Caribbean Hotel Energy Efficiency Action Program (CHENACT)

Final Presentation

CHENACT Steering Committee
March 30, 2012
Topics

- Summary of CHENACT accomplishments
- Summary of CHENACT findings
- Summary of CHENACT lessons learned
- CHENACT Action Plan
CHENACT Accomplishments

- Institutional strengthening
  - 5 training workshops and/or conference sessions
  - 20 presentations at tourism and energy conferences

- Barbados Case Study
  - 36 detailed energy audits, 30 walk through energy assessments (64% of all licensed hotels in Barbados), additional 12 audits (GIZ)
  - Electricity efficiency index for (<50, 51-100, 101-200, >200 room hotels)
  - Estimates of total electricity consumption and carbon footprint of Barbados hotel sector
  - Assessment of financing sources for hotel energy investment, including input to SMART Energy Fund design, cash flow model, support to 6 hotel’s financing plans
CHENACT Accomplishments (cont.)

- Barbados Case Study (continued)
  - Hotel Clean Energy Policy
  - Support to pilot PV hotel demonstration (specifications, selection criteria, procurement document, proposal review)
  - Summary of impact of Barbados hotel EE program
  - Action Plan to implement CHENACT in Barbados (and region)

- Energy Performance Contracting for Caribbean Hotel Sector
  - Analysis of contracting models (shared savings, guaranteed saving, power purchase agreement, leasing/lease-purchasing)
  - Benefits and pitfalls of performance contracting
  - Profile of Caribbean energy services industry
  - Caribbean hotel energy performance contracting market
  - Caribbean hotel ESCO development strategy
CHENACT Accomplishments (cont.)

- Caribbean Regional Hotel CDM Program of Activity (PoA)
  - Analysis of carbon offsets and trading markets
  - Analysis of CDM for building EE projects
  - Analysis of applicable CDM methodologies
  - Description of sample CDM Program Activity (CPA) and steps to creating a Caribbean regional hotel EE PoA

- Model Hotel Clean Energy Program for the Caribbean
  - Profile of Caribbean hotel industry and electricity consumption
  - Extrapolation of EE and carbon reduction potential
  - Analysis of benefits and costs of EE investment program
  - Analysis of the Caribbean EE market
  - Analysis of barriers to investment in hotel EE
CHENACT Accomplishments (cont.)

- CHENACT Communication Strategy
  - Caribbean hotel EE case studies and technology factsheets
  - Content for CHENACT website
  - Recommendations for communications messages and channels
  - Recommended communications activities for CHENACT counterparts and stakeholders
Topics

- Summary of CHENACT accomplishments
- Summary of CHENACT findings
- Summary of CHENACT lessons learned
- CHENACT Action Plan
Summary of CHENACT Findings

- CHENACT is a energy and climate change project in the tourism sector that introduced new concepts to its principal counterparts (e.g., EE/RE technologies, performance contracting, CDM)

- None of CHENACT’s principal counterparts (CHTA, CTO, CAST, BHTA) have in-house technical staff to advocate for clean energy implementation

- There is considerable variation in the EE index among similar sized hotel properties, particularly for small hotels (<50 rooms)

- Air-conditioning and lighting together account for approximately two-thirds of total electricity use in Caribbean hotels

- EE projects would reduce electricity consumption by 20-30%, and would yield net savings of $280,000 to $975,000 over 7 year period for small hotels (<50 rooms) to large hotels (>200 rooms), respectively.

- IRR depends highly dependent on electricity tariff: 7% for 0.09 $/kWh vs. 232% for 0.40 $/kWh
Summary of CHENACT Findings (cont.)

- Despite high and rising cost of electricity, investments in cost-effective EE projects remain a challenge for Barbados hotels.

- A hotel clean energy policy framework includes initiatives by multiple sectors and entities (e.g., tourism, environment, energy, utility regulation, building and planning authorities, finance, customs).

