Overview of the Renewable Energy Resources for Landfills in Puerto Rico – Solar Photovoltaic Panels

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Guaynabo, Puerto Rico

Background

- EPA launched *RE-Powering America's Land Initiative* at the 2008 Brownfields Conference in Detroit, Michigan.
  - The purpose of this initiative is to take multi-pronged approaches to site cleanup and development of renewable energy production facilities on contaminated land.

Background

- EPA Region 2 in collaboration with the Puerto Rico Environmental Quality Board (PREQB) proposed the Renewable Energy Resources for Landfills in Puerto Rico Project.
  - The purpose of this project was to evaluate the feasibility of generating renewable energy resources at landfills in Puerto Rico, particularly the use of solar energy.
- EPA Region 2 and PREQB worked with the Department of Energy's National Renewable Energy Lab (NREL) to assess several landfills in Puerto Rico in order to determine their feasibility of generating solar energy using solar photovoltaic (PV) panel.

Background

- NREL conducted three feasibility studies covering 20 landfills in Puerto Rico.
  - Cataño, Guayama, Guaynabo, Salinas, San Juan, Santa Isabel, Toa Alta, Toa Baja
  - Aguadilla, Añasco, Isabela, Mayaguez, Moca
  - Carolina, Cayey, Fajardo, Humacao, Juncos, Vega Baja, Vieques

Benefits of Developing Renewable Energy Projects on Landfills

- Technical/Regulatory/Compliance Benefits
  - Potential pathway to final closure status (for active landfills)
  - Remove potential for final cover mishaps
  - Unintrusive footings that do not impact cap
  - Can allow for larger scale installations
  - Aesthetic appeal of solar arrays compared to vacant landfill site

Benefits of Developing Renewable Energy Projects on Landfills

- Environmental Benefits
  - Reduce Puerto Rico's carbon footprint (greenhouse gases).
  - Stewardship of contaminated lands
  - Solar energy production expected to coincide with periods of peak demand
  - Use green remediation principle
  - Sustainable reuse of impacted land
  - Protect greenspace

Benefits of Developing Renewable Energy Projects on Landfills

- Economic Benefits
  - Energy generated can be used for on-site needs or sale to utility (PREPA)
    - Operation and Maintenance activities
  - Create opportunity for incubator industries (operation and maintenance of system)
  - Create jobs for the manufacture, installation, and maintenance of solar PV panels
  - Reduce dependency on foreign sources of fossil fuels
  - Provides productive use and income to landfill owners and municipalities

Partnerships

EPA Region 2 and PREQB have been working on establishing partnerships with Federal and Puerto Rico Government agencies to obtain technical, regulatory, and financial assistance.

- **Puerto Rico Government Agencies**
  - Puerto Rico Environmental Quality Board
  - Puerto Rico Electric Power Authority (PREPA)
  - Energy Affairs Administration
  - Office of Infrastructure and Planning (Fortaleza)
- **Federal Government Agencies**
  - EPA Region 2
  - EPA Headquarters Offices
    - Office of Solid Waste and Emergency Response
    - Office of Brownfields and Land Revitalization
    - Office of Regional Counsel
  - U.S. Department of Energy NREL
  - U.S. Housing and Urban Development

Other Partners

- **Puerto Rico Government Agencies**
  - Puerto Rico Solid Waste Authority
  - Office of the Commissioner for Municipal Affairs
  - Puerto Rico Planning Board
  - Puerto Rico Industrial Development Company
  - Puerto Rico Economic Development Bank
  - Puerto Rico Department of Natural Resources and Environment
- **Federal Government Agencies**
  - U.S. Small Business Administration
  - U.S. Department of Agriculture Rural Development
  - U.S. Economic Development Administration
  - U.S. ARMY Corps of Engineers
  - U.S. Fish and Wildlife Services
  - U.S. Department of Transportation

Next Steps

- Educational Outreach
  - Solar Panel Workshop
  - Meeting with Interested Parties
  - Request Community Input
- Identify Additional Partners
  - Private Financial Institutions
  - Community Groups
  - Business Associations
  - Academia

Questions