Ministry Natural Resources and Environment Hochiminh City University of Natural Resources and Environment



JCM PROJECT REPORT

A LOW CARBON HOTEL PROJECT IN VIETNAM: IMPROVING THE ENERGY EFFICIENCY OF COMMERCIAL BUILDINGS BY UTILIZATION OF HIGH EFFICIENCY EQUIPMENT

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PROJECT ORGANIZATION DIAGRAM



PROJECT SITE:

• Hotel in Hanoi • Hotel in Ho Chi Minh City



PROJECT INFORMATION

Which technologies were applied in this project for energy saving

- A new Energy management system for Vietnam (V-BEMS).
- Boilers
- Heat pump
- LED light replacement

Where technologies were applied???

- Renaissance riverside hotel Saigon
- Nikko Hotel Hanoi

Project duration:

• 2015 - 2017



Why new boilers are installed?

The high-efficiency boiler was developed, and the small once-through boiler and unit control system are typical in Japan.
High-efficiency boilers are very effective for cost reduction as the oil price is high in Vietnam.



Advantage of Introducing Heat Pump



Renaissance riverside hotel saigon



- Address: 8-15 Ton Duc Thang Street, District 1, Ho Chi Minh City
- New equipment installation:
- A new Energy management system (V-BEMS).
- 2 new boilers









Boiler room plan

Nikko Hotel Hanoi

- Address: Tran Nhan Tong street, Hai Ba Trung district, Hanoi, Vietnam
- New equipment installation:
- A new Energy management system (V-BEMS).
- Heat pump
- 2 new boilers
- Replace 197 LED lights



Summery of Introduced Technology

The Project targets air-conditioning, lighting, and hot-water supplying, which altogether consume as much as 85% of the total building energy.



Best Combination of Hot Water Systems

Typical example of 24-hours data of hot-water demand in a hotel.



Heat pump can achieve highly efficient operation by handling the base-load part throughout the day, which will lead to total cost reduction.





3rd Floor Plan

Installation system for hotel nikko hanoi





Result achievements



Operation improvement by using BEMS

Improvement items

- 1. Optimum operation of Cooling water pump
- 2. Optimum operation of heat source
- 3. Heat source optimum rotation
- 4. Efficiency of operation by manual instruction
- 5. Looking back on daily operation before morning meeting







100



- Energy Efficiency -

Renaissance Riverside Hotel Saigon (Boiler)







FY2016

FY2015

Annual reduction amount Oil 🔺 185,000 L Electricity + 175 MWh Amount **A** 74,800 \$ CO2 🔺 400 t

Outcome of energy efficiency

hotel nikko hanoi (LED)



Annual reduction amount Electricity \blacktriangle 77 MWh Amount \bigstar 7,700 \$ CO2 \bigstar 40 t

Brightness more than



External evaluation of hotel Nikko Hanoi



Received Green Building Award in 2016 from Ministry of Industry and Trade of Vietnam



Received Grand Prix of 2016 about Energy Saving Activities, sent to hotels that realized energy saving among Okura Nikko hotel group in the whole world

HIBIYA

18

CO₂ credit achievement

- Total: 256
 - + Japan (70%): 181
 - + Vietnam government (10%): 27
 - + MONRE (20%): 53

Experiential lessons

- Good collaboration in Japan and Vietnamese sites
- Tax exemption procedures
- Data collection
- Report and other procedure for credit distribution

