of energy production (e.g., wind, solar, geothermal, biomass), energy conservation practices, and business-as-usual practices.

Efforts to support the introduction of public education, in particular, constitute a critical component of these activities. Education is and will continue to be essential for helping users make smart energy choices and thus improve the quality and reduce the cost of energy services for countries of the Caribbean region. Looking beyond the classroom and into the economy, emerging market conditions will require a large number of well-trained and motivated government officials, technicians, and engineers in the energy field.

2.b.4.1. Publication of a Best Practices Manual on Energy Efficiency Standards for the Construction Sector

The Energy Efficiency Guidelines for Office Buildings in Tropical Climates published in late April 2013 represent the project team's capacity building efforts towards governments and energy stakeholders in charge of developing EE standards. The publication provides guidance on how to utilize opportunities for and overcome common challenges linked to implementing EE measures and using renewable energy technologies in buildings.

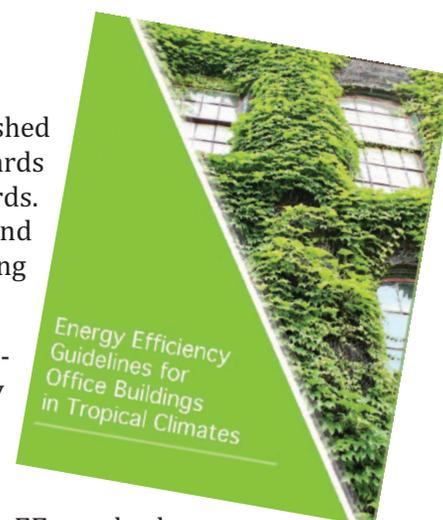
The *Guidelines* was published as a follow-up to a regional workshop called Dialogue on Energy Efficiency Standards and Labelling Schemes held on May 2011, after which the project team's assistance was engaged. In December 2011, CSEP invited international consultants to submit proposals to develop a design guidebook (DGB) that included concrete energy consumption thresholds useful in bringing Caribbean office buildings into compliance with EE standards.

The Spanish-based firm Trama Tecnoambiental (TTA), in partnership with the Tropical Architecture Institute (ITA) in Costa Rica, CREVER-Universitat Rovira i Virgili and other independent consultants, was awarded a contract that become effective on July 30th 2012.

In late 2012, TTA and its partners developed a draft of the report entitled *Energy Efficiency Guidelines for Office Buildings in Tropical Climates*, which was reviewed and validated during the regional workshop held in Saint Lucia on February 28 to March 1, 2013. Beyond explaining the concept of energy efficient building design as a holistic approach, the *Guidelines* also show examples of implemented measures that are suitable for the given climate, and their effects on the building's energy balance.

During the workshop, Mr. Mark Hennecart, a third generation Caribbean architect and advocate for green design and development, indicated that since 2004 in St. Lucia, architects have been challenged to change the way they perceive and shape the constructed environment, and energy-efficient design is now at the forefront. Evidently, he said, the impact of consumption and technology on the environment will have to be regulated through the practice of architecture. In St. Lucia, the time is also fast approaching for the establishment of green assessment schemes aimed at evaluating the environmental impact and energy efficiency of buildings in the design stage.

Mechanisms for conducting energy audits on buildings must now be considered and policymakers will have to ensure that the practice of architecture is fully legislated and that architects, too are green rated. In order to facilitate and encourage such policy, provisions for tax credits for green building and incentives for professionals who interact with the built environment will have to be broadened.



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As social partners, architects will also need to advocate for the government to reinstate the concession that was granted to persons wishing to utilize locally manufactured solar water heating systems as a means of reducing the national debt.

It is expected that the Guidelines will be adopted in the future as an integral part of the Caribbean Building Standards, and may even be able to fast-track the Caribbean Application Documents (CADs) for the International Energy Conservation Code (IECC).

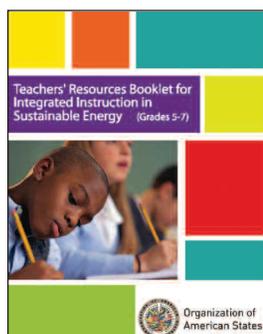
2.b.4.2. Launching a Public Awareness Strategy

The project team advocated, in coordination with the project partners and other relevant agencies, to build human and institutional capacity to support sustainable energy projects and programs among public officials, technicians, businesses, financial institutions, and, most importantly among teachers, students, and the general public in the Caribbean region.

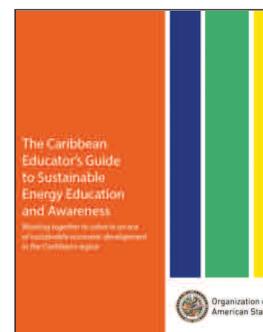
Given that it is widely accepted that the most effective way to communicate innovative public policies is through public outreach and schools, the OAS, through CSEP consultants and partners, including Egis International, designed the Caribbean Energy Education and Awareness Programme (CEEAP). CEEAP is a regional energy program and outreach strategy for the education sector, specifically addressing primary and secondary schools.

CEEAP aims to reinforce the institutional and pedagogic capacities of the ministries of education, specifically targeting science teachers in higher primary schools (grades 5-6) and lower secondary schools (grades 7-9). A set of educational materials were prepared by the program, including a campaign under the title Learn and Save. These materials were designed with the objective of piloting the integration of sustainable energy into the existing science and geography curriculum utilized throughout the Caribbean. The materials include:

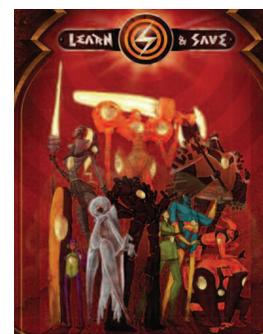
1. *A program guidebook* intended for education ministers, science curriculum officers, and school principals. The guidebook provides an overview of the materials and suggestions as to how they should be used.



2. *The Teacher's Resource Booklet* intended for educators. The booklet provides guidelines for teaching about energy. It includes modules on the energy basics, electricity, sources of renewable and non-renewable energy, energy efficiency, and more.



3. *The student textbook* disseminates knowledge via the story of two energy families living in a fictional world that is akin to a pro-green planet. Several characters, each representing one of the energy sources, are brought to life with appealing illustrations and descriptions, including special powers and adventure stories.



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4. The board game and memo cards intended for students. These are designed to be played in groups of up to five students under the supervision of a teacher. The board game includes a deck of playing cards that contains trivia questions on the topics described in the student textbook. The memo cards includes pairs of matching cards with the image of the characters of the energy sources and some tips related to energy and water conservation.
5. The interactive DVD intended for both teachers and students. The section for teachers replicates the content of the four modules in the Teachers' Resource Booklet. It enhances the booklet's contents by providing links to energy and environmental programs being implemented in other regions of the world. The section for students incorporates the chapters of the student textbook. The DVD complements the textbook by providing interactive tutorials on the history of energy, guided questions and quizzes, an interactive version of the Caribbean map, and a plethora of other stimulating games and activities.



While the Learn and Save campaign directly targets students and teachers, it indirectly support officers within the ministries of education, parents, and other audiences related to the education sector.

Following the development of the pilot materials, the CSEP Program Manager, in collaboration with CARILEC, invited the staff of the ministries of education to two regional sustainable energy workshops with the goal of presenting the tools and soliciting feedback. These included an event for Caribbean educators on September 22-23, 2011 in St. Lucia and another on September 10-14, 2012 in St. Kitts and Nevis.

During the first workshop, the participants, including science curriculum specialists, received an overview on energy and its challenges throughout the region. The participants were then given the opportunity to review and give their recommendations on the educational materials presented. Overall, the attendees expressed enthusiasm for learning more about sustainable energy and confirmed their willingness to support the implementation of the program in their respective countries.

At the second workshop, the target audience comprised not only science curriculum officers but science teachers from each CSEP recipient country as well. All participants were trained to use the CEEAP materials, which were to be piloted in eight schools in 2012-2013. The OAS/DSD later introduced additional hand-on educational resources from the North American organization KidWind, which has been engaging teachers and students to effectively incorporate renewable energy science into their classroom curricula for nearly a decade.

