

## Project Case Study

### Fairmont the Palm

**17%**  
ENERGY REDUCTION

**2,300,000 AED**  
ANNUAL SAVINGS

*A world-class hotel transformed into a world class sustainability example in-line with the Dubai vision to be the worlds most sustainable city using engineering, technology and finance, with energy savings and performance guaranteed by Taka Solutions, recognized with multiple prestigious energy awards.*



### PROJECT INFORMATION

**Contract Type:** Guaranteed Savings Energy Performance Contract

**Dates:** January 2015 - December 2018

**Asset Owner:** IFA

**Hotel Operator:** Fairmont Hotels & Resorts

**Energy Services Company (ESCO):** Taka Solutions

**Consultant:** Griffin Project Development Consultants

**Key Technologies:** IES VE, Tridum Niagara, Microsoft Azure, Melink Intelli-Hood

#### Property Summary

The Fairmont Palm is a world class 5-star hotel located on the trunk of the Palm Jumeirah in Dubai, UAE. The 300 room beach resort includes a spa, conference center, penthouses and 7 food and beverage outlets. Built in 2013 it is an iconic landmark on the man-made island that sets the bar for quality guest experience and 5-star luxury in Dubai.

### CUSTOMER CHALLENGE

Due to the extreme environmental and weather conditions in Dubai, UAE, buildings consume large amounts of energy throughout the year. The high temperatures cause systems, consumption and cost to be a large part of hotel operations and costs, that have a material impact on the business, and the guests. Fairmont Hotel wanted to not only reduce this energy consumption and cost, but their overall impact on the environment and reduce their carbon footprint. This in turn causes all guests to have a smaller footprint by staying at the luxury 5-star resort.

Due to the nature of the luxury resort there is always a need to maintain comfort, cooling and guest satisfaction 24 hours a day, regardless of occupancy. Coupled with the 'reverse cash flow' problem hotels in the UAE face, where the occupancy and revenue is lower due to summer slow down, but at the same time is their highest energy consumption and costs. For these reasons Fairmont the Palm, and IFA Hotels wanted to take the steps to lead by example and become a high performing asset via a performance-based energy contract.

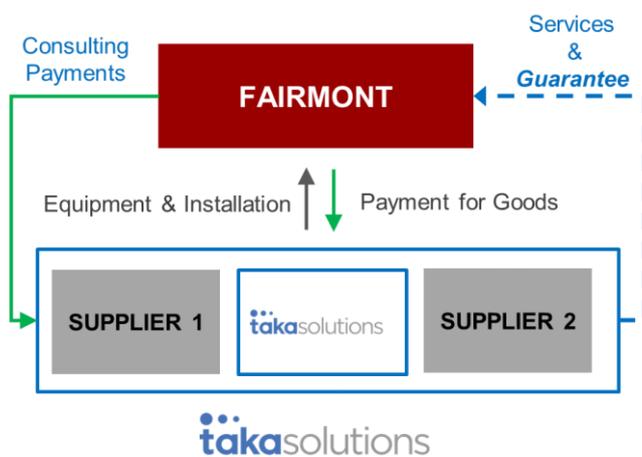
## TAKA SOLUTIONS STRATEGY

As a comprehensive, technology and engineering focused energy efficiency company (ESCO), with its base in Dubai, Taka Solutions was a perfect fit to help Fairmont the Palm achieve their ambitious targets. This along with the strong financial capability of Taka Solutions to fully finance and invest in projects, or to guaranteed energy savings, locking in payback, cash flow and returns for the customer, created an attractive proposition.

Using a turn-key guaranteed savings energy performance contract Taka Solutions was able to apply innovative engineering and technology during the audit of the facility to find a total of 40 unique energy efficiency measures (EEMs) in the property that would save a total of 5,100,000 AED if implemented. The customer decided that start with four of the 40 for the 2016 project, with a forecasted savings of 1,300,000 AED per year.

### Scope of Work

- Investment Grade Energy Audit
- Measurements
- Energy Modeling
- Design & Specification of Measures
- Supplier Procurement & Management
- Implementation Management
- Commissioning
- Building Information Modeling
- Measurement & Verification of Savings
- Energy Management & Operations
- Guarantee of Financial Energy Savings



### Structure

- Taka acts as energy consultant & contractor
- Procured and oversaw installation
- Taka Guarantees all savings
- Monitoring, reporting and O&M

### Contract Benefits

- 100% of savings to hotel
- Cash flow from day one
- **Savings guaranteed**
- **Locked in cash flow and payback**