- Over 835,000 tons of CO$_2$e could be reduced annually from hotel EE, however a CDM Program of Activities will initially be limited to a few countries with Designated National Authorities.

- Realizing the potential value of hotel EE investments will require an integrated approach that includes scope of investment, analysis, technologies, financing, installation, and performance related services.
Average Electricity Expenditure for Barbados Hotels

- <=50 guestrooms: $175,679
- 51-100 guestrooms: $469,984
- 101-200 guestrooms: $695,005
- >200 guestrooms: $1,514,609
# Electricity Use Index – CHENACT Benchmarks

<table>
<thead>
<tr>
<th>Hotel Size (# of Guestrooms)</th>
<th>&lt;=50</th>
<th>51-100</th>
<th>101-200</th>
<th>&gt;200</th>
</tr>
</thead>
<tbody>
<tr>
<td>High (kWh/Guest Night)</td>
<td>118</td>
<td>87</td>
<td>43</td>
<td>50</td>
</tr>
<tr>
<td>Average (kWh/Guest Night)</td>
<td>43</td>
<td>44</td>
<td>32</td>
<td>34</td>
</tr>
<tr>
<td>Low (kWh/Guest Night)</td>
<td>12</td>
<td>18</td>
<td>25</td>
<td>22</td>
</tr>
<tr>
<td># of Hotels</td>
<td>13</td>
<td>8</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>GN/RN Ratio</td>
<td>1.63</td>
<td>1.79</td>
<td>1.79</td>
<td>1.90</td>
</tr>
</tbody>
</table>
Overall Electricity Consumption by End-Use

- Air Conditioning: 48.2%
- Lighting: 11.5%
- Guestroom Equipment: 7.4%
- General Equipment: 5.4%
- Kitchen & Refrigeration Equipment: 10.6%
- Pool Pumps: 7.4%
- Other: 3.9%
- Hot Water & Laundry: 5.5%
Electricity Consumption by End-Use for Different Sized Hotels in Barbados
Electricity Consumption and CO2e Emissions for the Barbados Hotel Sector

<table>
<thead>
<tr>
<th># of Rooms</th>
<th># of Hotels</th>
<th>Annual electricity Consumption (MWh)</th>
<th>CO₂ Emissions (Tons)</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;=50</td>
<td>60</td>
<td>20,711</td>
<td>14,606</td>
</tr>
<tr>
<td>51-100</td>
<td>18</td>
<td>18,450</td>
<td>13,012</td>
</tr>
<tr>
<td>101-200</td>
<td>14</td>
<td>26,102</td>
<td>18,408</td>
</tr>
<tr>
<td>&gt;200</td>
<td>4</td>
<td>16,536</td>
<td>11,662</td>
</tr>
<tr>
<td>Total</td>
<td>96</td>
<td>81,799</td>
<td>57,688</td>
</tr>
</tbody>
</table>
Average Savings from Energy Efficiency in Different Sized Hotels

- <=50: 19.6%
- 51-100: 24.1%
- 101-200: 24.3%
- >200: 26.3%
Net Savings from EE Investment for Different Sized Hotels

Assumptions: Analysis period – 7 years, Discount rate – 12%, Average electricity tariff – 0.40 US$/kWh, Electricity annual price escalation rate – 4.5% for Barbados.
US$ 20 million investment in Barbados hotel clean energy will yield US$ 50 million in savings

Assumptions: Analysis period – 7 years, Discount rate – 12%, Average electricity tariff – 0.40 US$/kWh, Electricity annual price escalation rate – 4.5% for Barbados.
Model Hotel Clean Energy Policy

The **goal** of the Model Hotel Clean Energy policy is to improve the competitiveness and viability of the Barbados hotel sector through increased energy efficiency and low carbon economic development.