Overall, the workshops helped build the foundation for the achievement of the educational campaign's goal: to make energy more prominent component in the Caribbean's science curriculum. In addition, the OAS/DSD partnered with the Energy Desk of the CARICOM Secretariat to provide assistance for the design of national education and awareness programs in member countries.

The pilot CEEAP materials have since been reviewed by two curriculum development experts in the region, and initial feedback from both workshop participants and experts has been positive.

The Education Senior Education Officer (High School Sciences) from The Bahamas, Mrs. Louise Barry developed a Sustainable Energy unit program in order to use portions of the national curriculum fused with the CEEAP resources, in order to make a smooth transition into the curriculum afterward. This delayed some of the CEEAP lessons being taught in the time frame. The pilot school selected was the H.O. Nash Junior High School, Grade 7 (11-12 years old). The initial reaction was that: (i) the unit was very compact. There were too many objectives assigned for one lesson, but the content given was very useful as well as the activities, (ii) In some cases, students didn't have sufficient time to record notes and work through most of the

activities e.g. reading an electrical meter and explaining how the total on an electricity bill is calculated. Overall, teachers opined that it was a learning experience for both teachers and students. They were delighted to be able to keep the resource books and materials for future use.

On the other hand, the science curriculum officer from St. Lucia, Mr. Motielall Singh reported that the materials are stimulating and easy to use, and that they were introduced into two schools (primary/secondary) where teachers are currently integrating the materials into their lessons. Mr. Singh reported that the task of integration is somewhat challenging because the energy content topics are introduced incrementally via the spiral approach, which means that it will take some time to achieve full integration. A positive from the use of the materials is that the secondary school where the materials were introduced, Leon Hess, came up with a windmill science project for the national school science fair held in March 2013. The project placed second in the competition.

2.b.5 Organization of Energy Awareness Weeks

During the Thirty-Fifth Special Meeting of the Council for Trade and Economic Development (COTED) on Energy held in Georgetown, Guyana on March 22 - 24, 2011, the CARICOM Energy Week was mandated as an annual event. CSEP joined the CARICOM Secretariat to assist seven CARICOM island nations with promoting Energy Week in November 2011.

The Energy Week aims to educate and sensitize nationals and residents in CARICOM Member States on issues relating to the use of renewable energy, energy efficiency and energy conservation.

In Antigua and Barbuda, the Bahamas, Dominica, Grenada, and St. Kitts and Nevis, the Energy Week was held November 7-11. In St. Lucia and St. Vincent and the Grenadines, Energy Week was held November 14-18. Regardless of scheduling, the week of activities was held in each of the seven islands and included energy awareness fairs, school project competitions, seminars, and the release of public announcements that were broadcast on radio and television.

2.b.6 Organization of an RE/EE Study Tour through Europe¹²

The Sustainable Energy Study Tour to Europe took place on September 12-17, 2010. During the tour ministers and country representatives responsible for policy agendas on energy and climate change in the participating countries of CSEP travelled to Vienna and Brussels.

The tour created an opportunity for its participants to establish contact with leading European experts and decision makers. The aim was to facilitate knowledge transfer geared towards supporting the formulation of sound national energy policies and the improvement of the institutional and regulatory frameworks in the energy sector.

2.c. Development of Strong Local Institutions Responsible for the Promotion, Selection, and Management of Sustainable Energy Programs and Projects

Strong local institutions were necessary as part of the project effort so that each participating country could build the institutional capacity to promote, select, and manage sustainable energy development. This involved establishing a regional coordinating unit (RCU) to coordinate the sustainable energy program in the region, establishing national sustainable energy offices in the project country ministries most closely related to energy matters, and training project country staff.

12. For more information, please see *Second Interim Report: 1-Nov-2009 – 31-Oct-2010*.

2.c.1 Establishment of a Regional Coordinating Unit

The OAS/CSEP created the RCU in St. Lucia to support CSEP's regional implementation. The RCU was jointly implemented by the OAS national office in St. Lucia and CARILEC headquarters. Over a period of 28 months, the Unit served as the entry point for requests for information or assistance by partner countries and/or other initiatives.

The RCU created strong ties with official partners such as CARILEC, the CARICOM Secretariat, the OECS Secretariat, and the Caribbean Sustainable Energy Programme financed by GIZ (CREDP/GIZ). As a result there were a number of actions that were jointly implemented, such as consultancies, training sessions, and the conceptualization/development of various of projects.

2.c.2 Identification of Appropriate Locations for the Establishment of National Sustainable Energy Offices, 2.c.3 Preparation of Terms of Reference for National Offices, and 2.c.4 Provision of Assistance in Recruitment of Necessary Staff

CSEP planned to train national staff in three of the seven project countries to support the functioning of the relevant local institutions at their fullest potential.

In the first year, the CSEP/OAS project team and its partner, CARILEC, were involved in training staff via two regional workshops/forums. The workshops addressed the specifics for geothermal development, while the Caribbean Renewable Energy Forum (CREF) covered RE/EE technologies. CARILEC was pivotal during three training sessions directed at utility staff on the use of solar PV technologies, energy auditing and management, regulatory reform, and net Metering versus net billing¹³.

During the second year the CSEP/OAS project team and its partners, CARILEC and the CARICOM Secretariat, were able to train staff via a combination of five regional workshops, forums, and meetings. Presentations on the regional and national energy policy were made at the 5th Annual Meeting for Ministers of Finance and Trade (organized by the Caribbean Association of Industry and Commerce), the Second Caribbean Sustainable Energy Forum, and the multilateral and energy sector partner meeting, the 1st Eastern Caribbean Geothermal Conference, the Energy Efficiency and Access Forum, the 1st Worldwide Energy Efficiency Action Capacity Building and Training Workshop, and CREF. In addition, CARILEC hosted three training sessions directed at utility staff, on the use of energy auditing, utility business models, and wind energy grid connection .

During the third year the CSEP/OAS project team and its partners, CARILEC and the CARICOM Secretariat, were able to train staff via a combination of three regional workshops, forums, and meetings. The importance of broadening the audience by involving energy stakeholders such as officials of the ministries of education and the national bureau bodies was recognized; so the project and its partners arranged a dialogue to establish energy efficiency standards and energy efficiency labels in the region as well as a sustainable energy workshop for Caribbean educators, and continued to lend support to sponsoring the attendance of official representatives at CREF. In addition, CARILEC hosted four training sessions for utility staff on the optimization of power generation and dispatch, waste- to- energy, and energy auditing fundamentals.¹⁴

During the remaining 18 months, the CSEP/OAS project team and its partners, CARILEC, the CARICOM Secretariat, the OECS Secretariat and the CREDP/GIZ, continued a commitment to capacity building among key energy stakeholders. Towards this effort, the support previously provided to support staff of the national bureau of standards and the ministries of education was continued, but redoubled assistance was also extended to relevant stakeholders in the commercial and private sectors, such as financial officers, technicians, engineers, and architects.

13. For more information, please see First Interim Report: 1-Nov-2008 – 31-Oct-2009.

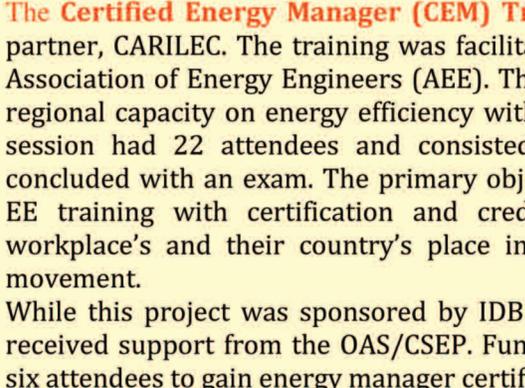
14. For more information, please see Second Interim Report: 1-Nov-2009 – 31-Oct-2010.

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In conclusion, approximately 2 400 energy stakeholders were trained over the life of the project, approximately 19 % of which were women.

Table 2 below presents a brief summary of the training sessions.

