

EFFICIENT MANAGEMENT OF ELECTRICAL ENERGY REGULATIONS 2008

[P.U.(A)444]

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ARRANGEMENT OF REGULATIONS

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PART I

PRELIMINARY

Regulation

1. Citation and commencement
2. Interpretation
3. Application
4. Fees

PART II

ELECTRICAL ENERGY MANAGEMENT

5. Obligation to submit information to the Commission
6. Notification by the Commission
7. Obligation of private installation licensee or consumer
8. Additional information
9. Review
10. Withdrawal

# OUTLINE

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1. Introduction
2. Form A
3. Form B
4. Report format, analysis and audit



# Introduction

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## **Malaysia Predicted To Become Net Importer Of Oil And Gas In 2017, Says IEA**

“The International Energy Agency (IEA) in a new report, has predicted that Malaysia would become a **net importer** of oil and gas in 2017, due to increasing domestic demand.”

Bernama

5th June 2012

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# Company Obligations

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- ▶ To submit a written confirmation of electrical energy manager such **appointment** or designation (name, particulars, date of expiry of registration)
- ▶ To submit information :
  - the statement of **policy** for efficient electrical energy management of the installation ;
  - the **objectives** of efficient electrical energy management; and
  - the **accounts and documents** pertaining to efficient electrical energy management ;
- ▶ To submit reports - in **Form A** and a declaration by the registered electrical energy manager for the installation in **Form B** of the Second Schedule
- ▶ To submit any **other information** which the Commission may require.





## Form A

- Report on Efficient

Management of Electrical Energy

FORM A

ELECTRICITY SUPPLY ACT 1990

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EFFICIENT MANAGEMENT OF ELECTRICAL ENERGY REGULATIONS 2008

**REPORT ON EFFICIENT MANAGEMENT OF ELECTRICAL ENERGY**

**FOR THE YEAR .....**

[paragraph 6(1)(d)]

Name of Private Installation Licensee/Consumer\*:

.....

Address of Private Installation Licensee/Consumer\*:

.....

.....

Telephone No.: .....

Fax No.: .....

E-mail Address: .....

Installation Registration No.: .....

Total consumption of electrical energy/ total net generation of electrical energy\*  
for six consecutive months in the period reported..... : .....kWh

Total consumption of electrical energy/ total net generation of electrical energy\*  
for six consecutive months in the previous period reported ..... :  
..... kWh

Efficient management of electrical energy improvement measures implemented  
in the period reported

.....

.....



Efficient management of electrical energy improvement measures proposed but not implemented together with reasons for not implementing them

.....  
.....  
.....

Estimated savings in total consumption of electrical energy/ total net generation of electrical energy\* achieved as a result of efficient management of electrical energy improvement measures implemented in the period reported  
..... kWh

.....  
.....

Name(s) and registration number(s) of the registered electrical energy manager(s) responsible for the installation in the period reported

.....  
.....

We, ..... the private installation licensee/consumer\*, declare and confirm that all the information given in this report and in the attached annexes are true and accurate.

Date:

.....  
\*\*Name: .....)  
I.C. No: .....)  
Designation: .....)  
for and on behalf of private )  
installation licensee/consumer \* )



Note:

1. *If the space is insufficient to provide the information or particulars, please attach annexes. Every annex shall be initialled by the above signatory*
2. *\* Delete whichever is not applicable*
3. *\*\*This form shall not be signed by the registered electrical energy manager for the installation.*







## Form B

- Declaration by Registered  
Electrical Energy Manager

FORM B

ELECTRICITY SUPPLY ACT 1990

EFFICIENT MANAGEMENT OF ELECTRICAL ENERGY REGULATIONS 2008

**DECLARATION BY  
REGISTERED ELECTRICAL ENERGY MANAGER**  
[subregulation 6(2)]

I, ....., the registered electrical energy manager of the private installation licensee/consumer\* ....., hereby declare and confirm that :

- (a) I have been given sufficient access to the records of the private installation licensee/consumer\* to enable me to confirm the report in Form A of the Second Schedule;
- (b) To the best of my knowledge and belief, the report in Form A of the Second Schedule was well prepared based on the actual implementation of efficient management of electrical energy improvement measures at the installation for the reported period;
- (c) I have evaluated the efficient management of electrical energy performance and costs at the installation; and
- (d) *(any other information deemed suitable)*

Date :

SIGNED BY : .....

