

SB-1: LOW ENERGY BUILDINGS NETWORK

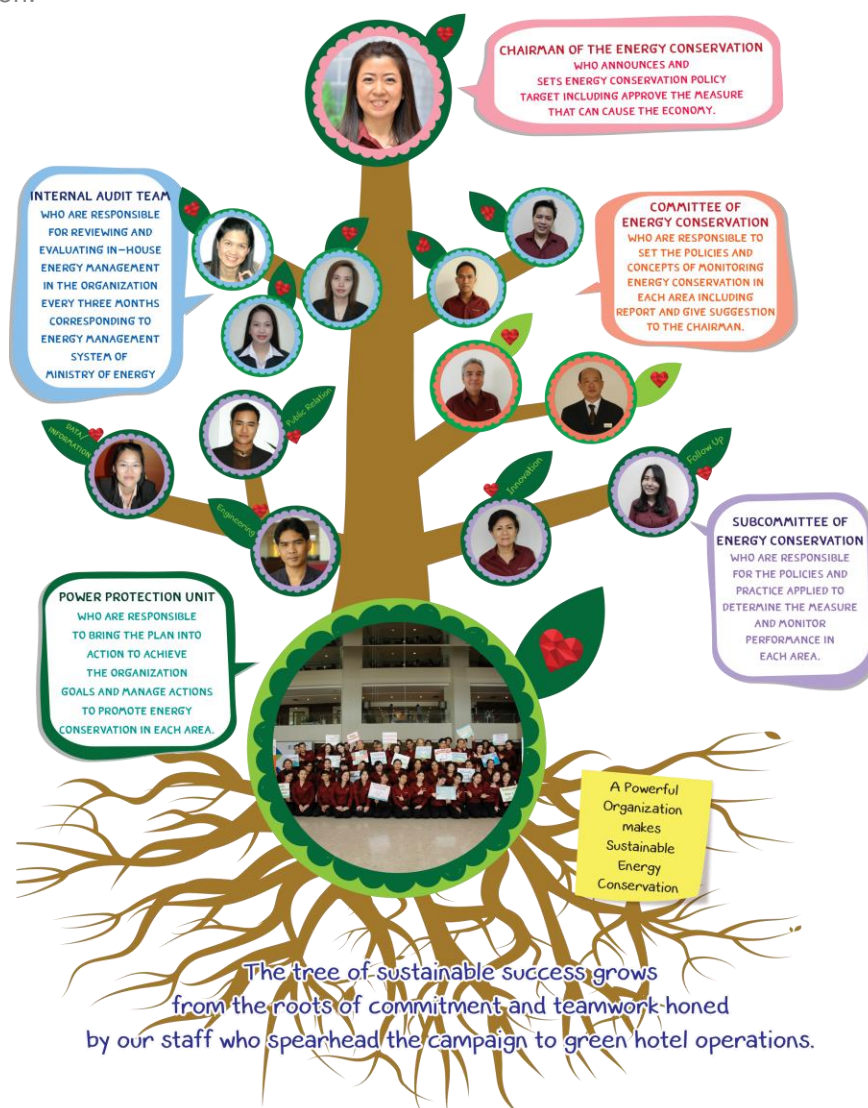
Basic Information

Project title:

Energy Conservation Campaign at Richmond Stylish Convention Hotel, Thailand.

Managing Organization:

Richmond Hotel set up an energy saving team in 2011. This team has been evaluated and adjusted yearly. Miss Laksawan Wongworakarn Managing Director has held the position of chairwoman of the energy saving committees. These committees are responsible to operate and control energy saving techniques to comply with eight steps of energy saving listed by the Ministry of Energy. The energy saving committees also set up a sub-committees and energy saving units, which were selected from every hotel division.



Project Description:

Richmond Stylish Convention Hotel opened for its first guests 8th January 1995. The hotel has 220 staff many of whom have worked with the hotel from its early days. The hotel prides itself on its 24 hour service and a high standard of hospitality. But it also strives to have impeccable green credentials through a low energy consumption profile, while maintaining full-service operations.

