PEEK
A sustainable concept.

Peek Project Description

The overall aim of the "Program for Energy Efficiency in Kho Khao and Khao Lak (PEEK)" is to significantly reduce green house gas emissions from the hotel industry in Kho Khao and Khao Lak by means of innovative and replicable solutions for energy efficiency and renewable energy. PEEK is part of further efforts of UNWTO along with the Ministry of Tourism and Sports (MoTS) to create a model destination for sustainable tourism in Kho Khao and Khao Lak. The core work streams of the project are: Stakeholder engagement and information dissemination, Energy efficiency measures, Renewable energy technologies and Feasibility study for decentralized energy supply of the island.

Khao Lak Seaview Resort & Spa /Hot Water System

1. Hotel Description

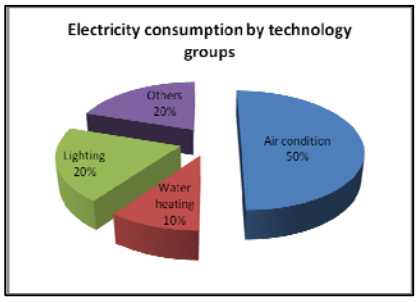


The Khaolak Seaview hotel offers 197 guest rooms. The hotel was built in 2004 and is rated with 4 stars. It provides a variety of additional facilities including swimming pool, cocktail bar and a couple of restaurants. The hotel is open during the whole year. The average occupation varies between 21% for April-October and 78% for November-March.

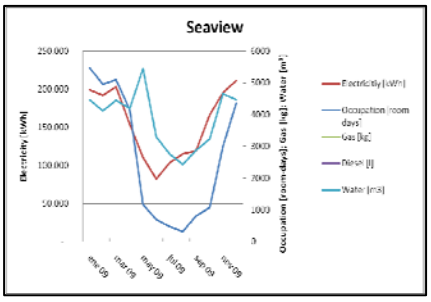
2. Energy Consumption

The detailed energy self-audit performed in early 2010, provided the following results*:

Elec. consumption by technology groups



Occupancy vs elec. consumption



*Elec. consumption vs. ops. Areas could not be calculated since it was a self audit process without metering.

Khaolak Seaview had an annual electricity consumption of around 1,850,000 kWh. Air-conditioning was estimated to be responsible for 50 % of the electricity consumption.

3. CO2 and electrical savings

A heat pump system was implemented consisting of 7 heat pumps with 13 kW heat capacity 34,000 BTU/h. This system is able to produce 330 ltrs/h of warm water (60°C) average during 9.1 hours of runtime operation. Moreover, no- and low cost measures such as efficient lighting have been introduced. All Energy efficiency measures implemented are stated in Table 1.

Monitoring: The expected CO2 & energy reduction was calculated, assuming the use of typical electrical boilers instead of the heat pump units (business as usual), by estimating guest behavior regarding hot water use. Regardless of the previous data, confirmation of the heat recovery unit power capacity was measured (Performance Testing). EE no-low cost measures had been introduced and checked.

Table 1.

Energy saving measures	Annual kWh saving	CO2 reduction (ton/year)	Annual cost saving (Baht)
Replacing existing water heater with heat pumps	119,229	60.29	424,065
No/low cost measures	115,071	58.20	414,255
Total	234,300	118.49	838,320

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