

Potential Energy Efficiency Tasks for the Dominican Republic

Ricardo Castillo, NREL
Bethany Speer, NREL
Jonathan Morgenstein, NREL

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Proposed Partnership with the Dominican Republic to Advance Private Sector Investment in Energy Efficiency

Overall objective: Mobilize private sector investment in clean energy in the DR, focusing on EE with large commercial and industry (non hotel sector), to be achieved through:

1. Partnering with public & private industrial groups to jointly further shared initiatives to promote EE deployment
2. Improving the understanding among financial institutions of the opportunities for investing in energy efficiency
3. In-country capacity building among companies to understand the business case for energy efficiency investments
4. Match-making project pipelines with financial institutions



Photo: Jimmy Salasovich, NREL

Partnerships

MEM: Assist, develop, and update energy efficiency standards and recommend regulatory changes to incentivize these initiatives' adoption.

- Suggest aggregated purchasing agreements and partnerships with manufacturers to drive energy efficiency products to market.
- Ban low efficiency products in the market. Create a minimum energy efficiency standard.

Financial Institutions: Fundación Popular, ECORED, BPD, Inter-American Development Bank (IABD) etc.

- Support creation, development and quality control of energy efficiency projects for various project sizes.
- Support aggregated project financing model.

Industry Groups: AIRD, ECORED

- Support development of energy audits and project proposals



Photos: Jimmy Salasovich, NREL

Building Energy Audits

Overview:

- Detailed building and campus energy audits focused on identifying:
 - Energy Conservation Measures (ECMs)
 - Water Conservation Measures (WCMs)
 - Renewable Energy Measures (REMs)
- ASHRAE Level 2 audits with energy modeling component and renewable energy screening
- Prioritization of ECMs, WCMs, and REMs
- Deep energy retrofit analysis

NREL's Core Capabilities:

- Technical understanding of buildings systems and their interactions
 - Vast experience in the hotel sector
- Field experience with wide array of building systems
- Spot metering and Measurement & Verification (M&V) expertise

Building Energy Modeling Component of Energy Audits

Overview:

- Detailed building energy modeling for any building type
- Advanced energy modeling techniques:
 - Natural ventilation
 - Advanced HVAC systems
 - Daylighting

NREL's **Modelling Tools:**

- OpenStudio
- eQUEST
- BEopt

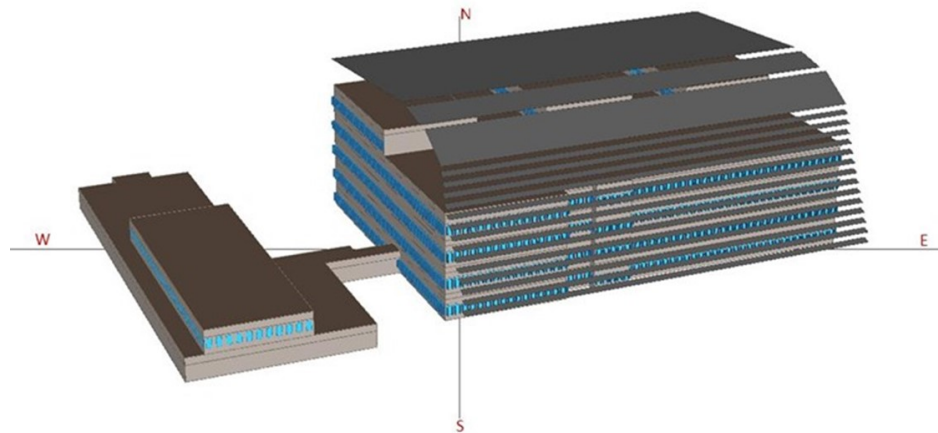


Photo: Jimmy Salasovich, NREL

Energy Resilience Component of Energy Audits

Overview:

- Ensure energy resiliency in face of natural disasters and man made threats
- Identify gaps/flaws/interdependencies in energy systems
- Evaluate technical solutions
- Probabilistic modeling to provide clear understanding of risks

NREL's Core Capabilities:

- Understanding how EE/RE can provide added energy assurance
- Engagement with agencies, utilities, stakeholders