From 2011 to 2014, the hotel has engaged in an energy saving programme and this has resulted in reduced energy consumption. To deliver the goal of energy efficiency, Richmond Hotel has created a culture of energy saving at all levels of hotel operations. We have encouraged employees to be personally involved in energy conservation activities. They are team members, who lead the campaign to reduce the carbon footprint. It started with energy conservation training for all staff so they could guide others and also apply their know-how and skills in their working routines. We also encourages guests to join the campaign by using energy economically, during their stay at the hotel. Then there is an ongoing outreach to the community. Activities are conducted to educate children about energy saving as part of our corporate social responsibility programme.

For the past four years through energy conservation activities (both investment and non-investment), we have reduced energy consumption by more than **4,620,724 kWh**, which is equal to **3,368.06 tons of CO₂ emissions**. The reduction of energy consumption gave us total savings of over **21.38 million baht** with the average ROI of 0.87 per year. Recently, **Richmond Stylish Convention Hotel was awarded the best Energy Saving Building of MEA 2014 from the Metropolitan Electricity Authority of Thailand with prize money of 2 million baht**. Also the winner of “Thailand Energy Awards” and “ASEAN Energy Awards” 2015.

A culture of energy saving was not easy to create but at Richmond Hotel, **WE CAN**. It is our firm belief that our success story is driven by our staff, who are committed to the energy conservation programme. They are the Richmond Ambassadors leading the greening of our hotel.

APEC Economy:

- ☐ Australia
- ☐ Brunei
- ☐ Canada
- ☐ Chile
- ☐ China
- ☐ Chinese Taipei
- ☐ Hong Kong
- ☐ Indonesia
- ☐ Japan
- ☐ Korea
- ☐ Malaysia
- ☐ Mexico
- ☐ New Zealand
- ☐ Non-APEC Economy
- ☐ Papua New Guinea

- ☐ Peru
- ☐ Philippines
- ☐ Russia
- ☐ Singapore
- ☒ Thailand
- ☐ United States
- ☐ Viet Nam

Estimated Savings

Savings Narrative

1. Energy Saving

Since 2011, the impact of the Great Flood together with Thailand's Political and energy crisis, Miss Laksawan Wonworakan, Managing Director of Richmond Group decided to designate an energy conservation policy. Over four years of performing energy saving programmes, the executive team has spent more than 18.60 million baht to train staff (Peopleware), create work systems (Systemware) and improve machines' efficiencies (Hardware). We also fine-tuned our machines to maximize efficiencies. This enabled us to be able to reduce our energy consumption for more than 4,620,724 kWh. (See table 2)

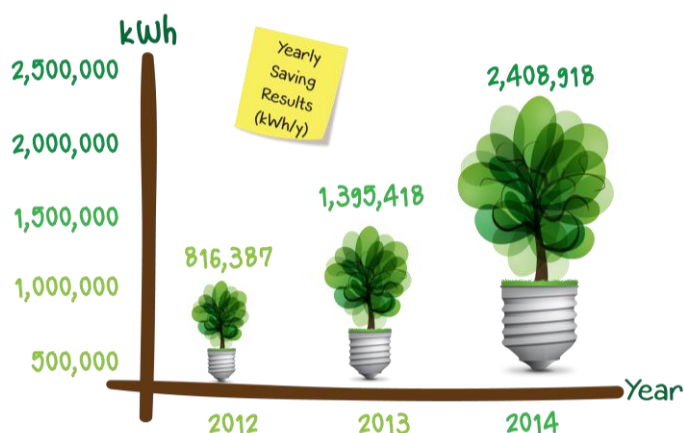


Table 1: Hotel's Energy Efficiency Index during 2012-2014

Year	(1) Electricity (kWh/Year)	(2) Fuel (MJ/ Year)	(3) Total Energy Used (MJ/ Year) [(3) = (1)*3.6 + (2)]	(4) Hotel Guest (Room-Day)	(5) Energy Efficiency Index (MJ/Room-Day) [(5) = (3)/(4)]	Save [%]
2012	8,977,000	14,742,213	47,059,413	116,138	405.20	-
2013	7,761,000	12,643,494	40,583,094	109,984	368.99	8.94
2014	7,275,000	12,521,083	38,711,083	139,359	277.78	31.45
Sum.	24,013,000	39,906,790	126,353,590	365,481	-	-
Avg.	8,004,333	13,302,263	42,117,863	121,827	350.66	-

2. Environmental Effect

2.1 Reduction of CO₂ Emission due to Energy Saving Plans

Richmond Hotel educates its staff to be aware of carbon footprint and environmental impacts due to energy consumption. With this knowledge and strong determination, Richmond Hotel staff reduced energy consumption during 2012-2014 by over 4,620,724 kWh. This is equal to 3,368.06 tons of CO₂ emissions. (See table 2) Apart from energy saving programmes, Richmond Hotel also held “A Re-planting Mangrove Forest Activity” every year. Richmond Hotel staff planted more than 4,000 trees, which is equal to 11.10 kg of CO₂. This environmental success would not have been possible without staff collaboration and determination to increase forest areas in Thailand.