Year 4			
1	<p>May 7-8, 2012</p> <p>Bridgetown, Barbados</p>		<p>Small Islands Developing States Achieving Sustainable Energy for All was a conference co-hosted by the Government of Barbados in partnership with the United Nations Development Programme (UNDP) and the Organization of Eastern Caribbean States (OECS), at which OAS/CSEP was a co-sponsor.</p>
2	<p>May 9-11, 2012</p> <p>Bridgetown, Barbados</p>		<p>The 2012 Sustainable Applications of Tropical Island States (SATIS) Renewable Energy Training Workshop was organized by the Caribbean Solar Energy Society (CSES), with OAS/CSEP as a co-sponsor. The workshop hosted technicians with the goals of reviewing the means of efficiently utilizing traditional energy sources, and discussing the practical implications of using PV and solar thermal technologies to increase energy efficiency.</p>

3	<p>May 22-24, 2012</p> <p>Basseterre, Saint Kitts and Nevis</p>		<p>The 22nd Meeting of the OECS Ministers of Education was held in Basseterre, Saint Kitts on the theme OECS Education: Contributing to a Deeper, Stronger Economic Union. The meeting provided an opportunity for policy-makers to engage in constructive dialogue on substantive issues regarding education development in the OECS member states, agree on policies and strategies to advance OECS education, secure the support and collaboration of regional agencies and development partners in advancing the education development agenda and share innovative ideas and experiences that have contributed to educational development at the national level. During the meeting the CSEP manager presented CEEAP, CSEP's energy education initiative. The Ministers endorsed the pilot phase of the program as an opportunity to identify breaches and make necessary adjustments before broader implementation throughout the Caribbean.</p>
4	<p>May 22-25, 2012</p> <p>Rodney Bay, Saint Lucia</p>		<p>The Certified Energy Manager (CEM) Training session was organized by CSEP's partner, CARILEC. The training was facilitated by accredited training institution the Association of Energy Engineers (AEE). The aim of the training session was to build regional capacity on energy efficiency within utilities and in the private sector. The session had 22 attendees and consisted of a preparatory seminar, which was concluded with an exam. The primary objective was to ensure that participants left EE training with certification and credentials that would contribute to their workplace's and their country's place in the energy efficiency and conservation movement. While this project was sponsored by IDB through its RE/EE programme, CARILEC received support from the OAS/CSEP. Funding from OAS/CSEP made it possible for six attendees to gain energy manager certification.</p>
5	<p>Sep. 10 -14, 2012</p> <p>Basseterre, Saint Kitts and Nevis</p>		<p>The regional sustainable energy workshops for energy and education stakeholders in the Caribbean were co-hosted by OAS/CSEP and the Energy Department of the Caribbean Community Secretariat through EU-funded initiative the Caribbean Renewable Energy Capacity Support (CRECS), in collaboration with CARILEC. The first workshop, from September 10-11, focused on building capacity for the design and implementation of sustainable energy and energy conservation awareness programs. The second workshop on September 12 was attended by government officials from ministries of education, ministries of energy and climate change, and science teachers. They reviewed the CEEAP materials and the <i>Learn and Save campaign</i>, and explored avenues for its expansion as a follow-up to CSEP. On September 13 and 14, the Teacher's Sustainable Energy Workshop was held. The session was attended by government officials from the ministries of education, and science teachers. This session consisted of lectures, and hands-on exercises concerning renewable energy sources, energy efficiency, and energy conservation. In addition, a package of educational materials and toolkits was handed over to the six OECS countries and the Bahamas.</p>

<p>6 Sep. 13-14, 2012</p> <p>Basseterre, Saint Kitts and Nevis</p>	 <p>The Third Caribbean Sustainable Energy Forum (CSEF III) was hosted by CSEP's partner, the CARICOM Secretariat, in collaboration with the governments of St. Kitts and Nevis, Finland, Germany, and the United Kingdom, as well as the European Union. The forum was held under the theme "Advancing Energy Integration and Energy Access through Renewable Energy and Energy Efficiency in CARICOM".</p> <p>CSEF III had a developmental focus, but it also sought to identify critical renewable energy and energy efficiency projects, and consider financial support for their implementation. To this end, the Forum intended to collect input from a cross-section of regional energy sector stakeholders as it pertains to identifying support for member states as they attempt to advance in priority areas, within the context of the energy integration theme. CSEF III also aimed to position the regional energy sector to capitalize on opportunities on global level platforms such as the Rio+20 Outcomes, SE4ALL, SIDS Dock, and the green economy movement. Given the forum's intent, significant emphasis was placed on encouraging broad participation and dialoguing.</p>
<p>7 Oct. 15-17, 2012</p> <p>Puerto Rico</p>	 <p>The CSEP 2012 Project Review Workshop was a meeting of all the beneficiary states to discuss progress made over the four years of CSEP. The workshop facilitated a dialogue to encourage collaboration with other multilateral and bilateral development organizations.</p> <p>The workshop served as a preamble coordination effort during the Fourth Roundtable in support of the Energy and Climate Partnership of the Americas (ECPA) Caribbean and Connecting the Americas 2022 Initiatives, which aimed to advance discussions among Caribbean energy public sector leaders, multilateral development organizations, and bilateral donors regarding efforts to explore the potential for inter-island power connections in the Caribbean region.</p> <p>The Caribbean Renewable Energy Forum (CREF) gathered over 400 delegates from 40 countries from governments, utilities, development banks, NGOs, academia and civil society participated. The conference continues to grow rapidly, as does the opportunity for renewable energy development in the Caribbean. CREF 2012 gave the speakers the option to present up to two slides with the understanding that they should be used within the context of the panel discussion as a whole.</p>

8

February 28 to
March 1, 2013.

Rodney
Bay, Saint
Lucia



The OECS under its initiative Sustainable Energy Technical Assistance (SETA) held a regional workshop for developing a sustainable strategic framework targeting energy desks stakeholders. To take advantage of this forum, the OAS decided to host the **Regional**

Workshop on Energy Efficiency Designs for Office and Public Buildings in Tropical Climates. The workshop was co-hosted by two OAS initiatives, the CSEP and the ECPA, as well as Spanish consulting firm Trama TechnoAmbiental (TTA). The workshop was attended by government officials from energy desks, officers in charge of developing energy standards, architects, and engineers. The forum was a space for the discussion of opportunities and challenges linked to energy efficiency measures and renewable energy conversion technologies in buildings. A roundtable was held to debate future challenges, gaps, and barriers linked to the implementation of energy efficiency standards; ways to advance discussions on this topic with policymakers; and next steps for their successful deployment. The attendees also highlighted the need to create greater public awareness in the Caribbean with regard to energy efficiency.

The participants expressed an interest in reviewing the draft energy efficiency guidelines for office buildings in tropical climates (prepared by TTA) in order to ensure they respond to Caribbean needs and challenges, and provided feedback to that effect.

2.d. Mitigation of Technical Risks and Uncertainties within Sustainable Energy Project Development

The project aimed to mitigate risk and uncertainty across its component categories in order to protect the project goals from suffering potential detriments. The longevity of the positive project outcomes was safeguarded via efforts to identify and promote new projects and secure financing not only for them but for general investment in sustainability.

2.d.1 Execution of Project Identification Missions

The project executed project identification missions in each of the seven project countries to identify opportunities for project investments. The project team identified new sustainable energy project opportunities by monitoring and supporting efforts in the areas of project identification, project preparation, resource assessment, energy auditing, and energy efficiency program development. The team, in coordination with national and regional partners, identified more than one commercial renewable energy development opportunity in each project country, to a total of 31 projects. The team did so via collaborative work with an array of stakeholders, including local electric utility representatives, private power developers, regional agencies, and technology consultants. A description of the mission has been provided through the interim annual progress report.

2.d.2 Execution of Renewable Natural Resource Assessments and Pre-Feasibility Studies

The project planned to conduct renewable natural resource assessments and pre-feasibility studies in three of the seven countries. The project team executed this action through the assistance of partners operating in the region. Table 3 below details the assessments and studies conducted.