**Policy Objectives**

- **Improve the energy and water efficiency of Barbados hotels** – reduced kWhe (and m³) per guest night for participating hotels – calculated from baseline (prior 24 months)

- **Increase investment in cost-effective and proven energy efficiency and renewable energy technologies** – spending on green hotel design, efficient a/c, refrigeration, water heating, appliances, lighting, solar hot water, PV. Data collected from investment tax incentive filings.

- **Demonstrate and recognize the leadership of the hotel sector** within Barbados (as model for other sectors) and within the Caribbean (as a model for the tourism sector),
Impacts of a Model Hotel Clean Energy Policy

Potential Impacts and Desired Outcomes

• Growth in the Barbados clean energy industry (consultants, engineering companies, equipment suppliers/distributors, service providers) – tax revenue, employment

• Reduced operating costs for Barbados hotels - expenditures on electricity, gas and water

• Improved balance of trade for Barbados through reduced imported energy resources – expenditures on oil imports

• Programmatic approach to reducing GHG emissions as a possible example for other sectors

• Greater awareness of and appreciation for energy efficiency and renewable energy among hotel workers and the general public that can be employed in their homes

• Reduced CO2e associated with reduced energy (electricity and gas) use – calculated based on the difference from business as usual (without policy).
# Proposed Barbados Hotel Clean Energy Policy Instruments

<table>
<thead>
<tr>
<th>Policy Instrument</th>
<th>Proposed Intervention</th>
</tr>
</thead>
<tbody>
<tr>
<td>Barbados Tourism Master Plan (2012-2021)</td>
<td>The TMP should include policy support for clean, energy efficiency, low carbon hotel development.</td>
</tr>
<tr>
<td>Tourism Development Act</td>
<td>Establish preference for EE verses non-EE investments, increased incentives for solar PV</td>
</tr>
<tr>
<td>Renewable energy system interconnection pilot program</td>
<td>Standardized long term power purchase agreement</td>
</tr>
<tr>
<td>SMART Energy Fund</td>
<td>Pre-investment grants, low interest loans tied to payback period, performance risk sharing, upfront payments for CERs</td>
</tr>
<tr>
<td>Building code (draft energy efficiency code)</td>
<td>Lighting, air-conditioning, hot water, appliance standards for hotel applications</td>
</tr>
<tr>
<td>Hotel Efficiency and/or Low Carbon Rating System</td>
<td>Voluntary rating system Promotion and marketing of “low carbon” development in tourism sector, accreditation of “low carbon” hotel properties</td>
</tr>
<tr>
<td>Hotel Appliance and Equipment Energy Efficiency Guidance</td>
<td>Lighting, air-conditioning, hot water, appliance standards for hotel applications</td>
</tr>
<tr>
<td>Hotel Clean Energy Capacity Building</td>
<td>Training for hotel management and staff, government, and local clean energy industry</td>
</tr>
<tr>
<td>Utility Demand Side Management (DSM) programs</td>
<td>Recovery of utility expenditures and allowable return on investment through rate base</td>
</tr>
<tr>
<td>Clean Energy Industry Development</td>
<td>Amend the Fiscal Incentives Act of 1974 to allow energy efficiency equipment suppliers manufacturers to benefit from import preferences and tax holidays.</td>
</tr>
<tr>
<td>Clean Development Mechanism Program of Activities for Hotels</td>
<td>National or part of regional program to structure projects so that they qualify under the CDM or other carbon markets</td>
</tr>
<tr>
<td>Elimination of CFC and other ODS in the Hotel Sector</td>
<td>Targeted awareness campaign for hotel owners and operators regarding the Montreal Protocol and associated Barbados ODS policies</td>
</tr>
</tbody>
</table>
Energy Service Industry

Caribbean energy companies are typically involved in one or more of the following:

- Dissemination of information on energy technologies and products
- Studies such as audits and feasibility studies
- Engineering design (for more complex systems)
- Equipment supply (including manufacturers representatives)
- System integration (combining technologies and equipment)
- Electrical, plumbing, and ventilation/air-conditioning contracting
- System installation and commissioning
- Financing
- Operation and Maintenance (O&M) contracting
- Monitoring and Verification of system performance
- Technical training
- Supply of spare and replacement parts
Energy Service Companies (ESCOs)

Four different contract types are used with ESCOs:

- **Shared savings contract** - ESCO guarantees the cost of energy saved; the cost savings are split for a pre-determined length of time in accordance with a pre-arranged percentage. ESCO assumes the credit and performance risk.