(Name) .....

(Registration No.) .....



Note:

- 
1. *If the space is insufficient to provide the information or particulars, please attach annexes. Every annex shall be initialed by the above signatory*
  2. *\* Delete whichever is not applicable.*
- 





# Report Format, Analysis and Audit

# Section 1: Company Profile

Name and company address	
Name, designation, telephone, fax no & email of company's person-in charge	
Name, telephone, fax no & email of registered electrical energy manager	
Type of Sector/Industry (Refer Annexure 1)	
No. of Staff	
Operating hours (day, week, month)	
Electricity tariff category	
Total electricity consumption for 6 consecutive months in the period reported (current)	
Total electricity consumption for 6 consecutive months in previous period reported (baseline)	
Date of Report	

Agriculture  
Livestock  
Forestry & Logging  
Fishing  
Public Lighting  
Mining & Quarry  
Food, Beverage & Tobacco  
Textile  
Apparel & Leather  
Wood & Furniture  
Pulp, Paper, Products & Printing  
Chemical & Petrochemical  
Rubber  
Plastic  
Non metallic  
Glass & Glass Products  
Brick  
Ceramic  
Cement  
Iron, Steel & Metal  
Utility  
Construction  
Wholesale  
Hotel  
Hospital  
School/College/University  
Office building  
Condominium/Apartment/Flat  
Retail - Commercial  
Retail-Residential  
Real Estate & Service  
Transportation  
Port  
Water / Waste Water Treatment  
Military  
Other (*please specify*)



# Section 2a : Building Details

*(for commercial/building sector)*

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Building details	Gross floor area (m2)	
	Percent of gross floor area that is air conditioned (%)	
	Server area (%)	
	Parking area that is enclosed (%)	
	Designed occupant load <i>(please specify unit)</i>	
	Actual occupant load (%)	



## Section 2b : Main Products & Utilization (for industry sector)

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Main products & utilization (name, units, installed capacity and utilization details)	Main product(s)	Units	Installed capacity [a]	Actual production [b]	Percentage capacity utilisation [c]=[b]/[a] X 100
	Type 1:				
	Type 2:				
	Type 3:				





# Efficient Electrical Energy Management Policy (*Guidelines*)

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## a) EEEM Policy:

- i. The specific policy statement on efficient management of electrical energy or apart of other policies that has been developed and introduced for implementation at the installation.
  - ii. The items need to be included in the policy statement of efficient management of electrical energy are as follows:-
    - The commitment in efficient management of electrical energy to improve energy efficiency usage continually.
    - The commitment to address and act towards processes and activities that will give impact on the performance of electrical energy usage at the installation; and/or
    - The commitment to ensure compliance towards the Act and regulations on efficient management of electrical energy.
- To be submitted in the first report submission only. (Please indicate any changes of the policy from time to time)



# Efficient Electrical Energy Management Objective (*Guidelines*)

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## **b) EEEM Objective:**

- i. The target or objective of energy savings from the implementation of efficient energy management policy introduced by the owner of installation;
  - ii. The items need to be stated are as follows:
    - Achievable electrical energy saving target for the installation for short, medium and long terms.
    - The methodology to measure electrical energy saving target based on performance indicator established by the owner of the installation.
- To be submitted annually starting from the first report submission. (Please indicate any changes of the objective/saving target from time to time)

## **c) EEEM Committee**

- i. Organizational structure for efficient management of electrical energy at the installation.
  - To be submitted annually starting from the first report submission. (Please indicate any changes of the EEEM Committee from time to time)



# Baseline Data (*before*)

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## **d) Total Baseline Energy kWh background:**