2.2 Waste and Pollution Management

Richmond hotel has three principles for waste and pollution management, which consist of classifying waste from the starting point with customer participation, reducing waste in each department area, and increasing the value of our waste through “Richmond Waste Bank” which was created after Miss Laksawan Wongworakarn, Managing Director and committees had visited Wongpanit Waste Recycle Factory Suvannabumi branch. “Richmond Waste Bank” helped to change staff attitude about waste and encouraged them to look for value in waste. “Richmond Waste Bank” also received collaboration from both staff and customers. We could add value from our waste to the sum of 115,596.50 baht a year. The price of waste is normally 2.42 baht/kg, but after our transformation waste was sold for 5.01 baht/kg, increasing more than 107%. Richmond Hotel also held “Innovation from Waste Contest” to encourage staff to invent various techniques to apply wastes from their divisions.



Richmond Hotel has applied diligently the 3Rs principle in its waste management with participation of staff and customers. These 3Rs are; reduce, reuse, and recycle. We reduce use through a “3 pieces of tissue paper” campaign that encourages staff and customers to use tissue paper wisely and economically. Also, the reuse campaign recommends using two sides of A4 paper, Reusing left over pens and pencils, or reducing the times a bed cover is changed. Disposal waste is then sold to the “Waste Bank” or recycled by hotel departments through a “Innovative Recycle Contest”.



Pineapple EM for Floor Cleaning
Kitchen & Steward Department



Saving results
64,434 baht/year

Cockroach House Trap
Bakery Department



Saving results
3,542 baht/year

Recycled Coffee
Banquet Department



Saving results
116,582 baht/year

Battery cover Microphone
Engineering Department



Saving results
7,576 baht/year

Recycled Trays
Accounting Department



Saving results
2,550 baht/year

Cloth Bag
Laundry Department



Saving results
15,480 baht/year

Innovative
Recycle
Contest

3. Economic Effect

When Richmond Hotel made a decision on machine investment, we considered three factors; 1. Results (Sustainable and Consistent Savings), 2. ROI Period (Less than three years), and 3. Subsidies. Richmond Hotel has many projects, which received subsidies from the Ministry of Energy such as “Energy Saving Technology Demonstration” (subsidised 40%), “Materials and Tools in Energy Saving” (subsidised 20%). The total subsidies are 3 million baht. **Due to our continuous investment, Richmond Hotel has made a total saving of over 21.38 million baht. The average ROI is 0.87 year.** This number might seem small compared on a domestic scale, but Richmond Hotel is ready to act as an example of energy saving programmes, which will encourage other organisations in the near future.

