Quantum Eco Hot Water

Commercial Solutions

Case Study

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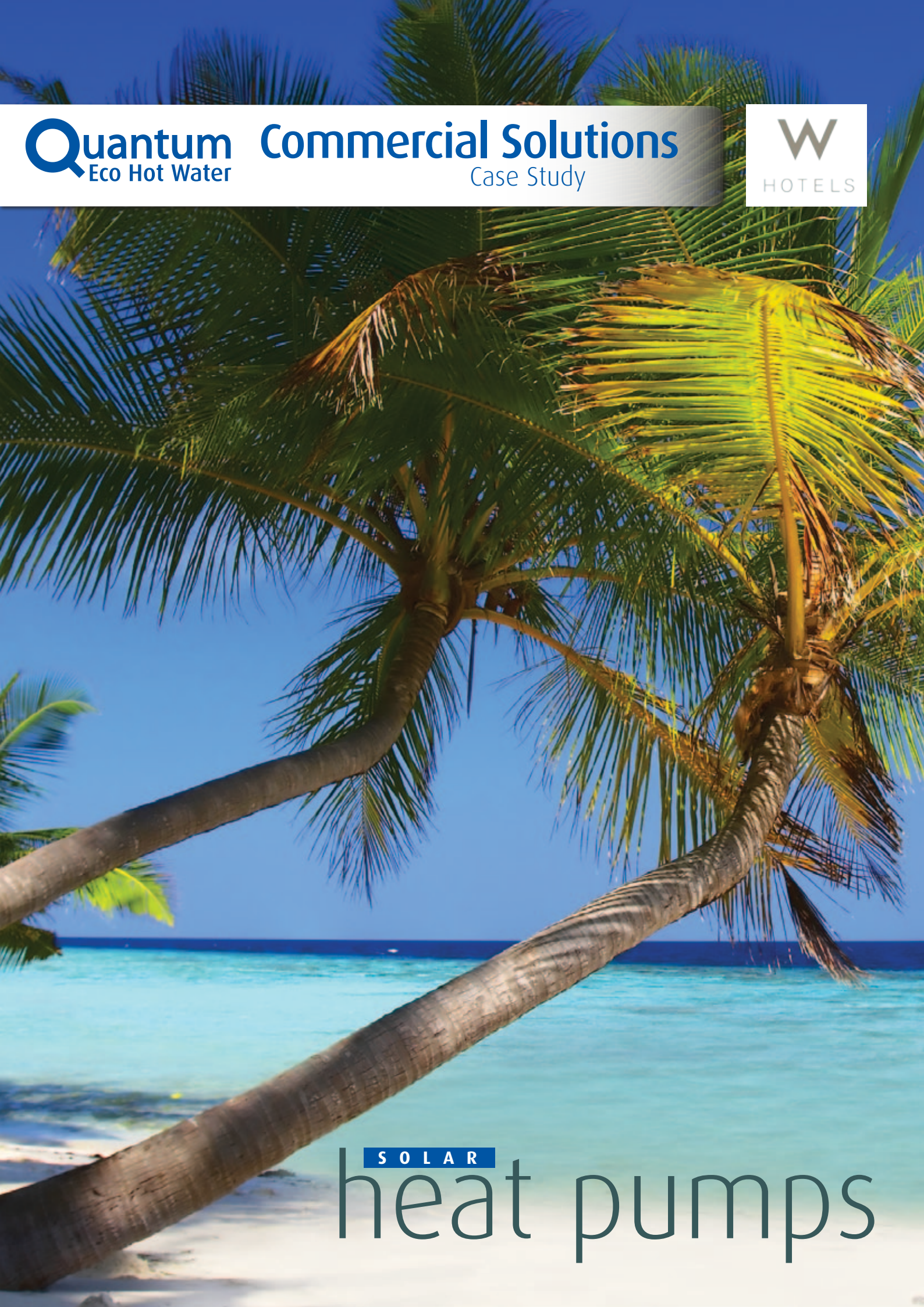

SOLAR heat pumps

Case Study

Fesdu Retreat and Spa Resort

Republic of the Maldives

Introduction

Set in the Indian Ocean, the Maldives are a tourist and scuba diver's paradise. The Maldives are a pristine ecosystem comprising of 1,100 coral islands in 200 atolls, with only 200 of them actually populated.