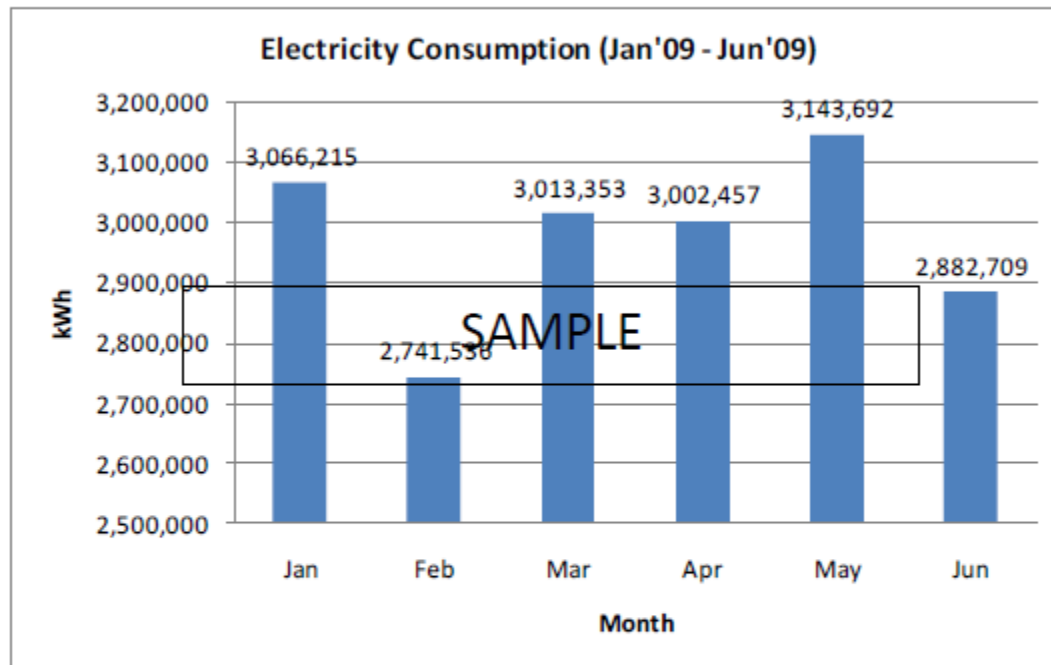
- i. Baseline of 6 consecutive month energy consumption trend before the implementation of EEEM, presented in graphical form (Trend Chart of each month)
  - Must be included in every submission of report
- ii. Production data / output data/ raw material input/ floor area/ working days etc for the baselining period as indicated in subparagraph 'I'
  - Must be included in every submission of report
- iii. Specific Energy Consumption (SEC) of the company for each month, presented in tabular form.
  - Must be included in every submission of report



# Example: Electricity Consumption (*before*)

Please follow the examples below:

- i. Electricity consumption baseline: (From Jan'09 to Jun'09)



Total electricity consumption baseline: 17,849,962 kWh/six mth

Average consumption per month: 2,974,994 kWh/mth

Observation/finding(s):

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# Example: Production/ output data/ raw material input/ floor area/ shipment value, etc (*before*)

ii. Production/ output data/ raw material input/ floor area/ shipment value, etc:

Year	Month	Production/output/raw material/floor area/shipment value etc	
		Amount	Unit (please specify)
2009	Jan	500,000	Mton
2009	Feb	300,000	Mton
2009	Mar	400,000	Mton
2009	Apr	270,000	Mton
2009	May	320,000	Mton
2009	Jun	430,000	Mton
TOTAL		2,220,000	Mton
AVERAGE		370000	Mton

**Note:**

- Use Table 2 (Case A) if the company has only one type of product
- Use Table 2 (Case B) if the company has more than one type of product

Table 2

# Example: Specific Energy Consumption (before)

**Note:**

- Use Table 3 (Case A) if the company has only one type of product
- Use Table 3 (Case B) if the company has more than one type of product

iii. Specific Energy Consumption (SEC):

Year	Month	Electricity consumption* (kWh) [a]	Production/output/raw material/floor area/shipment value/etc (Total) [b]	Specific Energy Consumption (SEC) = Electricity consumption (kWh)/ Total production output [c]=[a]/[b]	Unit
2009	Jan	3,066,215	500,000	6.13	kWh/Mton
2009	Feb	2,741,536	300,000	9.14	kWh/Mton
2009	Mar	3,013,353	400,000	7.53	kWh/Mton
2009	Apr	3,002,457	270,000	11.12	kWh/Mton
2009	May	3,143,692	320,000	9.82	kWh/Mton
2009	Jun	2,882,709	430,000	6.70	kWh/Mton
TOTAL		17,849,962	2,220,000	-	kWh/Mton
AVERAGE		2,974,994	370,000	8.41	kWh/Mton

Table 3

Where SEC will be the Efficiency Measurement of the company and can be calculated by dividing the electricity consumption (kWh) and production / output data/ raw material input/ floor area/ shipment values, etc.

