Energy Case Study
STARWOOD HOTELS AND RESORTS

Creating a more sustainable and uncompromised luxury experience for guests

Starwood’s W Retreat & Spa Maldives, a resort hotel on a private island, features 78 private suites for guests alongside staff accommodations. The resort also features three restaurants, two lounge concepts, an underground night club, a spa, an outdoor pool, and a fitness center. All electricity on the island is produced by diesel generators.

The Challenge
In order to operate a luxury resort with modern full-service amenities on a remote private island, Starwood needed to invest in projects that maximizes the efficiency of energy use and the reduction of waste while providing an uncompromised guest experience.

Furthermore, the Maldives is located just north of the equator in the Indian Ocean and have a naturally warm and humid climate, with temperatures ranging from 24 to 33 degrees Celsius (75 to 91 °F) year-round. In this climate, HVAC systems provide a comfortable and cooling environment for guests.

Upgrades Completed

- Replaced old air-conditioning units with efficient inverter-type AC units for staff accommodations and variable-refrigerant-flow units for guest villas and the spa.
- Installed an integrated room automation system to control AC units by reducing output when rooms are set at “unoccupied” and controlling temperature and humidity while guests are away or have doors open.
- Installed heat-recovery fixtures that use generator waste heat to provide continuous hot water.
- Upgraded guest-room lighting to light-emitting diodes (LEDs) from compact fluorescent lamps and replaced 50 televisions with more efficient LED sets.
- Installed motion sensors in lavatories to operate lights and exhaust fans.
- Installed water-saving fixtures in guest rooms and staff accommodations.
- Used facility wide power analyzer meters for each energy distribution area.
- Added recycling bins to encourage the separation of waste for easy on-site recycling, including grinding of glass bottles for a sand substitute and organic waste used as tree fertilizer.

Results

- $1,448,392 TOTAL INVESTMENT
- 25% REDUCTION IN PEAK ELECTRICITY LOAD
- 42% REDUCTION IN GENERATOR RUNNING HOURS FROM 2011 TO 2014
- $313,051 DIESEL OIL COST SAVINGS FROM 2013 TO 2014