

Procurement of a biomass boiler to operate a green industrial laundry site in Dominican Republic



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Quick facts



Type of procurement: **regional industrial laundry site, based on Cleaner Production**



Year of inception: **2012**



Type of business: **Tourism complex**



Organisation name: **Grupo Puntacana**



Number of staff: **2,000**



Country/region: **Punta Cana, Dominican Republic**



Procurement value: **2,000,000 USD for the installation of a biomass boiler in an industrial laundry site**

Background information

6.2 million tourists visited the Dominican Republic in 2017, representing approximately 77% of national GDP¹. The tourism industry in the Dominican Republic has developed following an "all inclusive" operation model operation.

Three distinct areas concentrate most of tourism activities in the country: Santo Domingo, Puerto Plata and Punta Cana; the latter concentrates 60% of all hotel rooms and arrivals in the country, with an average occupation rate of 67% in 2017. Grupo Puntacana has triggered the development of the Punta Cana region.

The challenge

In Punta Cana, most hotels operate following an all-inclusive model; this implies large volumes of textiles (bed linen, towels, tablecloths, uniforms, curtains etc.), which are frequently changed.

Improper treatment of wastewater from the laundry of hotels located in the coastal zone of Punta Cana has important ecological impacts in the region. To minimize these negative impacts, Grupo Puntacana decided to re-think its laundry operations to reduce costs by lowering water and energy consumption and giving preference to the use of biodegradable chemicals.

The strategy

Grupo Puntacana created **the first green industrial laundry site, based on Cleaner Production, whose main energy source is steam generated by a biomass boiler.**

To mitigate risks related to the high investment costs on the site, **the business model targeted not only providing laundry services to Grupo Puntacana hotels, but also to other businesses from the region including hotels and the Punta Cana airport.**



Biomass boiler, at Punta Cana Laundry Service.

¹ Source: Dominican Republic Central Bank, 2017

Impacts

In 2018, Punta Cana Laundry Service provided low carbon and environmentally friendly laundry services to 12 hotels (representing 4,000 rooms) in the area of Punta Cana, Bavaro and Bayahibe, as well as to Punta Cana airport personnel (3.6 million arrivals registered at Punta Cana airport in 2017).

Return on investment was achieved after three years of operation and the following benefits were measured:

- ➡ The replacement of two fossil fuel boilers with a biomass boiler in 2012 enabled **annual fuel costs to be reduced from 11,000 USD to 2,000 USD**; **GHG emissions of the industrial laundry site dropped from 6,455,025 Kg/CO₂ to 1,075,838 Kg/CO₂**;
- ➡ Pooling the needs from 12 hotels and an airport and centralizing the provision of laundry services in one sustainable industrial site enabled economies of scale. This meant **lowering water, energy and detergent requirements**, compared with traditional laundries that hotels used to operate in their respective premises. Risks related to wastewater from hotel laundries leaking into the marine environment have also been reduced;
- ➡ **Substantial cost savings for hotels** using Punta Cana Laundry Service, as they are no longer required to operate and maintain laundry equipment in their own premises;
- ➡ As Punta Cana Laundry Service operates following international hygiene standards and is fully automated, the probability of bacterial contamination has been reduced to a minimum, hence improving quality of stay and comfort to the guests;
- ➡ **Punta Cana Laundry Service created 64 direct and indirect jobs**;



In 2013, Grupo Puntacana received a Cleaner Production award² issued by the Ministry of the Environment of the Dominican Republic, which enhanced its brand reputation and visibility of sustainable initiatives.

² More information is available at: <http://www.puntacanablogs.com/blog/grupo-puntacana-recibe-premio-a-la-produccion-mas-limpia>

"One of the most important achievements is to be able to provide services to hotels in the area, which means cost savings, but also mitigation of environmental impacts - which ultimately preserves our destination"




- Naudy Meneses, Manager, Punta Cana Laundry Service



Lessons learned

- ✓ **Following cleaner production protocols enabled the significant reduction of environmental impacts of laundry operations**, while maintaining a viable business model;
- ✓ **Turning the industrial laundry site into a service provider to other businesses helped support investment costs**, while collectively maximizing environmental benefits in the Punta Cana area.

For further information

-  <http://www.grupopuntacana.com.do/empresas/punta-cana-laundry-services>
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Procurement of energy efficient equipment to reduce carbon footprint in the Philippines

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Quick facts



Type of procurement:
energy-efficient equipment



Year of inception: **2009**



Type of business: **Hotel**



Organisation name:
Daluyon Beach and Mountain Resort



Number of staff: **55**



Country/region: **Palawan, Philippines**

Background

Daluyon Beach and Mountain Resort is situated close to the Puerto Princesa Subterranean River National Park¹ – a UNESCO World Heritage Site. It is located in the south-western part of the Philippine Archipelago, on the mid-western coast of Palawan –360 km southwest of Manila. The Park not only features a spectacular limestone karst landscape with an underground river, but it also represents a significant habitat for biodiversity conservation. Protecting and conserving the natural values of the Park is therefore a critical concern when operating a resort in the vicinity of the UNESCO World Heritage Site.