There are over 80 resorts in the Maldives and all of them face a similar problem as did the Fesdu Retreat and Spa Resort, when it came to the provision of hot water for their resort guests.

The Problems

The problems are "fourfold" explains Quantum's Managing Director, Phillip Sidney.

These are:

1. The water supply is all aquifier fed and tends to be quite high in dissolved solids. This very quickly will cause deposition of mineral salts on traditional electric water heater elements, causing a decrease in performance.
2. The high dissolved solid content and salt air environment means that corrosion of equipment is a major issue.
3. Electricity on the islands is supplied in the main by diesel generator sets. This is very costly and also has obvious environmental implications both on a larger scale with carbon dioxide emissions and on a local "island scale" with the noise pollution aspect.
4. Eco-awareness on the islands is very high. Phillip Sidney explains that this is a necessity being that the highest point in the Republic is only a mere 2.4 metres above sea level. "Naturally while the inhabitants of the Maldives can't stem global warming by their efforts alone, they still have a strong commitment to reducing carbon emissions where they can".....

"...saving significant operating cost as well as delivering environmental benefits."

The Solutions

The Fesdu Retreat and Spa Resort, faced with these problems looked to Quantum Energy for the solution and installed over 50 of Quantum's high performance heat pumps.

Phillip Sidney states that, "the installation of these units saved a considerable load on the diesel generators, which in turn significantly reduced operating costs as well as delivering environmental benefits".

Quantum Energy's TankWrap™ technology means that the actual heating coils are not immersed in the water to be heated. This patented technology prevents scaling of the coils and minimises corrosion when compared to traditional coil in water electric units and other heat pumps.

Additionally, proprietary corrosion protection coated heat exchange coils means better resistance to salt air environments and a longer operating life.

The Result

The combination of Quantum's proprietary design and special features such as additional corrosion protection, makes them "the" choice for resort owners, especially when the resort is located in coastal or island localities. Additionally, Quantum Energy units come in a range of sizes from 150 litre up to 1,020 litre storage units which means that the most efficient solution can be easily obtained and tailored for the specific resort's needs.

Fesdu Retreat and Spa Resort is located on Fesdu Island in the North Ari Atoll in the Republic of the Maldives. The Fesdu Retreat and Spa Resort is a member of the Starwood Group of Hotels and Resorts.

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Quantum Energy high performance heat pumps

Installations Overview

How does a Quantum Energy heat pump save you money?

Titan 340 Litre

The Quantum Energy Titan 340L compact hot water heat pump is a market leading blend of performance, capacity and flexibility.

The Titan is able to operate as a stand alone 340L storage unit or manifolded together to form a self contained unit suitable for commercial and industrial applications. Quantum's Titan 340L affords designers, architects and developers alike great flexibility and design freedom.

A 1.7kW compressor powers the Titan. In normal ambient temperatures, outputs in the range of 6-8kW are achieved.

The Quantum Titan's ability to deliver large volumes of 60°C hot water whilst delivering true cost savings via energy usage reduction compared to traditional gas or electric units, makes it an economically viable and environmentally sound choice for all hot water needs.

Comparison Scenario

Standard electric hot water heater vs Quantum high efficiency heat pump.
Cost to heat 1,500 Litres per day of water at 60% relative humidity and 20°C ambient air temperature.
Standing heat losses of units assumed to be the same.

Standard Electric		Quantum Energy
Element 3.6kW Heater **340Lt**		340-17ACW-134 **340Lt**
3.48	**Heat Load (kW)**	3.48
3.55	**Unit Output (kW)**	6.12
3.60	**Unit Input (kW)**	1.68
19.62	**Hours Heating**	10.36
0.12	**Electricity Tarriff ($/kWh)**	0.12
69.63	**kWh Usage (kWh)**	17.41
8.18	**Cost per day ($/day)**	2.05
2,986.40	**Cost per annum ($)**	746.60
	Savings per annum ($)	2,239.80

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