## TECHNOLOGY BIM & ENERGY MODELING

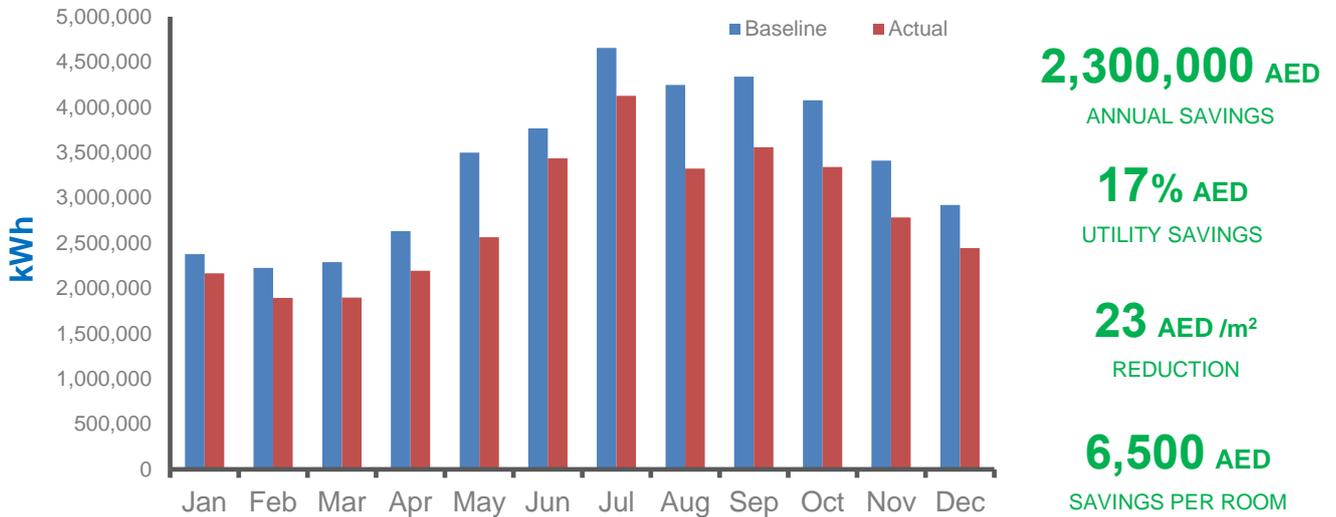
Taka Solutions built a digital asset of the building to use for the analysis, energy modeling, ongoing asset management and O&M during the project. This as as-built Building Information Model (BIM) of the asset served as the central point of the project.

The energy model, created by engineering partner Griffin Consultants was created using IES to forecast accurate savings per measure, and energy use during the baseline period, and future. The model was built using past bills, systems, controls and BMS data, along with site measurements from the Taka Solutions audit. The model is able to simulate all 8,760 hours of the year, and understand specific consumption of systems, equipment and spaces in the hotel based on hotel occupancy, setpoints, cooling and weather. IES provided the team the tools to assess the savings from the retrofits, and offer the confidence to financially invest, and guarantee the savings of the project.



**PERFORMANCE & RESULTS**

The implementation of the EEMs has resulted in savings of 2,500,000 AED since the project inception and 9,000 MWh of energy savings. This energy reduction is equivalent to removing 4,500 metric tons of Carbon Dioxide from the atmosphere, which is equivalent to consuming 10,500 barrels of oil. Since new equipment and technology has been installed and implemented, saving energy cost savings increase in the Net Operating Income of the building has increased the value of the asset by approx. 31,000,000 AED.



The strategy used for reduction of the asset’s energy consumption and carbon footprint involves the optimization and control of the asset’s air conditioning based on demand of the hotel guests. The asset only consumes the energy that it requires at any given time, which has resulted in substantial energy and cost savings, in addition to guest comfort and simplified O&M for the FM team. The on-going energy management has reduced the time and effort required by the FM team to operate and maintain the systems and equipment.

This is the largest hotel and/or resort in the region to have this measure implemented. From an environmental impact standpoint, the reduction has lowered the hotels carbon footprint, making it one of the greenest and energy efficient hotels in the region when compared to similar ones. The project’s success can be attributed to the high level of innovation and intricate planning of the EEMs implemented, and the blending of quality engineering, technology and finance by the team, with the commitment, involvement and by-in from the Fairmont and IFA teams.

**AWARDS AND IMPACT**



**2017 Hotel Energy Project Of The Year**



**2017 MENA Retrofit Project of the Year**

*Other Customer Value and Benefits*

- Guest Comfort & Reliability
- Brand Strength & Marketing
- Corporate Sustainability Performance
- Energy Risk Reduction
- Energy & O&M Liability Shift
- Increased Expert Engineering Support

## IMAGES



## CUSTOMER TESTIMONIAL

### ABOUT TAKA SOLUTIONS

Taka Solutions is a Dubai based ESCO that finances, develops and implements projects and solutions aimed at enhancing clients' energy efficiency, and reducing energy-related expenditures providing both economic and environmental benefits. In today's world using energy correctly is no longer a choice dictated by individual awareness, but an economic and social global priority. Using energy efficiently means, first and foremost, optimizing its use in order to make savings on consumption and better allocation of company resources. As a company committed to these goals, Taka Solutions has delivered; Audits to over 150 buildings in UAE, 5 million sq. ft. worth of retrofits and an average of 29% energy savings. Taka Solutions is building a new energy future for the UAE. As a leading provider of energy efficiency services for UAE customers, Taka Solutions provides financing, energy auditing services, energy efficiency designs and implementation of energy efficiency projects for our clients which consistently exceed project savings goals. Our award-winning technology integrated energy efficiency service programs provides our customer with a reliable energy efficiency resources while delivering the highest levels of customer satisfaction. This next generation approach is helping UAE business owners and residents alike across the country to go deeper and broader with their energy efficiency goals. The company's solutions comprise of variety of energy efficient mechanical upgrades, HVAC Optimization, upgrades and retrofits, hot water plants, pool heating and cooling, CHW optimizations, pump optimization and upgrades, operational upgrades, and energy efficient lighting upgrades. As part of our solution we also offer on going energy management and implementation services, with services ranging from energy audits, energy efficiency package design, energy efficiency package implementation management and implementation of energy efficiency equipment.

### ABOUT FAIRMONT HOTELS

### ABOUT IFA HOTELS AND RESORTS

**PROJECT PARTNERS**