Table 3. Summary of Resource Assessment and Pre-Feasibility Studies, by Country

Country	Initiative	Action
Antigua and Barbuda	Caribbean Renewable Energy Programme (CREDP)	Wind measurements in Crabbs Peninsula, McNish Mt, Freetown and Barbuda
Dominica	OAS /ECPA Caribbean	Technical assistance for small wind, including assessment of the viability of smaller and distributed wind turbine technologies under 250 kilowatts
	Interreg III B	Geothermal Energy Development Program – Resource Assessment
St. Vincent and the Grenadines	OAS/ECPA Caribbean	Study on geothermal exploration history and resource potential
	Caribbean Renewable Energy Programme (CREDP)	Installation of a stream flow gauging station at the Wallibou River
		Hydro plant expansion at Cumberland

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2.d.3 Performance of Energy Audits

The project planned to conduct energy audits in three of the seven project countries. The CSEP program manager informed the seven CSEP focal points about available funds to conduct energy audits, purchase audit tools, and finance retrofits to implement cost-effective energy saving measures in audited buildings.

After individual discussions, it was decided that two-building audits would be conducted in Antigua and Barbuda, Dominica, Grenada, and St. Kitts and Nevis, and that the hand-over of energy audit equipment would precede these. It was projected that in St. Lucia and St. Vincent and the Grenadines, energy efficiency measures identified during energy audits would be implemented in government buildings.

The OAS and its partners conducted energy audits in the six aforementioned countries as detailed in Table 4 below.

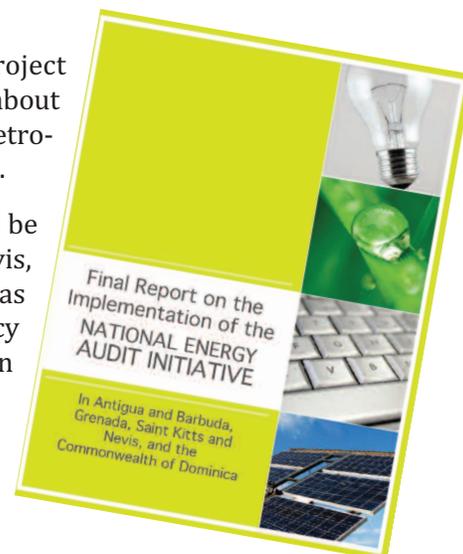


Table 4. Summary of Energy Audits by Country

Country	Initiative	Location
Antigua and Barbuda	CSEP and ECPA Caribbean	Government buildings (Ministry of Agriculture and Free Trade Zone)
	Increasing Sustainable Energy Awareness in the Public Sector (I-SEAPS)*	Government buildings (Antigua State College, Grays Farm Health Centre, House of Parliament, and the Ministries of Education and Tourism)
Dominica	CSEP and LCCCC	Government buildings (Government Headquarters and Financial Centre)
Grenada	CSEP and LCCCC	Government buildings (Ministry of Education and Bureau of Standards)
	Increasing Sustainable Energy Awareness in the Public Sector (I-SEAPS)*	Government buildings (The Passport Office and Resource Centre (library) in Tanteen)
St. Lucia	CSEP and LCCCC	Government, and commercial buildings (Ministry of Public of Infrastructure, Port Services and Transport building, Coco Palm Hotel and Supermarket MegaG)
Saint Kitts and Nevis	CSEP and LCCCC	Government, residential and commercial buildings (Administration Building Complex, Alexandra Hospital, household of Mrs. Willet, and Island Auto Suppliers)
Saint Vincent and the Grenadines	Energy Efficiency Study of Government Buildings- SFA 2006**	75 government buildings

*Led by CARICOM Secretariat **Led by the Government of Saint Vincent and the Grenadines

Activity 2.d.4 Project Monitoring and Evaluation

The firm Ernst & Young LLP was contracted to conduct the project revision and expenditure verification during the 54-month execution period. Four evaluations were conducted.

2.e. Improvement of Access to Financing for Sustainable Energy Project Preparation and Development

As a result of the market transformation activities performed by this project and others, conditions for investment in sustainable energy solutions in the project countries are rapidly improving. This is evidenced in part by the advancement of existing sustainable energy projects in the region, as well as the launching of new ones and new development of sustainable energy projects throughout the region. In addition, investment in RE and EE has increased; in some cases CSEP itself was able to finance projects jointly with other initiatives and agencies.

2.e.1 Assessment of Availability of Regional Project Preparation Financing

The existence of established policies and regulations, and the fact that new regulations are under development could create opportunities for FIs to craft programs around specific policies. At the same time, these new sustainable energy policies will require staff from FIs to build internal knowledge and capacity about how their customers can take advantage of these opportunities. Analysis as to whether a given regulatory environment is sufficient to support the development of new financial products will need to be made on a bank-by-bank and country-by-country basis. Policymakers can accelerate SET investments by addressing the legal barriers to lending. They can, for example, provide government-supported grants and other incentive programs, ensure interconnection and net metering, and provide FIs with a clear overview of the legal environment in their home countries.¹⁵

Figure 1 below includes a summary of the policies and incentive programs that have been implemented by policymakers in the project countries to create a hospitable environment for investment in SETs.

15. IFOK Analysis

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Figure 1. Policies and Incentives in Target Countries¹⁵

		Antigua & Barbuda	The Bahamas	Dominica	Grenada	St. Kitts & Nevis	St. Lucia	St. Vincent & the Grenadines
Targets & Institutions	RE Targets	●	●	●	●	●	●	●
	EE Targets	●	●	●	●	●	●	●
	National Sustainable Energy Policy	●	●	●	●	●	●	●
	Energy Unit	●	●	●	●	●	●	●
Financial	Capital Subsidies, Grants, Rebates	●	●	●	●	●	●	●
	Tax Reductions (VAT, Sales, Excise, Energy)	●	●	●	●	●	●	●
Regulations	IPPs Eligible for Interconnection	●	●	●	●	●	●	●
	Net Metering & Net Billing	●	●	●	●	●	●	●
	Feed-In Tariff	●	●	●	●	●	●	●
	Energy Code	●	●	●	●	●	●	●
	EE Appliance Standards	●	●	●	●	●	●	●

● = The policy structure exists
 ● = The policy structure is being drafted or requires negotiations for implementation
 ● = Existing government documentation cites the policy as an option
 ● = The policy structure does not exist

2.e.2 Assessment of the Availability of Regional Project Development Financing

There are various inherent characteristics of renewable energy projects that make it challenging to securing financing. For renewables, the bulk of a project’s cost is represented by the initial capital cost, which is incurred well before the project is executed. The cost of renewable energy is in the technology effort exerted at the outset of a project. Because of this, all renewables share front-end-loaded cost profiles. Consequently, the majority of new generation facilities are funded through project financing, whereby the principal and interest (and profit) are paid from the proceeds of the project.

Regardless of the financial challenges, the region is making efforts to tap its indigenous energy resources (e.g., biomass, hydro, solar, wind, geothermal) for power generation, heating, cooling, and transportation. In fact, there are several projects already in the pipeline that could have dramatic impacts on the region’s energy mix and economic development. These are identified in Table 5, which appears after section 2.e.3.

When it comes to the development of geothermal resources in particular, the financial challenge is high and is mainly due to the upfront costs for drilling exploration. Since the great potential for geothermal energy in the Eastern Caribbean is well known to have the potential to transform the energy landscape and the economy, it is extremely important to overcome barriers to its further development.

Steps have been taken towards this goal.

16. Sources: REEEGLE, 2012; IFOK Analysis, 2012

The CARICOM Secretariat, in accordance with its coordinating mandate and through its energy program sought to begin the process of exploring, in conversation with key stakeholders, the establishment of a geothermal drilling risk fund in the context of the recommendations of the Geo-Caraïbes Project 2005. The CARICOM Secretariat has included the establishment of the Geothermal Drilling Risk Fund as one of its projects under the Caribbean Sustainable Energy Roadmap and Strategy (C-SERMS) Phase II.

Furthermore, the Caribbean Development Bank (CDB) has established a pilot energy efficiency revolving fund, which will be complemented with technical assistance and energy audits from the Caribbean Technological Consultancy Services network (CTCS). This is to assist applicants in meeting the requirement stating that in order to be eligible for financing, an energy audit that identified the EE measures to be implemented must have been performed. The pilot was initiated through a regional workshop on the development of standardized energy audit protocols (SEAPs) for micro-sized, small, and medium enterprises in November 2012. CDB does not have any special facility or revolving fund for the public sector, but governments can apply at any time for loan assistance for RE and EE projects. These will be considered in a similar way as other types of projects and will attract the public sector terms which currently bear an interest rate of 3.83%. For comparison, the private sector rate is currently 5.83%.