- **Guaranteed savings contract** - ESCO guarantees a certain level of energy savings; the performance guarantee is the level of energy saved. The client assumes the credit risk, while the ESCO assumes the risk for the savings.

- **Power Purchase Agreement** – a contract between the power/energy producer and the consumer, and single cost for customer based on an easy to meter output, e.g., kilowatt hour or kWh. PPA provider would secure funding for the project, maintain and monitor the energy production.

- **Lease (or lease-purchase) agreement** - the consumer agrees to make a fixed payment to the ESCO for a fixed term. In addition to designing, operating, and maintaining the improvements, the ESCO guarantees that energy and maintenance savings from the project will exceed the payments to the ESCO. The net effect is similar to that under a shared savings agreement.
Benefits and Pitfalls of Energy Performance Contracting

Benefits

• ESCO finances all of the project costs, including up-front engineering, construction, and maintenance services.

• Energy performance contracting streamlines the purchasing process for energy efficiency projects, reducing the cost and time required to bring energy-saving projects on line.

• The customer receives new and improved lighting, cooling, and other equipment and the cost of this equipment is either fully or partially offset by reduced utility bills.

Pitfalls

• Customer relies on ESCO in developing energy baseline and methodology for baseline adjustment (e.g., changes in operations).

• ESCOs can underestimate savings in order to ensure achieving contract terms.

• ESCO will include financing charge, as well as fees for maintenance, monitoring and verification.

• Performance agreements tend to be long term (5 years or greater), and may only include equipment-related savings, thereby ignoring operational savings.
Caribbean ESCO Development Strategy

- Increase information about EE projects, e.g., investment, savings, return on investment, etc.

- Encourage the bundling of energy services moving toward turnkey projects, e.g., studies, engineering design, procurement, installation, commissioning, operation and maintenance, and performance monitoring.

- Compile and disseminate information on EE equipment performance in hotel applications and analyze expected vs actual performance.

- Encourage electric utilities to diversify their services to include demand side management in addition to generation and sales of electricity.

- Develop standardized “baseline” calculation methodologies to reflect historical energy consumption and variations in occupancy (also relevant for CDM)

- Develop standardize contracts for energy performance contracts for hotel applications

- Conduct ESCO demonstration projects in different countries and building types to increase familiarity and experience with energy performance contracting.
CDM and Building Energy Efficiency

Energy efficiency projects have had limited success in the CDM market for the following reasons:

- Many, but individual small, reduction opportunities - Building EE requires many small interventions; different aspects of the buildings, such as architecture, engineering, building management, building function, occupant profiles all affect the performance of buildings.

- Split economic interests - Decisions about building design (designers and investors) are seldom the ones who would benefit from energy efficiency improvements and associated costs reductions (owners and users).

- Lack of information and understanding (at all levels) in relation to climate change - Lack of know-how about how to reduce energy use in buildings and about what indicators to use for comparing the relative performance of a building or multiple buildings.

- Lack of track record from real projects, including risk-benefit analyses - Energy costs are often a comparatively small part of the overall costs for a building. The economic incentive provided by reduced energy costs is therefore often weak.

- CDM’s additionality requirement - Because of the fragmentation of the building market it can be almost impossible to prove what building design would have been selected in the absence of the CDM project. Energy efficiency investments in existing buildings are financially attractive, but are not typically pursued because of non-financial reasons.
CDM Program of Activities

- A Program of Activities (PoA) (often called Programmatic CDM) consists of multiple, similar smaller GHG emission reduction projects, each referred to as CDM Program Activities (CPAs).

