



# NANYANG TECHNOLOGICAL UNIVERSITY

## ESTATE OFFICE

### EVALUATION REPORT FOR THE INSTALLATION OF RCS ENERGY SAVER

#### 1. BASIC INFORMATION

PUB LT Tariff Rate : \$0.149 per KWH (Jan - Sep 98 Average)  
 Numbers of Energy Saver Installed: 58 pcs.  
 Installation Sites : at Campus Site S2-B4-E1 (34 pcs)  
 : at Campus Site S2-B4-E2 (24 pcs)  
 Operational Hours : 12 hours (7pm - 7am controlled by timer)

#### 2. KWH METER READING BEFORE AND AFTER THE INSTALLATION OF RCS ENERGY SAVER

##### A. Site: S2-B4-E1

Fluorescent Light Fitting Configuration:

17 sets of 2 x 36W Fluorescent Light Fitting  
 4 sets of 2 x 11W PL Lamp Fitting

Condition: BEFORE installation of RCS Energy Saver

Recorded Total KWH Consumption = 16.8 KWH (Refer to Appendix 1)

Break down of KWH Consumption (Refer to Appendix 2):

	2 x 36W Fitting	2 x 11W Fitting
No. of Fittings	17	4
No. of Lamps	34	8
No. of Energy Saver	0	0
KWH Measured	15.07	1.73

Condition: AFTER installation of RCS Energy Saver

Recorded Total KWH Consumption = 11.2 KWH (Refer to Appendix 1)

Break down of KWH Consumption (Refer to Appendix 2):

	2 x 36W Fitting	2 x 11W Fitting
No. of Fittings	17	4
No. of Lamps	34	8
No. of Energy Saver	34	0
KWH Measured	9.47	1.73

Net Saving After Installation at Site S2-B4-E1 = 15.07 - 9.47 = 5.6 KWH  
 Percentage Saving at Site S2-B4-E1 = 5.6 / 15.07 = 37.2%

B. Site: S2-B4-E2

Fluorescent Light Fitting Configuration:

12 sets of 2 x 36W Fluorescent Light Fitting  
1 set of 2 x 18W Fluorescent Light Fitting  
4 sets of 2 x 11W PL Lamp Fitting

Condition: BEFORE installation of RCS Energy Saver

Recorded Total KWH Consumption = 12.4 KWH (Refer to Appendix 1)

Break down of KWH Consumption (Refer to Appendix 2):

	2x36W Fitting	2x11W Fitting	2x18W Fitting
No. of Fittings	12	4	1
No. of Lamps	24	8	2
No. of Energy Saver	0	0	0
KWH Measured	10.09	1.73	0.58

Condition: AFTER installation of RCS Energy Saver

Recorded Total KWH Consumption = 9.7 KWH (Refer to Appendix 1)

Break down of KWH Consumption (Refer to Appendix 2):

	2x36W Fitting	2x11W Fitting	2x18W Fitting
No. of Fittings	12	4	1
No. of Lamps	24	8	2
No. of Energy Saver	24	0	0
KWH Measured	7.39	1.73	0.58

Net Saving After Installation at Site S2-B4-E2 =  $10.09 - 7.39 = 2.7$  KWH  
Percentage Saving at Site S2-B4-E2 =  $2.7 / 10.09 = 26.8\%$

3. Summary For The Evaluation of 58 pcs. of RCS Energy Saver Installation

A. Total KWH Consumption for the 2 Sites (S2-B4-E1 & S2-B4-E2)  
Before Installation of RCS Energy Saver is

$$15.07 + 10.09 = 25.15 \text{ KWH}$$

B. Total KWH Consumption for the 2 Sites (S2-B4-E1 & S2-B4-E2)  
After Installation of RCS Energy Saver is

$$9.47 + 7.39 = 16.86 \text{ KWH}$$

C. Total Saving in KWH

$$\begin{aligned} &= 3A - 3B = 25.15 - 16.86 \\ &= 8.29 \text{ KWH} \end{aligned}$$

D. Total Percentage Saving

$$\begin{aligned} &= 3C / 3A = 8.29 / 25.15 \\ &= 33\% \end{aligned}$$

E. Daily Saving

$$\begin{aligned} &= 8.29 \text{ KWH} \times \text{PUB Tariff Rate} \times \text{GST} \\ &= 8.29 \times 0.149 \times 1.03 \\ &= \$ 1.27 \end{aligned}$$

F. Yearly Saving

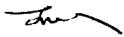
$$\begin{aligned} &= 3E \times 365 \\ &= \$ 464 \end{aligned}$$

4. Conclusion

Our NTU Estate Office M&E Division conducted the whole evaluation exercise.

Based on our monitoring and daily KWH meter recording for 58 pcs. of RCS Energy Saver purchased from the manufacturer, Appliance Innovation Pte Ltd. We observe the following,

- There is a saving of 33% in KWH Consumption
- There is no abnormal effect or interference result from the installation

  
Phua Kia Juan  
NTU Estate Office

November 18, 1998

# APPENDIX 1

## KWH METER READINGS BEFORE AND AFTER INSTALLATION OF ENERGY SAVER

### 1. KWH METER READING AT SITE S2-B4-E1

Before installation of Energy Saver

<u>DATE</u>	<u>KWH READING</u>	<u>DAILY KWH CONSUMPTION</u>
20/8/98	30112.3	----
21/8/98	30128.7	16.4
22/8/98	30145.4	16.7
23/8/98	30162.6	17.2
24/8/98	30179.8	17.2
25/8/98	30196.3	16.5
26/8/98	30212.7	16.4
27/8/98	30229.9	17.2

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AVERAGE = 16.8  
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After installation of Energy Saver

<u>DATE</u>	<u>KWH READING</u>	<u>DAILY KWH CONSUMPTION</u>
22/10/98	31114.0	----
23/10/98	31125.1	11.1
24/10/98	31136.3	11.2
25/10/98	31147.8	11.5
26/10/98	31159.1	11.3
27/10/98	31170.4	11.3
28/10/98	31181.5	11.1
29/10/98	31192.7	11.2

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AVERAGE = 11.2  
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APPENDIX 1

KWH METER READINGS BEFORE AND AFTER INSTALLATION OF ENERGY SAVER

2. KWH METER READING AT SITE S2-B4-E2

Before installation of Energy Saver

<u>DATE</u>	<u>KWH READING</u>	<u>DAILY KWH CONSUMPTION</u>
20/8/98	00111.3	----
21/8/98	00123.7	12.4
22/8/98	00136.0	12.3
23/8/98	00148.4	12.4
24/8/98	00160.8	12.4
25/8/98	00173.0	12.2
26/8/98	00185.8	12.8
27/8/98	00198.2	12.4
		-----
		AVERAGE = 12.4
		-----

After installation of Energy Saver

<u>DATE</u>	<u>KWH READING</u>	<u>DAILY KWH CONSUMPTION</u>
30/9/98	00592.3	----
1/10/98	00602.0	9.7
2/10/98	00611.7	9.7
3/10/98	00621.5	9.8
4/10/98	00631.2	9.7
5/10/98	00640.9	9.7
6/10/98	00650.6	9.7
7/10/98	00760.2	9.6
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		AVERAGE = 9.7
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