Incidentally, the European Investment Bank (EIB) established a facility for climate mitigation and adaptation projects entitled Climate Action Line of Credit (CALC), which is explicitly available to the public sector. Under this line of credit, the potential project is appraised as normal and is offered the benefit of CDB's terms. The facility can finance investments in (a) the rehabilitation of existing buildings, aimed at increasing energy efficiency (e.g. insulation, boiler replacement, rehabilitation of heat transmission and energy management systems); and (b) new buildings that will achieve an energy efficiency standard close to the maximum considered in national legislation.

Additionally, EIB extended a line of credit valued at US\$10 million to the Agricultural Industrial and Development Bank (AID Bank) in Dominica. US\$1.3 million is dedicated to RE and EE project financing. The line of credit provides subsidized interest rates¹⁷, enabling the AID Bank to provide lower interest rates than it would otherwise offer. Similarly, the EIB has opened a line of credit of up to US\$8 million for the Development Bank of Saint Kitts and Nevis, enabling the bank to offer a line of credit to support small- and medium-sized enterprises wishing to install RE and/or EE technology.¹⁸

2.e.3 Assessment of Availability of Regional Energy Efficiency Project Financing and

2.e.5 Linking Projects to Financing Resources

Based on the project Action Plan, CSEP should facilitate commercial investments in sustainable energy and facilitate the preparation of pre-feasibility financing applications for at least five new projects. This result was realized through the provision of a financing manual (detailed in 2.e.4) combined with the collective ad hoc results of the technical, financial, and capacity building services provided by the overall project. The overall result of the outputs delivered under this task was planned to be a commitment and/or leverage of at least € 15 million in investment in renewable energy and energy efficiency projects and enterprises.

Table 5 below lists the investments executed in CSEP participating countries, but also includes regional investments. The renewable energy and energy efficiency projects committed and leveraged exceed € 73 million in investments. They were implemented by OAS, national governments, and regional and international agencies, as follows:

17. European Investment Bank, 2012

18. European Investment Bank, 2010

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— Executed by the Organization of American States

Three initiatives under the Energy and Climate Partnership of the Americas funded by the U.S. State Department: (i) Low-Carbon Communities in the Caribbean co-funded by OAS/CSEP and United Nations Industrial Development Organization (UNIDO), (ii) ECPA Caribbean Initiative and (iii) ECPA Energy Efficiency Working Group.

— Executed by German Agency for International Cooperation (GIZ)

- Caribbean Renewable Energy Development Programme (CREDP) - co-executed with the CARICOM Secretariat Phase II. Funded by the Government of Germany
- Eastern Caribbean Energy Labelling Project (ECELPE) - co-executed with the OECS Secretariat. Funded by the European Union.
- Executed by CARICOM Secretariat:
- Increasing Sustainable Energy Awareness in the Public Sector (I-SEAPS). Funded by Government of Germany

— Executed by the Inter-American Development Bank

(1) Caribbean Hotel Energy Efficiency and Renewable Energy Action (CHENACT)
Funded by IDB-SECCI, CTO, CAST/CHTA, BMZ/GTZ, UNEP

— Executed by the Caribbean Community Climate Change Center (CCCCC) Secretariat

SIDS DOCK. Funded by Government of Denmark and Government of Japan

Table 5: Status Energy Investments in CSEP participating countries

Country	Initiative	RE/EE Investments projects	Funds committed / leveraged
Antigua and Barbuda	ECPA Caribbean Initiative and CSEP	Hybrid solar-diesel off grid system at the Shirley Heights Lookout	€ 59,203
	Caribbean Renewable Energy Programme (CREDP)	Grid connected PV system at the Ministry of Education and Tourism	€ 68,730
Bahamas	Technical Cooperations in the Bahamas (a) Strengthening the energy sector, (b) Promoting Sustainable Energy	EE pilot/Demostration Project: Provision and distribution of CFLs to low income households	€ 378,931
		EE pilot/Demostration Project: Supply and installation of PV cells	€ 378,931
		EE pilot/Demostration Project: Supply and installation of solar water heaters	€ 378,931

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Dominica	Government Initiative	Installation of solar photovoltaic system on selected Government buildings	€	5,000,000
		Development and promotion of solar hot water initiative nationally	€	2,000,000
	Geothermal Energy Resource Development	Exploratory well drilling for Geothermal Energy Resource Development	€	12,500,000
		Production and Re-injection well drilling	€	10,000,000
	SIDS DOCK	Technical assistance for the development of geothermal in Woven Haven, Dominica	€	194,856
	European Investment Bank	Line of credit to the Dominica Agricultural Industrial & Development Bank (AID)	€	986,716
	Energy Conservation and Efficiency Street Lighting	Installation of Solar Street lights	€	38,971
		Installation of 50 LED street lights along major highway	€	155,885
		Installation of Solar Street lights island wide	€	935,308
Grenada	Government Initiative	1 MW Wind farm at Carriacou	€	5,000,000
Saint Kitts and Nevis	Government Initiative	1.1 MW Wind farm at Maddens, Nevis	€	10,000,000
	GeoCaribes	Geothermal Development in Nevis	€	5,000,000
	Government Initiative	Solar PV Systems at Government Headquarters in Basseterre, St Kitts	€	90,361
	European Investment Bank	Line of credit to the Development Bank of Saint Kitts and Nevis (DBSKN)	€	5,986,680
Saint Lucia	CSEP and LCCCC	Retrofits of LED Lights at the Ministry of Infrastructure, Port Services and Transport building	€	9,356
	Pilot LED Street Lighting Project	48 LED street lights replaced at John Compton Highway and Jeremie Street	€	10,819
	Government Initiative	Solar PV system at St Mary's college	€	20,686
	Caribbean Renewable Energy Programme (CREDP)	Solar PV system at the National Trust building, Pigeon Island	€	82,349

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		Solar PV system at the Castries Craft Market	€	57,921
		Solar PV system at the Vieux Fort Secondary School, Campus B	€	57,921
Saint Vincent and the Grenadines	ECPA Caribbean Initiative and CSEP	Hybrid solar-diesel grid-tied system at the Administrative Building in Kingstown	€	42,348
	CSEP and LCCCC	Retrofits with LED light bulbs at the National Archives and St. Vincent Coast Guard buildings	€	10,496
	Caribbean Renewable Energy Programme (CREDP)	Development of Wind farm at Ribishi Point site	€	7,618,413
		Hydro plant expansion at Cumberland	€	3,809,805
	Energy Efficiency Study of Government Buildings- SFA 2006	Retrofit of 8 Government Buildings	€	470,623
Regional	Eastern Caribbean Energy Labeling Project (ECEL P)	Provision of laboratory equipment for quality and energy efficiency tests of selected appliances in the Bureaux of Standards of Antigua and Barbuda, Dominica, Grenada, St. Kitts and Nevis, St. Lucia and St. Vincent and the Grenadines	€	150,000
	SIDS DOCK	Caribbean EE Revolving Fund (CEERF) project	€	2,000,000
				€ 73,494,239

2.e.4 Preparation and Publication of Sustainable Energy Finance Guide for the Caribbean

To date sustainable energy financing guides have focused primarily on medium- and large-scale commercial markets rather than on households and small businesses¹⁹. As an outcome of the dialogues conducted with members of the CCCU and Caribbean FIs, the project team, through the technical services of the consulting firm IFOK GmbH, addressed this knowledge gap by preparing a guide to consumer and small business sustainable energy investment.

Financiers' Guide to Sustainable Energy Lending in the Caribbean was published in early 2013 and aimed to serve as a primer for FIs interested in providing capital for sustainable energy projects. It provides policymakers, and other key participants in the market, with an overview of current market barriers to SETs in the Caribbean. It is expected that local FIs, after reading the guide, will better understand the market and policy environment for sustainable energy in the Caribbean.