- PoA is a voluntary coordinated action by a private or public entity which coordinates and implements any policy/measure or stated goal (i.e. incentive schemes and voluntary program).

- A PoA is characterized as: 1) a voluntary action, 2) implementing a policy, measure or stated goal, 3) coordinated by a public or private entity, 4) resulting in emission reductions or removals that are additional.

- One or more CPAs can be included under a PoA at the time of registration and additional CPAs can be added at any point in the life of the PoA.

- A PoA can involve CPAs being run in multiple countries, in which case a separate letter of approval would be required from each participating government Designated National Authority (DNA) involved.
Hotel Energy Efficiency CDM Program of Activities

Recommended technologies and services be included in the Hotel CDM PoA:

• Air conditioning retrofit - inverter type variable refrigerant volume mini-splits
• Guestroom energy controls – occupancy sensors, programmable thermostats
• Public area lighting controls – occupancy sensors
• Individual lamp replacement – compact fluorescent lamps (CFL) and Light Emitting Diode (LED) lamps
• Fluorescent tube lamps – T8 tube lamps with electronic ballasts and LEDs
• Solar hot water heating systems
• Energy efficient freezers, refrigerators, cool rooms
• Guest room energy efficient mini-fridges, televisions
• Office and guestroom equipment – televisions, computer monitors
• Timers on pumps and motors
• Photo-sensors and timers for outdoor lighting
• Energy Management Systems
Process for Establishing a Caribbean Hotel EE PoA

1. Define the geographic scope of the PoA based on:
   - Countries that have established a DNA (i.e., Antigua and Barbuda, Bahamas, Barbados, Belize, Mexico (Cancun, Cozumel, Playa Del Carmon), Dominica, Dominican Republic, Guyana, Jamaica, Suriname, Trinidad and Tobago)
   - DNAs that confirm that a Hotel Clean Energy Program assists in achieving “sustainable development”
   - Define the EE/RE technologies and associated methodologies to be included in the PoA, noting that AMS-II E Energy Efficiency and Fuel Switching for Buildings allows for a combination of energy efficiency technologies, including solar hot water

2. Seek representative volunteer hotel property(ies) that will serve as the CDM Program Activity (CPA) in the registration of the PoA.

3. Estimate the size of the PoA in terms of the cumulative CERs generated by all future CPA participating in the PoA.

4. Establish the PoA Coordinating Entity


6. Validation of PoA by Designated Operational Entity (DOE)

7. Application for Registration with UNFCC CDM or other carbon market
Overview of the Caribbean Hotel Sector

2269 hotels in 25 territories comprising 241,000 guestrooms
Hotel Sector Electricity Cost Share of GDP in the Caribbean

![Bar chart showing hotel sector electricity cost as a percentage of GDP for various Caribbean countries.](image-url)
Caribbean Hotel Electricity Consumption and Potential Savings (GWh)

- Annual Electricity Consumption (GWh)
- Electricity Saved (GWh)
Electricity Tariffs in Selected Caribbean Countries

Note: Based on CHENACT audits, composite rates include total electricity bill divided by consumption, Dominican Republic tariff is based on Punta Cana, other parts of the country are up to US$0.25/kWh.
Electricity tariff determines the attractiveness of EE investments

<table>
<thead>
<tr>
<th>Caribbean Territory</th>
<th>Electricity Tariff Rate (US$/kWh)</th>
<th>Simple Payback (years)</th>
<th>Net Present Value (NPV)</th>
<th>Internal Rate of Return (IRR)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dominican Republic</td>
<td>0.09</td>
<td>6.5</td>
<td>(22,916)</td>
<td>7.2%</td>
</tr>
<tr>
<td>Barbados</td>
<td>0.40</td>
<td>1.5</td>
<td>585,046</td>
<td>232%</td>
</tr>
<tr>
<td>St. Lucia</td>
<td>0.33</td>
<td>1.8</td>
<td>443,087</td>
<td>137%</td>
</tr>
<tr>
<td>Grenada</td>
<td>0.35</td>
<td>1.7</td>
<td>482,108</td>
<td>158%</td>
</tr>
<tr>
<td>Antigua</td>
<td>0.38</td>
<td>1.5</td>
<td>542,554</td>
<td>197%</td>
</tr>
</tbody>
</table>
Caribbean is an attractive market for a number of EE/RE measures

