

AIA Tower, Macau

Energy Management for Grade A Building (2006)

Energy Management Objective

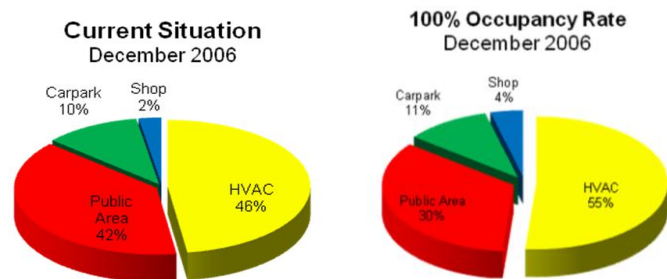
The Property Management Company of Citicorp Centre wished to apply similar “Green” actions to its newly operated building - AIA Tower, Macau. INERGI Energy Consultancy team was consequently invited to perform energy audit services to identify long-term energy saving opportunities. Throughout the whole service period, we studied the current electricity consumption portfolio and carried out simulation for the case where the occupancy rate has reached to 100%.

Basic Information of Property

- Building Type: Commercial grade A
- GFA, m²: 37,000
- No. of floors: 21
- Operating years until 2006, years: 1 (since April 2006)

Project details

The pie chart on the right shows that when the occupancy rate grows to 100%, the HVAC system will count for about 55% of the whole energy consumption of the building instead of about 46% (during the same period of time - December 2006).



Furthermore, based on the current situation, the COPs of the chiller system of December 2006 and even January 2007 were found to be lower than 4.5 which is the benchmark suggested by the EMSD of Hong Kong (See table below).

Chiller System	December 2006	January 2007	Benchmark of EMSD of Hong Kong
COP	3.14	3.87	> 4.5

In order to improve the performance of the chiller system and maintain the low energy consumption pattern of the building, the following Energy Management Opportunities (EMOs) were proposed:

Energy Management Opportunities (EMO)	Electricity Cost Saving (MOP)	Energy Consumption Saving (kWh)	Estimated Investment Cost (MOP)	Simple Payback (Years)
Chiller Plant Energy Optimization	227.3K	171,000	1,350K	-1.3
Operation and Maintenance of the Chiller system	333.3K	251,000		
Refrigerant Oil Additive	325K	244,000		
Lighting Energy Retrofit	166.7K	125,000		
Further Study on Impact of Power Quality to Future Development of the Building	-	-	150K	-
Total	1052.3K	791,000	1500K	
Electricity Cost Saving in percentage	37.0%			