Global Energy Solutions, Inc.

Case Study

Punta Cana Waste-to-Energy Project

BACKGROUND

Q. What was the intent of the USTDA Study?
The intent of the Punta Cana feasibility study was to evaluate the viability of constructing a waste-to-energy facility utilizing multiple renewable fuels, to provide usable economic and technological data to the developer, and to make broad stroke recommendations for implementation of the facility as well as education strategies for the community.

The Client's stated goal after implementation was to compete in the local energy market with rates below $100 per MW/h using locally sourced solid fuels without the need to co-fire with fossil fuels, and without special energy rate tariffs, incentives, or government subsidies.

Q. What were infrastructure issues relative to the study?
The project site offers adequate access to roadways, land, and water to support this facility. It is located directly above a highly permeable rock aquifer which feeds the area water wells which supports the need for improvement in waste management. Electrical interconnection modifications will be necessary to support the facility's voltage requirements.

The predominate infrastructure challenge— substandard local and regional management of municipal waste and waste dump sites—presents a substantial opportunity for positive change and economic viability. With over 43,000 hotel rooms in Punta Cana and projected increases in tourism, the solutions to managing waste and generating sustainable energy needs to be long term and scalable.

If recommendations in the study are implemented; the informal waste dump sites will be cleaned, remediated, or closed, waste management practices will be improved, and these changes will result in sustained benefits for residents, tourists, informal waste pickers, and the environment of the island.

SOLUTIONS

Q. What solutions are being recommended in the study?
The solutions being recommended to the developer when the facility is constructed include (1) multiple sources of fuel feedstock; (2) implementation of improved waste management practices and (3) multiple options for offtake.

(1) Multiple Sources of Fuel Feedstock:

a) Municipal solid waste—both mined from waste sites and collected/diverted from local homes and businesses.
b) Green waste from hotels and resorts.
c) Biomass sourced from purpose-grown energy crops.
d) Local end-of-life tires.

(2) Municipal Solid Waste Management:

a) Organic/green waste utilization.
b) Construction of a material recycling facility.
c) Sale (and other usage) of recycled material.
d) Excavation, mining, remediation of waste sites to produced refuse derived fuel.
e) Treatment of contaminated water.
f) Baling, wrapping, and storing waste to minimize leachate.

(3) Multiple Offtake Options for Revenue and Other Outcomes:

a) Generation of electricity (29.6 megawatts for the first power plant).
b) Revenue from recycled material.
c) Fuel produced from waste materials.
d) Ash produced for area industrials.
e) Health and safety improvements from waste management practices.
f) Community involvement including tours and virtual education modules about renewable energy.
g) Environmental protection (waterways, land, air, aesthetics).
h) Compliance with regulatory mandates.

Q. What technology will be needed and what are the potential exports?
The capital equipment and components for both the municipal recycling facility and the waste-to-energy power plant are likely to be exported from the United States. Detail engineering, installation, erection, O & M, and program management functions may also be performed by American technologists.

Q What is the plan for financing?
The developer has stated that a combination of both multilateral and local financing options are under consideration. The capital requirement for the first power plant is approximately $100 million USD. The developer is planning to replicate the power plant at other locations in the Dominican Republic.