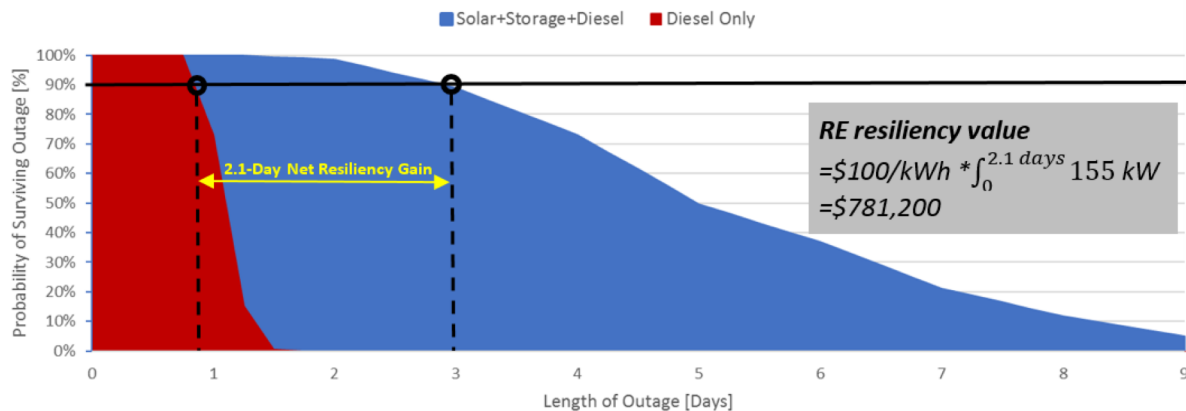


Photo: Jimmy Salasovich, NREL

Proposed Energy Audit Work



Identify clients
and local
auditors



ASHRAE 2
energy audits



Create
calibrated
building energy
models



Analysis



Report out
results

- ✓ **Identify local energy auditors & Energy Service Companies (ESCOs) to collaborate with NREL**
- ✓ Identify hotels with highest savings potential

- ✓ Travel to buildings
- ✓ Kickoff meeting
- ✓ Collaborative building audits between NREL and local auditors/ESCOs
- ✓ Identify ECMs, WCMs, and REMs
- ✓ Exit-meeting to review initial findings

- ✓ Create energy models based on information collected during audits
- ✓ Calibrate energy models to within 5% of actual utility bills

- ✓ Use energy models to analyze ECMs
- ✓ Use simulation tools to analyze WCMs and REMs
- ✓ Use REopt Lite to analyze energy resilience

- ✓ Provide a PowerPoint and report of findings
- ✓ Hold conference calls to go over results with site staff
- ✓ **Make process replicable for future energy audits in DR**

Energy Audit Trainings

Overview:

- Providing **weeklong** training on energy efficiency (EE) & renewable energy (RE) technologies and conducting energy audits
- Trainings consist of mix of classroom presentations, hands-on auditing, and analysis
- Trainings have been translated and given in foreign languages (e.g., Spanish, French)

NREL's Core Capabilities:

- Building energy audit training
- Tailored trainings to meet site specific needs
- Renewable energy site assessment training



Photos: Jimmy Salasovich, NREL

Summary of Past **NREL** Energy Audit Trainings that Relate to the DR

Training Location	Island Trainings	Trainings Focusing on Hotel Industry	Trainings in a Foreign Language
1.) Barbados	★	★	
2.) Cape Verde	★	★	★
3.) Costa Rica		★	★
4.) Gabon			★
5.) Hawaii	★	★	
6.) Jamaica	★	★	
7.) Japan	★		★
8.) Marshall Islands	★	★	
9.) Palau	★	★	
10.) St. Lucia	★	★	
11.) Puerto Rico	★	★	★
12.) Trinidad & Tobago	★	★	
13.) U.S. Virgin Islands	★	★	



Photos: Jimmy Salasovich, NREL

Proposed Energy Audit Training Work



Identify list of attendees for energy audit training

- ✓ Identify **target audience(s)**
- ✓ **Determine** location of training
- ✓ Prepare training ~~booklets~~ and materials in both Spanish and English



Conduct **weeklong** energy audit training

- ✓ Conduct **weeklong** energy audit training in Spanish and English
- ✓ Tailor training to meet needs specific to Dominican Republic



Loop training back into energy audits task

- ✓ Have attendees collaborate with actual audits ~~of hotel sector~~
- ✓ Provide attendees final energy audit reports and PowerPoints that can be used as templates

Technology Demonstration

Overview:

- Field demonstration of emerging EE/RE technologies to evaluate for large scale deployment
- 3rd party verification of energy and cost savings
- Evaluate technical, economic, and ease-of-deployment characteristics

NREL's Core Capabilities:

- Technology agnostic, yet deep expertise across the spectrum
- Onsite M&V experience
- Understanding EE equipment deployment process



Photo: Jesse Dean, NREL

Proposed Technology Demonstration Work



Identify emerging technologies suitable for DR



Develop M&V Plan



Install the emerging technologies & metering



Analyze the performance



Report out results & roll out the emerging technologies

- ✓ **Identify emerging technologies suitable for DR based on the information collected during energy screenings and select audits**
- ✓ **Identify buildings where technologies can be installed**

- ✓ Develop ~~detailed~~ measurement & verification (M&V) plan for emerging technologies to be installed

- ✓ Install emerging technologies and metering required based on M&V plan
- ✓ **Collect long-term interval data**

- ✓ Use long-term interval data to analyze performance

- ✓ Provide PowerPoint and report of findings
- ✓ Hold conference calls to go over results with site staff
- ✓ **Roll out emerging technologies to suitable buildings in DR**

Contact:

Ricardo Castillo, NREL

Ricardo.Castillo@nrel.gov

+1-303-384-7452

www.nrel.gov

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