19. NEXANT, 2010 and World Bank, 2011



Additionally, the guide aims to assist financiers in the development of sustainable energy lending products, and prepare them to explain the benefits of SET investments to their customers. It gives insights on the barriers to investing in SETs and showcases how other FIs structure their lending. The approaches outlined are relevant to lending to both small and micro businesses, since many of these seek loans with similar characteristics to consumers.

The guide was developed through consultations with regional financial, policy, and industry stakeholders and addresses topics that were identified as high priorities. It is directly applicable to seven Caribbean countries: Antigua and Barbuda, The Bahamas, Dominica, Grenada, St. Kitts and Nevis, St. Lucia, and St. Vincent and the Grenadines, however it can also be useful for other countries.

2.2. List of contracts above 5000€ awarded for the implementation of the action **The OAS hired the following consultants during the reporting period:**

- 1) USD 7,000 equivalent to 5,225€. Mrs Karen Dalton citizen from Saint Lucia. The independent consultant was contracted through a competitive selection among three candidates. The aim of the assignment was to review and prepare a final draft of the geothermal resource development bill for Saint Lucia.
- 2) USD 25,000 equivalent to 19,299€. IFOK GmbH from Germany. The firm was contracted through a competitive selection among four candidates. The assignment aimed to improve the financial conditions for renewable energy and energy efficiency opportunities and diminish the economic barriers that impede and/or delay the implementation of RE/EE programs in the Caribbean. The assignment included the preparation of the publication Financiers' Guide to Sustainable Energy Lending in the Caribbean
- 3) USD 28,900 equivalent to 21,574€. Mrs. Judy Daniel citizen from Trinidad and Tobago. The independent consultant was contracted through a competitive selection among four candidates. The aim of the assignment was to prepare a report of the legal and regulatory situation for geothermal resource development and the drafting of the geothermal resource development bill for Saint Vincent and the Grenadines.
- 4) USD 35,000 equivalent to 27,019€. IT Power Consulting – Energy Division from United Kingdom. The firm was contracted through a competitive selection among three candidates. The assignment aimed to strengthening the framework of the energy sector in Antigua and Barbuda through providing recommendations for the improvement of the National Energy Policy and preparation of a Sustainable Energy Action Plan (SEAP).
- 5) USD 37,500 equivalent to 27,994€. The independent consultant was contracted through a competitive selection among five candidates. Mr. Basil Sutherland citizen from Saint Lucia. The assignment aimed to finalize the National Energy Policy and review/update the Sustainable Energy Plan for the Commonwealth of Dominica.
- 6) USD 41,130 equivalent to 31,751€. Trama Tecnoambiental from Spain. The firm was contracted through a competitive selection among four candidates. The assignment aimed to develop a Design Guidebook (DGB) for office buildings in tropical climates which will (a) assist on decision making for building designers, and (b) serve as the baseline to reach a comprehensive design manual for office buildings in tropical climates that consider energy efficiency measures and include the incorporation of renewable energy conversion technologies in the design to minimize energy consumption and building lifecycle cost.
- 7) USD 49,000 equivalent to 37,826€. Wilkinson from Saint Lucia. The firm was contracted through a competitive selection among three candidates. The assignment aimed to implement the National Energy Audit Initiative (NEAI) in Antigua and Barbuda, Dominica, Grenada, Saint Kitts and Nevis.

2.3 Updated action plan²⁰

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²⁰. This plan will cover the financial period since the inception report to the Final report.

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Table 5. CSEP Action Plan – Achievement of Results

Activities			Implementing Body
Activity	Indicator	Output	
Phase 1 : Develop National Sustainable Energy Policies / Sustainable Energy Plans (NEP/SEPs)			
1.1 Organize Government stakeholder meetings	3 of the 7 Project countries	7 of the 7 Project Countries Year 1: - Dominica : Mar 2009 , Grenada : May 2009, Saint Kitts and Nevis and Saint Vincent and the Grenadines : Jul 2009 Year 2: - Saint Lucia : Nov 2009, Antigua and Barbuda : Mar 2010 and Bahamas : Oct 2010	OAS
1.2 Select a national focal point	3 of the 7 Project countries	7 of the 7 Project Countries	OAS
1.3 Organize multi-sector stakeholder consultations	6 of the 7 Project countries	6 of the 7 Project Countries Year 1: - Dominica : Mar 2009, Grenada and Saint Vincent and the Grenadines : Jul 2009 Year 2: - Antigua and Barbuda and Saint Kitts and Nevis : Mar 2010 and Bahamas : Oct 2010	OAS
1.4 Prepare draft NEP/SEPs	3 of 7 Project countries	7 of the 7 Project Countries Year 1: - Bahamas - Saint Vincent and the Grenadines : Nov 2008, Saint Lucia : Feb 2009, Dominica : Aug 2009, and Antigua and Barbuda - Saint Kitts and Nevis : Oct 2009 Year 2: - Grenada : Nov 2009	OAS
1.5 Review 1st draft of NEP/SEP with stakeholders	3 of 7 Project countries	6 of the 7 Project Countries Year 1: - Saint Vincent and the Grenadines : Jul 2009 Year 2: - Dominica : Nov 2009, Saint Lucia : Dec 2009, Antigua and Barbuda : Feb 2010, Grenada : Mar 2010, Saint Kitts and Nevis : Apr 2010	OAS
1.6 Present final NEP/SEP at multi-stakeholder workshops	6 of the 7 Project countries	6 of the 7 Project Countries Year 1: - Saint Vincent and the Grenadines : Jul 2009 Year 2: - Saint Lucia : Jan 2010 Grenada : Aug 2010 and Bahamas : Oct 2010 Year 3: - Antigua and Barbuda : Feb 2011, and Saint Kitts and Nevis : Apr 2011 Year 4: - Dominica : Feb 2012	OAS
1.7 Secure adoption of NEP/SEP by ministerial cabinets	At least 5 of the 7 Project countries	5 of the 7 Project countries Year 1: - Saint Vincent and the Grenadines (National Energy Policy) : Feb 2009 Year 2: - Saint Vincent and the Grenadines (Energy Action Plan) : Apr 2010, Saint Lucia : Jun 2010 Year 3: - Grenada : Mar 2011, Antigua and Barbuda : Oct 2011 Year 4: - Saint Kitts and Nevis : Nov 2011	OAS
Phase 2 : Implementation of Action under NEP/SEPs			
2.a. Adoption of Sustainable Energy Policy and Regulatory Reforms			
2.a.1 Review existing energy policies	4 of the 7 Project countries	5 of the 7 Project Countries Year 2: - Grenada, Saint Kitts and Nevis, Saint Vincent and the Grenadines, Bahamas (InterAmerican Development Bank) and Saint Lucia (European Union): Jul-Oct 2010	OAS IDB
2.a.2 Assess alternatives for energy policy reforms	4 of the 7 Project countries	7 of the 7 Project countries - Publication: The Energy Policy and Sector Analysis in the Caribbean (2010-2011)	OAS