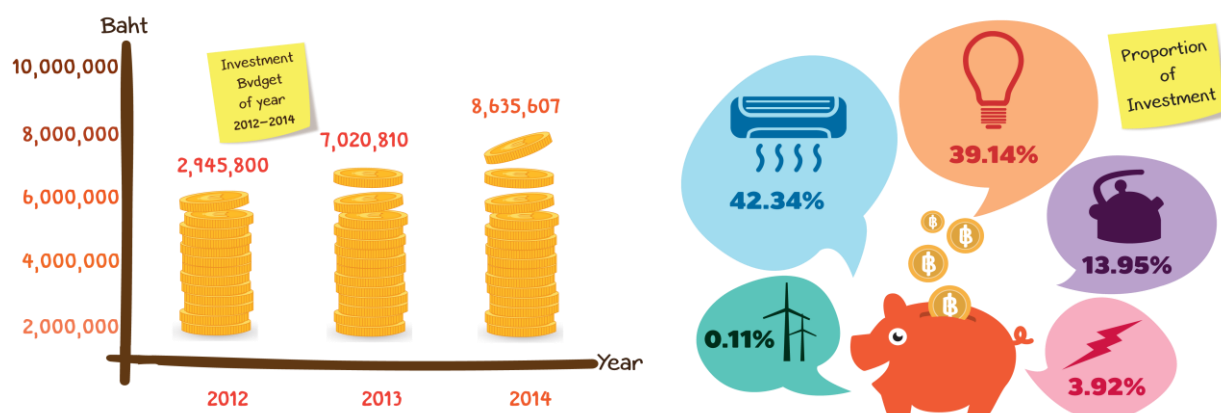


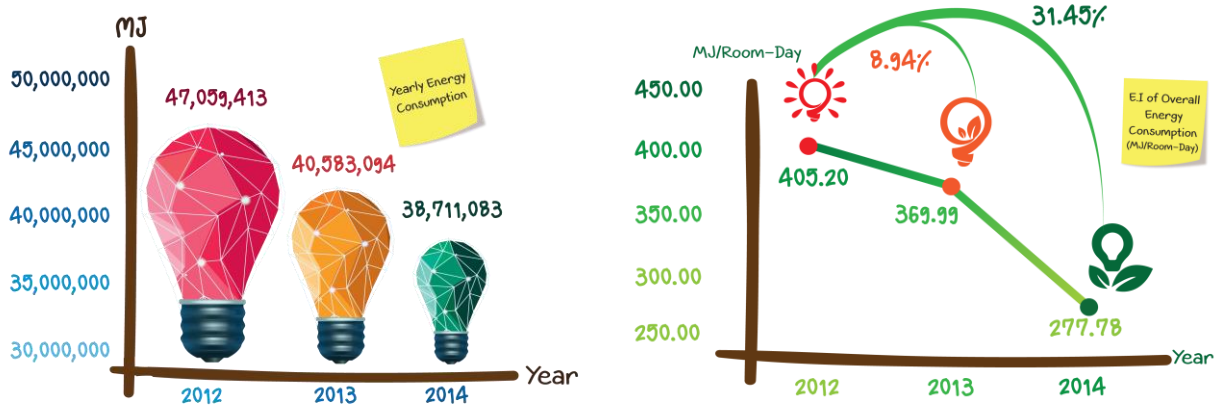
Table 2: Energy Conservation activities during 2012-2014

Energy Conservation Activity		Conservation per year						Invest. (THB)	Payback Period (year)
		Electricity				Fuel			
		(kWh)	(THB)	CO ₂ Reduced (TON)	(MJ)	(THB)	CO ₂ Reduced (TON)		
Year : 2012	Measures from non-investment								
	Turn on Chiller 270T instead of 420T in nighttime	274,626	969,430	199.52	-	-	-	-	-
	Turn off Exhaust Air System	197,100	695,763	143.20	-	-	-	-	-
	Turn off Light when no one is using	24,090	85,038	17.50	-	-	-	-	-
	Adjust Chilled Water Temp. from 45°F to 47°F	47,934	169,210	34.83	-	-	-	-	-
	Measures from investment								
	Supply Boiler with LPG instead of Oil Fuel	-	-	-	3,414,645	3,825,835	-	2,150,000	0.56
	Installed VSD motor at CHP (16 floors)	269,808	1,063,044	196.02	-	-	-	350,000	0.33
	Replaced new Cloth Dryer intead of broken ones	2,829	11,145	2.06	154,038	54,648	11.04	445,800	6.78
	Total for 2012		816,387	2,993,629	593.12	3,568,683	3,880,483	11.04	2,945,800