The challenge

Reducing the environmental impacts of the resort operations by choosing energy-efficient solutions, and decreasing the dependency on fossil fuels without compromising on the guests' comfort and satisfaction has driven the decisions of Daluyon Beach and Mountain Resort. However, reducing the energy and resource consumption and their associated costs while meeting the needs of a resort in a tropical climate requires identifying reliable alternative energy sources and robust green technologies.

The strategy

In 2009, Daluyon Beach and Mountain Resort joined the EU-funded SWITCH-Asia Zero Carbon Resorts project² (2009-2014), whose objective is to enable tourism SMEs to procure energy services in an efficient, cost effective, and environmentally sound manner. The project accompanies hotels and resorts in their switch from fossil fuels to renewable energy sources in order to reduce emissions and secure the availability of energy services in urban, remote, environmentally sensitive areas.

In this context, Daluyon Beach and Mountain Resort developed alternatives to incorporate cost-effective, energy-efficient, and environmentally-friendly technologies in its daily operations (i.e., energy-efficient lighting and air-conditioning, environmentally friendly insulation materials etc.). The "3R" strategy is anchored throughout the process, i.e.:

- ➡ **R (Reduce):** Reduce energy consumption;
- ➡ **R (Replace):** Replace inefficient appliances and equipment;
- ➡ **R (Redesign):** Redesign buildings into more self-sufficient and carbon-neutral structures.

More specifically, the following has been put in place:

¹ More information available at: <https://whc.unesco.org/en/list/652>

² More information available at: <https://www.switch-asia.eu/projects/zero-carbon-resorts/>

	Actions
Reduce energy consumption	Installation of tubular lighting, louver roof ventilation, water sprinklers on the roof, light sensors and energy monitoring equipment
Replace inefficient appliances and equipment	Replacement of conventional technologies to energy and environmentally sound equipment such as A/C inverter units, Smart LED televisions, and solar energy equipment for heating water.
Redesign Buildings into more self-sufficient and carbon-neutral structures.	Use of both active and passive cooling techniques through sustainable architecture and use of renewable energy, including: <ul style="list-style-type: none"> - Combination of air-condition units and natural ventilation; - Use of solar power for LED lighting in guest rooms and beach bar; - Transition to a gas absorption chiller and heater technology; - Use of local and sustainable materials for the resort's main structures. For example, locally available cogongrass was used for rooftops and recycled wood for the panels and furniture.

In 2017, follow-up activities of the Zero Carbon Resorts project included **capacity-building initiatives delivered by The Palawan Council for Sustainable Development to resort staff**, which aimed at sharing up-to-date information on available green technologies and products to increase energy efficiency in resort operations and guidance on how to conduct energy assessments.

Impacts

- Prior to 2009, Daluyon Beach and Mountain Resort used a 110kVA Diesel Generator set for 16 rooms with restaurants and facilities, which was then downsized to 83kVA despite the expansion to 27 rooms thanks to the use of gas cooling and heating technology.
- Initially, Daluyon Beach and Mountain Resort had a single air conditioning system of 2hp power non-inverter type, demanding on average 1866 W. This system was then replaced with two more efficient inverter units (which can modulate compressor speed according to the load): one of 1.5hp with an average power demand of 840 W and another 1hp with 640 W. **These two units allowed savings of between 55% and 65% of monthly electric costs.**
- The installation of tubular lighting enabled a decrease in temperature in the kitchen, as fluorescent lights generate less heat during the daytime. It allowed **monthly energy cost savings of 24 USD per tubular light.**
- **Installing louver roof ventilation** on the roofs of guest rooms and staff houses, as well as **water sprinklers** on the roof of the pavilion tent which helped reduce radiant heat generated **an annual energy savings of 4,200 USD.**
- **100% solar-powered LED lighting in the guest rooms and beach bar allowed annual savings of 400 USD per lamp.**
- The transition to a gas absorption chiller and heater technology enabled between **46% and 60% savings in operating costs** as opposed to a traditional electric air-conditioning system.



Daluyon Beach and Mountain Resort was recognized as one of the recipients of the 2012-2014 ASEAN Green Hotel Award³ and also received in 2018 the ASEAN Sustainable Tourism Award⁴.

³ More information available at: <https://nezeh.com/asean-green-hotels/>

⁴ More information available at: <http://aseantourism.travel/content/asta>

"We keep on upgrading and re-inventing in a greener way, as there are new green technologies we can choose from. Being a responsible businessman and simultaneously caring for the environment is good business sense."

- Ruben F. Tan, Jr., Chairman and Chief Executive Officer, Daluyon Beach and Mountain Resort



Louver ventilation installed on the roof of a guest room






The newly installed water sprinkler at the roof of the tent.



Lessons learned

- ✓ Strong engagement of the resort owner was critical to support the sustainable development of the resort and consider green alternatives as a long-term investment rather than a cost;
- ✓ Having skilled maintenance engineers on site is certainly a success factor; offering them regular capacity building opportunities in order to keep abreast of the latest green technologies proved to be critical.

For further information

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