Activities			Implementing Body
Activity	Indicator	Output	
Phase 2 : Implementation of Action under NEP/SEPs			
2.a. Adoption of Sustainable Energy Policy and Regulatory Reforms			
2.a.3 Draft energy policies/legislation	4 of the 7 Project countries	5 of the 7 Project Countries Year 1: - Nevis: Nevis Geothermal Ordinance, Power Purchase Agreement WindWatt Year 3: - Dominica: Geothermal Resource Development Bill, Environmental & Planning Regulation for RE (WB via Castalia) Year 4: - Grenada, Saint Lucia, and Saint Vincent and the Grenadines: Geothermal Resource Development Bill	OAS
2.a.4 Organize energy sector stakeholder consultations to review draft policies/legislation	3 of the 7 Project countries	4 of the 7 Project countries Year 4: - Saint Lucia: Geothermal Resource Development Bill October 25, 2011 - Saint Vincent and the Grenadines: Geothermal Resource Development Bill on Dec 2011 and Feb 2012 - Grenada: Geothermal Term Sheet meeting held on July 24-27, 2012 - Antigua and Barbuda: National Energy Action Plan on Feb 2013	OAS
2.a.5. Present policies/legislation to government	3 of 7 Project countries	4 of the 7 Project countries Year 1: Nevis: Power Purchase Agreement with WindWatt Year 4: - Grenada, Saint Lucia, Saint Vincent and the Grenadines: Geothermal Resource Development Bill - Antigua and Barbuda: National Energy Action Plan	OAS
2.a.6 Provide Policy/Technical Assistance to government in considering adoption of policies/legislation	4 of 7 Project countries	4 of 7 countries Year 4: - Grenada, Saint Lucia, Saint Vincent and the Grenadines: Geothermal Resource Bill - Antigua and Barbuda: National Energy Action Plan	OAS
2.b. Improve capacity of energy sector stakeholders and public awareness in areas of sustainable energy deployment, development and use			
2.b.1 Organize a Regional Sustainable Energy Financing Seminar	One Regional Sustainable Energy Financing Seminar	Year 4: - Saint Lucia: Consultation and workshop for financiers <i>Financing Sustainable Energy in the Caribbean</i>	co-hosted by OAS, CREDP/GIZ and CCU
2.b.2 Organize three Regional Training Workshops	Three Regional Training Workshops	Year 2: - Saint Lucia: Workshop on Regulatory Reform in the Electricity Sector of the Caribbean - Saint Lucia: Regional Energy Auditing Workshop Year 3: - Saint Vincent and the Grenadines: Workshop on Wind Energy Systems	CARILEC
2.b.3 Organize a Regional Renewable Energy and Energy Efficiency Policies Workshop	One Renewable Energy and Energy Efficiency Workshop	Year 3: - United States: Renewable Energy and Energy Efficiency Workshop on Mar 2011	CARICOM/ CREDP and CARILEC
2.b.4 - Drafting and Development of an electric utility manager sustainable energy curriculum and a sustainable energy development/best practices manual	- Electric utility manager sustainable energy curriculum - Sustainable energy Development/best practices manual	Year 3: - Publication: The Energy Policy and Sector Analysis in the Caribbean (2010-2011) Year 4: - Guideline: Caribbean Energy Education and Awareness Programme (CEEAP) - Guideline: Energy Efficiency Guidelines for Office Buildings in Tropical Climates completed on April 2013	OAS/ECPA/NREL CSEP CARILEC
2.b.5 Organize 5 Energy Awareness Weeks	5 of the 7 project countries	7 of the 7 project countries Year 4: - Antigua and Barbuda, Bahamas, Dominica, Grenada, Saint Kitts and Nevis, Saint Lucia, Saint Vincent and the Grenadines during the 2011 CARICOM Energy Week	RCU and OAS
2.b.6 Organize a RE/EE Study Tour through Europe	RE/EE Study Tour through Europe	Year 3: - Vienna and Brussels: Sustainable Energy Tour on September 2010	OAS and REEEP
2.c. Develop strong local institutions responsible for the promotion, selection, and management of sustainable energy programs and projects			
2.c.2 Identify appropriate location and establish national sustainable energy offices	3 of 7 Project countries	5 of the 7 of the seven countries Year 1: - Saint Vincent and the Grenadines: Mar 2009, Dominica: Oct 2009 Year 2: - Antigua and Barbuda: Dec 2010 Year 3: - Saint Kitts and Nevis: Feb 2011, Grenada: Oct 2011	OAS

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Activities			Implementing Body
Activity	Indicator	Output	
Phase 2 : Implementation of Action under NEP/SEPs			
2.c. Develop strong local institutions responsible for the promotion, selection, and management of sustainable energy programs and projects			
2.c.3 Prepare terms of reference for national offices	3 of 7 Project countries	<p>3 of the 7 countries</p> <p>Year 1: - Dominica, Grenada, Saint Vincent and the Grenadines</p>	OAS
2.c.4 Assist in identification/recruitment of necessary staff	3 of 7 Project countries	<p>4 of the 7 Project countries</p> <p>Year 1: - Dominica, Grenada, Saint Vincent and the Grenadines Year 3: - Saint Kitts and Nevis</p>	CARILEC
2.c.5 Train national staff	3 of 7 Project countries	<p>7 of the 7 Project Countries</p> <p>Year 1: - CARILEC's annual CEOs Conference and Engineering Conference - Eastern Caribbean Geothermal Conference - CSEP Project Review, First Caribbean Sustainable Energy Roundtable and Caribbean Renewable Energy Forum (CREF)</p> <p>Year 2: - Training session on the use of Solar Photovoltaic Technologies - Annual Meeting of the Caribbean Association of Industry and Commerce - Training workshop on Energy Auditing and Management - Caribbean Environmental Forum - sustainable energy Forum and 1st Coordinating meeting of multi-lateral and energy sector partner - Training to the Project Management Unit in Dominica - Energy Efficiency & Access Forum and EE Action Capacity Building & Training Workshop - CSEP Project Review, Second Caribbean Sustainable Energy Roundtable and Caribbean Renewable Energy Forum (CREF)</p> <p>Year 3: - Dialogue on Energy Efficiency Standards & Labeling Schemes - The First Sustainable Energy Workshop for Caribbean Educators - CSEP Project Review, Third Caribbean Sustainable Energy Roundtable and CREF</p> <p>Year 4: - The High-level conference of the SIDS Achieving Sustainable Energy for All - The 2012 SATIS Renewable Energy Training Workshop - The 22nd Meeting of the OECS Ministers of Education - A Certified Energy Manager (CEM) Training - The Regional Sustainable Energy Workshops for energy and educators stakeholders in the Caribbean - Third Caribbean Sustainable Energy Forum - CSEP Project Review, Fourth Caribbean Sustainable Energy Roundtable and CREF - Regional Workshop on Energy Efficiency design for office buildings</p>	CARICOM CREDP CARILEC OAS/CSEP OAS/ECPA
2.d. Mitigate technical risks and uncertainties within sustainable energy project development			
2.d.1 Execute project identification missions	7 Project countries	7 Project countries	RCU and OAS
2.d.2 Execute renewable natural resource assessments and prefeasibility studies	3 of the 7 Project countries	<p>3 of the 7 Project countries</p> <p>Year 2: - Antigua and Barbuda: Wind, Dominica: Hydro and geothermal, Saint Vincent and the Grenadines: Hydro</p>	CARICOM CREDP OAS
2.d.3 Conduct energy audits	3 of the Project countries	<p>5 of the Project countries</p> <p>Year 2: - Saint Lucia: 3 energy audits as part of the workshop co-hosted by LCCC/NREL and CSEP</p> <p>Year 3: - Antigua and Barbuda, Dominica, Grenada and Saint Kitts and Nevis: 9 audits as part of the National Energy Audit initiative</p>	LCCC and RCU
2.d.4 Monitoring and Evaluation of the Project	3 Financial audit reports	4 Financial audits reports conducted by Ernst and Young	External auditing firm

Activities			Implementing Body
Activity	Indicator	Output	
Phase 2 : Implementation of Action under NEP/SEPs			
2.e Improved access to financing for sustainable energy project preparation and development			
2.e.1 Assess availability of project preparation financing in the region	At least 7 projects total	32 RE/EE investments projects (Antigua and Barbuda 2, Bahamas 3, Dominica 9, Grenada 1, St Kitts and Nevis 4, St Lucia 6, St Vincent and the Grenadines 5, and Regional 2)	OAS/ECPA UNIDO OAS/CSEP CARICOM Secretariat CREDP/GIZ IDB CCCC
2.e.2 Assess availability of project development financing in the region			
2.e.3 Assess availability of energy efficiency project financing in the region			
2.e.4 Prepare sustainable energy finance guide for the Caribbean	Sustainable energy finance guide for the Caribbean	Year 4: Financiers' Guide to Sustainable Energy Lending in the Caribbean	OAS and CARICOM/ CREDP
2.e.5 Link projects identified/in preparation to financing resources	At least € 15 million in investment in renewable energy and energy efficiency projects	€ 73,494,239 Further details see Table 5 above	OAS/ECPA UNIDO OAS/CSEP CARICOM Secretariat CREDP/GIZ IDB CCCC EIB

3. PARTNERS AND OTHER CO-OPERATION

3.1 How would you assess the relationship between the formal partners of this Action?

The three formal partners of this Action have enjoyed a collaborative relationship with other key regional agencies. Their cooperation has facilitated greater effectiveness with regard to the use of resources, which in turn gave rise to an environment that is not only conducive to meaningful deliberation, but to the achievement of the ultimate goals and objectives of the Action of CSEP as well. This effort was enriched by routine roundtables, teleconferences, and virtual meetings, which provided a forum for the clarification of issues, and for challenge-directed brainstorming, both of which contributed to the formulation of creative solutions.