Year : 2013	Measures from non-investment									
	Turn off Monitor when no one is using	12,045	38,664	8.75	-	-	-	-	-	-
	Uninstall Light bulb in over necessary area	11,265	36,162	8.18	-	-	-	-	-	-
	Reduced FCU in corridor area from 2 to 1	131,400	517,716	95.46	-	-	-	-	-	-
	Sets on-off time of air-conditioner at staff's cafeteria	30,660	98,419	22.27	-	-	-	-	-	-
	Sets on-of time of exhaust fan in laundry area	11,680	37,493	8.49	-	-	-	-	-	-
	Reduced work time of flatwork machine	6,570	21,090	4.77	-	-	-	-	-	-
	Adjusted television's light, color and sound	49,932	160,282	36.28	-	-	-	-	-	-
	Measures from investment									
	Replaced to VSD Chiller 420 T	1,103,760	3,543,070	801.90	-	-	-	5,400,000	1.52	
	Installed O-zone system at Cooling Tower	-	449,103	-	-	-	-	1,335,810	2.97	
	Installed VSD at parking area's ventilation system	38,106	122,320	27.68	-	-	-	285,000	2.33	
	Total for 2013	1,395,418	5,024,318	1,013.79	-	-	-	7,020,810	1.40	
Year : 2014	Measures from non-investment									
	Turn off Lighting staff's area when not using	12,045	47,457	8.75	-	-	-	-	-	-
	Turn off AHU in conference room when the conference is over	51,840	204,250	37.66	-	-	-	-	-	-
	Turn off Lighting in Conference rooms at lunch hours	28,350	111,699	20.60	-	-	-	-	-	-
	Reduce number of operated elevators to 3 from 00.01 to 05.00 a.m.	28,105	110,734	20.42	-	-	-	-	-	-
	Turn off UPS after worktime	8,760	34,514	6.36	-	-	-	-	-	-
	Turn off escalator after the conference is over	16,425	52,724	11.93	-	-	-	-	-	-
	Reduced usage of ice making machine	15,768	62,126	11.46	-	-	-	-	-	-
	Turn off lighting in unused parking area	33,580	132,305	24.40	-	-	-	-	-	-
	Measures from investment									
	Replaced to LED in all areas	1,848,040	7,281,279	1,342.63	-	-	-	7,076,198	0.97	
	Replaced building sign to LED	13,140	51,772	9.55	-	-	-	180,000	3.48	
	Replaced external lighting to LED	7,411	29,199	5.38	-	-	-	25,000	0.86	
	Installed VSD motor at CHP (West Wing)	118,610	467,325	86.17	-	-	-	397,719	0.85	
	Installed VSD motor at CDP (East Wing)	61,320	241,601	44.55	-	-	-	162,640	0.67	
	Installed VSD motor at CDP (West Wing)	59,393	234,008	43.15	-	-	-	230,050	0.98	
	Installed cool pack in laundry area	-	-	-	-	-	-	95,000	-	
	Replaced new fan at cooling tower	17,432	68,684	12.66	-	-	-	100,000	1.46	
	Installed VSD at air return system at T. floor	11,388	44,869	8.27	-	-	-	54,000	1.20	
	Installed VSD at AHU in central area	67,014	264,035	48.69	-	-	-	220,000	0.83	
	Installed VSD at exhaust system in laundry	9,490	37,391	6.89	-	-	-	75,000	2.01	
	Installed solar cell at hotel entrance	806	3,175	0.59	-	-	-	20,000	6.30	
	Total for 2014	2,408,918	9,479,146	1,750.12	-	-	-	8,635,607	0.91	
Total 3 Year		4,620,724	17,497,093	3,357.03	3,568,683	3,880,483	11.04	18,602,217	0.87	

4. Energy Efficiency Index (MJ/year, MJ/Room-Day)

Energy Efficiency Index (EEI) for hotels is a ratio between “total energy consumption (Joule)” and the “amount of hotel guest (room-day)”. At Richmond Hotel, we have 455 rooms with 73.36% occupancy (2012-2014). Our Energy Efficiency Index in 2014 was 277.78 MJ/Room-day. Compared with 2012 and 2013, our **Energy Efficiency Index reduced 8.94% and 31.45%**, respectively. This success in energy saving was made possible through the collaboration of Richmond Hotel staff.



Net Operating Cost Savings per year: 612,705.07 \$(USD)

Kilowatt-hours Savings per year: 4,620,724 kWh

Carbon Emissions Offset: 3,368.06 tons of CO₂ emissions



Additional Project Details

Image:



Name of Company : Amornpinthip Company Limited.
Business Address : 69/783-787 Rattana Thibeth Road, Bangkasau, Nonthaburi 11000
Number of Employees : 220 Persons.
Type of Building : Hotel Building.
Age of Building : 20 year.
Nature of Business : Public general hotel.

Upload

Full paper: <https://www.dropbox.com/s/ea0xfws0o7mtyt4/Richmond%20Hotel.pdf?dl=0>

VTR: <https://www.dropbox.com/s/0wpwnxyig81ms61/VTR%20Richmond%20Hotel.mp4?dl=0>

Project Website:

<http://www.richmondhotel-resort.com/th/news.aspx>

Contact Information

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