<table>
<thead>
<tr>
<th>Equipment</th>
<th>Electricity Saving (GWh)</th>
<th>Cost Saved (US$ - Million)</th>
<th>Investment (US$ - Million)</th>
<th>Payback Period</th>
</tr>
</thead>
<tbody>
<tr>
<td>Air Conditioning</td>
<td>432</td>
<td>134</td>
<td>220</td>
<td>1.6</td>
</tr>
<tr>
<td>Controls</td>
<td>97</td>
<td>31</td>
<td>49</td>
<td>1.6</td>
</tr>
<tr>
<td>Exhaust Fan</td>
<td>4</td>
<td>1</td>
<td>2</td>
<td>1.4</td>
</tr>
<tr>
<td>Lighting</td>
<td>106</td>
<td>31</td>
<td>21</td>
<td>0.7</td>
</tr>
<tr>
<td>Pool Pumps</td>
<td>25</td>
<td>7</td>
<td>4</td>
<td>0.6</td>
</tr>
<tr>
<td>Water pumps</td>
<td>10</td>
<td>3</td>
<td>1</td>
<td>0.5</td>
</tr>
<tr>
<td>Solar Hot Water</td>
<td>60</td>
<td>10</td>
<td>10</td>
<td>1.0</td>
</tr>
<tr>
<td>Solar PV</td>
<td>45</td>
<td>13</td>
<td>46</td>
<td>3.6</td>
</tr>
<tr>
<td>Window Film</td>
<td>45</td>
<td>12</td>
<td>22</td>
<td>1.9</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>824</strong></td>
<td><strong>241</strong></td>
<td><strong>375</strong></td>
<td><strong>1.6</strong></td>
</tr>
</tbody>
</table>
Annual CO$_2$ Emissions Reduction – Caribbean Region Hotel Sector

884 thousand tons CO$_2$ emissions can be avoided annually through EE actions
Annually 267,970 kiloliters Diesel/HFO can be saved as a result of EE improvements in hotels across the Caribbean region.
### Integrated Approach  Extracts More Value from EE

<table>
<thead>
<tr>
<th>Traditional Approach</th>
<th>CHENACT Approach</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Scope (low/no-cost only)</td>
<td>1. Scope (all cost-effective)</td>
</tr>
<tr>
<td>2. Technologies (locally available)</td>
<td>2. Studies (audits, feasibility studies)</td>
</tr>
<tr>
<td>3. Procurement (price driven)</td>
<td>3. Financing</td>
</tr>
<tr>
<td>4. Installation (in-house or local contractors)</td>
<td>4. Technologies (advanced)</td>
</tr>
<tr>
<td></td>
<td>5. Procurement (EE rating)</td>
</tr>
<tr>
<td></td>
<td>6. Installation (trained, outsourced)</td>
</tr>
<tr>
<td></td>
<td>7. Operation and maintenance</td>
</tr>
<tr>
<td></td>
<td>8. Monitoring</td>
</tr>
<tr>
<td></td>
<td>9. Revenue from CERs</td>
</tr>
</tbody>
</table>

Electricity savings: 5-10%

Electricity savings: 20-30%
Topics

- Summary of CHENACT accomplishments
- Summary of CHENACT findings
- Summary of CHENACT lessons learned
- CHENACT Action Plan
Summary of CHENACT Lesson Learned

- While CHENACT successfully demonstrated the potential for clean energy investment and emissions reduction, realization of the regional potential will require successful implementation in Barbados as well as large (e.g., DR, Jamaica, Bahamas) and small (OECS) markets.