The collaboration effort was fortified in the second year by the establishment of the OECS Energy Coordinating Committee (OECC), which brought representatives together from the OECS Secretariat, the CARICOM Secretariat, CARILEC, CREDP/GIZ, OAS-CSEP/RCU and the St. Lucian ministry in charge of energy matters. The OECC²¹ meetings aimed to provide a forum for dialogue and collaborative action, thereby eliminating the risk of duplicating efforts while simultaneously complementing the initiatives of each of the participants, thus making more efficient and effective use of resources.

3.2 How would you assess the relationship between your organisation and State authorities in the Action countries? How has this relationship affected the Action?

The CSEP team, along with its sub-contracted consultants, was able to bring together partner agencies and other interest groups from across the Caribbean and Europe with the common goal of providing State authorities with transparent and updated information capable of assisting with the operation of the legal, technical, and financial framework as well as capacity-building activities.

The aim of the collaboration was to provide authorities with the confidence to make significant changes towards the sustainability of the energy sector. Authorities were also encouraged to collaborate on hosting

21. The OECC meetings took place bi-monthly up to October 2011, after which CARICOM began hosting a forum to which players beyond the OECS countries were invited.

meetings and workshops. This would permit cost sharing and would allow for the expansion of the audience to solicit the participation of other relevant actors.

Additionally, CSEP played an important role in facilitating the attendance of government delegates from CSEP-participant countries during all the Caribbean Renewable Energy Forums (CREF) held over the past four years since CSEP's inception in 2009. Not only did CREF provided information about sustainable energy challenges and opportunities in the region, it also enabled the interaction of the CSEP countries' government delegates with bilateral and multilateral agencies and private sector agents, which allowed for deals to be signed and new policy initiatives to be synchronized.

Although there were overwhelming delays during the first three years of execution, these were resolved during the last 18 months of the original project timeframe, and all the Phase I and Phase II actions were successfully completed.

3.3 Where applicable, describe your relationship with any other organisations involved in implementing the Action

CSEP was able to open communication among relevant international/regional/sub-regional assistance agencies. This allowed for collective strategizing, and the prioritization of actions with the authorities of the target countries throughout the 54-month period during which the project was implemented.

Given the positive results the OECC secured among agencies in OECS countries, the CARICOM Secretariat, as the lead coordinator of energy matters in the Caribbean, established a virtual bimonthly meeting called the Regional Sustainable Energy Coordination, the first sitting of which occurred on February 27, 2012. The attendees included the aforementioned OECC members, in addition to representatives from the Caribbean Development Bank and the United Nations Development Programme of Barbados. The objective of the meeting is to establish a regular, recurring means of sharing information among the various partners involved in the effort to enhance the sustainability of the energy sector in CARICOM countries. To date, four meetings have been held.

3.4 Where applicable, outline any links you have developed with other actions

The OAS provided additional resources through the Energy and Climate Partnership of the Americas (ECPA) funded by the U.S. State Department. The core vision of ECPA is based on the premise that its members must join forces to create low carbon communities, resource efficiency, and socially inclusive policies that enhance human well-being through seven fundamental pillars: energy efficiency, renewable energy, the cleaner and more efficient use of fossil fuels, energy infrastructure, energy poverty, sustainable forests and land use, and adaptation.

Specifically, ECPA was able to assist in the execution of CSEP actions through three initiatives:

(i) Low-Carbon Communities in the Caribbean

This initiative aimed to implement actions and strategies geared towards increasing the sustainability of their energy supplies while reducing carbon emissions from the energy sector through the development and use of renewable energy and energy efficiency systems in the seven CSEP-participant countries.

The initiative delivered support by:

- Providing of a research study entitled The Energy Policy and Sector Analysis in the Caribbean (2010-2011). (Further details see 2.a above)
- Co-hosting the Regional Energy Auditing Workshop on August 2010 in St. Lucia. (Further details see 2.b.2 above)

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- Co-hosting the Regional Renewable Energy and Energy Efficiency Policies Workshop on March 2011 in Colorado, United States. (Further details see 2.b.3 above)
- Building the framework to conduct energy audits in Antigua and Barbuda, Dominica, Grenada, St. Lucia, St. Kitts and Nevis, and St. Vincent and the Grenadines. (Further details see 2.d.3 above)

(ii) ECPA Caribbean Initiative

This initiative aimed to promote sustainable energy policies and programs to assist governments in the deployment of renewable energy technologies by providing short-term legal counsel and technical assistance on clean energy projects, and by facilitating regional dialogue on long-term sustainable energy solutions for the Caribbean.

The initiative delivered support by:

- In Antigua and Barbuda: Providing financial resources for eco-friendly power generation at the Shirley Heights National Park. The goal was to promote the use of solar energy technologies via a demonstrative project in an important socio-economic sector (i.e. the tourism sector). The project, co-funded by CSEP, aimed to educate locals and visitors about how Antigua and Barbuda contributes to the movement to reduce fossil fuel dependency and mitigate climate change.
- In Dominica: Providing financial resources for intensive geothermal training for the staff of the Ministry of Public Works, Energy and Ports. The goal of this project, which was co-funded by CSEP, was to provide technical training to build capacity in geothermal development as part of the government's Geothermal Resource Development Programme.
- In Grenada: Providing financial resources for legal and technical assistance for the development of a geothermal bill. In partnership with the Geothermal Energy Commission under the auspices of the Ministry of Finance, assistance was provided for the development of a geothermal resources development bill. The bill is expected to establish the legislative framework for the development and operation of one or more geothermal power plants in Grenada. This project was co-funded by CSEP.
- In St. Kitts and Nevis: Providing financial resources to conduct a pre-feasibility study of the inter-island electrical interconnection between the federation of St. Kitts and Nevis and Puerto Rico. The SKN-Puerto Rico interconnection is a high-priority project taking into account the geothermal resource potential on Nevis and on-going interest by technical and financing institutions for its development.
- In St. Vincent and the Grenadines: Providing financial resources for the installation of a PV system at the Administrative Building. The goal was to showcase the applicability of grid-tied PV electricity generation by establishing a pilot PV generating system on the government's main administrative building, thereby demonstrating net-metering and the contribution of small-scale renewable power producers to the main grid. This project was co-funded by CSEP.

(iii) ECPA Energy Efficiency Working Group

This initiative aimed to provide on-demand policy, regulatory, and technical collaboration and support in the advancement of energy efficiency and conservation frameworks, projects, and public information campaigns to the governments of the western hemisphere.

This initiative delivered support by:

- Co-hosting the Regional Workshop on Energy Efficiency Designs for Office and Public Buildings in Tropical Climates from February 28 to March 1, 2013 in St. Lucia. (Further details see 2.b.4.1 above)

3.5 If your organisation has received previous EC grants in view of strengthening the same target group, in how far has this Action been able to build upon/complement the previous one(s)?

This is the first time the OAS has received an EC grant in this sector and for this target region.

4. VISIBILITY

4.1 How is the visibility of the EU contribution being ensured in the Action?

CSEP has used a varied range of outreach channels to ensure the visibility of the EU contribution, the on-going regional project activities, and the in-country actions being carried out. CSEP activity documents and events are regularly advertised on the OAS website, as well as in the DSD monthly newsletters, on the ECPA website, and in the CARICOM Energy Programme's newsletter. Additionally, other Caribbean networks, such as CIPORE and CIES have been used to advertise project events. Regardless of the marketing medium, the EU contribution is always explicitly mentioned.

Name of the contact person for the Action: Mark Lambrides

Signature:



Location: Washington D.C.

Date report due: October 30th, 2013

Date report sent: September 24th, 2013

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