- Period of Performance (11 months) was not sufficient given the scope and complexity of CHENACT.

- Significant delays experienced in hotel audits/reports and PV demonstration due to internal and external factors.

- SMART Fund must address hotel industry barriers to investments, e.g., collateral requirements, lack of confidence in financial returns of EE investments.

- It is unlikely that CHTA, CAST and CTO will be effective advocates for CHENACT implementation without additional in-house technical expertise or program implementation partner(s).
Topics

• Summary of CHENACT accomplishments
• Summary of CHENACT findings
• Summary of CHENACT lessons learned
• CHENACT Action Plan
# CHENACT Action Plan

<table>
<thead>
<tr>
<th>Recommended Action</th>
<th>Organizational Responsibility in Barbados</th>
<th>Organizational Responsibility Outside Barbados</th>
</tr>
</thead>
<tbody>
<tr>
<td>Share findings of energy audits to members</td>
<td>BHTA</td>
<td>CHTA, CSHAE</td>
</tr>
<tr>
<td>Promote EE as a means of reducing electricity bills</td>
<td>BLP, BDET, BHTA</td>
<td>CARILEC, CHTA</td>
</tr>
<tr>
<td>Support the implementation of a model Hotel Clean Energy Policy</td>
<td>BMOE, BMOT, BDOET</td>
<td>CTO, CARICOM Energy Unit, OAS</td>
</tr>
<tr>
<td>Promote hotel loan application to the Smart Fund</td>
<td>EGFL, BHTA, BDOET, BMOT</td>
<td>None</td>
</tr>
<tr>
<td>Incorporate “carbon neutrality” as a goal of the Tourism Master Plan.</td>
<td>BMOT, BDOET, BHTA</td>
<td>CTO, CHTA, CCCCC</td>
</tr>
<tr>
<td>Propose revision to the Tourism Development Act to include additional incentives for energy efficiency (EE) and renewable energy (RE)</td>
<td>BMOT, BHTA</td>
<td>CTO</td>
</tr>
<tr>
<td>Review the experience of the CHENACT PV pilot demonstration and prepare a proposal for expanding to other hotels</td>
<td>BLP, BDOET, BHTA</td>
<td>None</td>
</tr>
<tr>
<td>Propose a specific guidelines for adopting the Building Energy Efficiency Code for hotels</td>
<td>BHTA, BNSI</td>
<td>None</td>
</tr>
<tr>
<td>Develop an energy efficiency rating system for hotels</td>
<td>BHTA, BMOT, BDOET, BOE</td>
<td>None</td>
</tr>
<tr>
<td>Adopt an energy-efficient appliance rating system</td>
<td>BHTA, BNSI, BDOET</td>
<td>CHTA, CARICOM CROSQ</td>
</tr>
<tr>
<td>Accelerate a training and capacity building program for EE and RE technologies, applications and practices in the hotel sector</td>
<td>BMOT, BDOET, BHTA, BCC</td>
<td>UWI, CHTA</td>
</tr>
<tr>
<td>Research and advocate for incentives to electric utilities to finance and implement demand-side management programs for the hotel sector</td>
<td>BLP, BDOET</td>
<td>CARILEC, CARICOM Energy Unit</td>
</tr>
<tr>
<td>Investigate CDM Program of Activities for Hotel EE applications</td>
<td>BHTA, BMOE, BMOT, BDOET</td>
<td>CHTA, CTO, CAST, CARICOM Energy Unit</td>
</tr>
<tr>
<td>Accelerate the elimination of CFCs and other ozone-depleting substances in the hotel sector</td>
<td>BMOE, BMOT, BHTA</td>
<td>UNEP, CTO</td>
</tr>
<tr>
<td>Identify energy equipment and service providers willing to guarantee performance or finance energy savings projects</td>
<td>BHTA</td>
<td>CHTA</td>
</tr>
</tbody>
</table>