Observation/finding(s):

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# Current Data *(after)*

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## e) Total Current Energy kWh background:

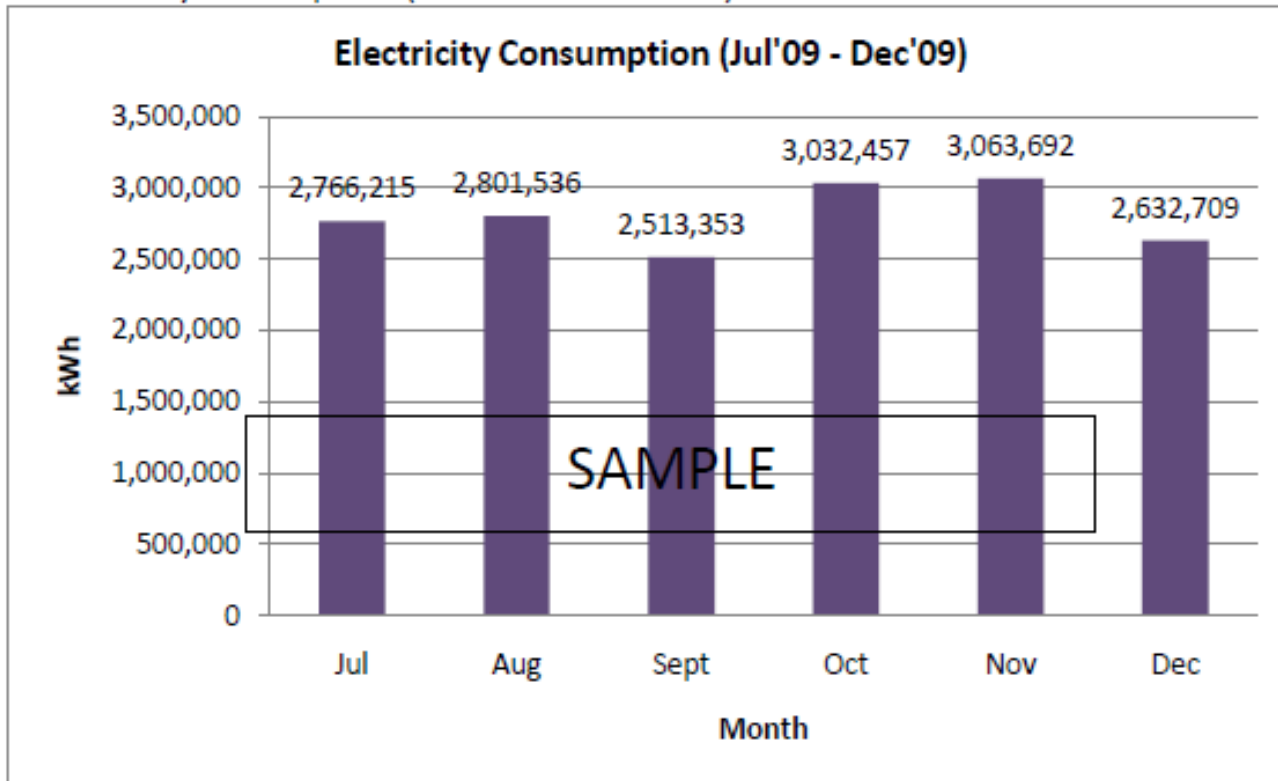
- i. Current reported 6 consecutive month energy consumption trend, presented in graphical form (Trend Chart of each month)
  - Must be included in every submission of report
- ii. Production data/output data/working days/ raw material input for the Current reported period
  - Must be included in every submission of report
- iii. Electricity consumption pattern and distribution breakdown (this can be done by doing Energy audit or monitor the consumption using the kWh Power Meter with at least class 0.5 accuracy). Presented in 'Line and Pie Chart'.
  - To be submitted every two years starting from the first report submission.
- iv. Specific Energy Consumption (SEC) of the company for each month, presented in tabular form.
  - Must be included in every submission of report
- v. Percentage reduction of Total Electricity Consumption and Specific Energy Consumption (SEC) of the company presented in tabular form.
  - Must be included in every submission of report



# Example: Electricity Consumption (*after*)

Examples:

i. Electricity consumption: (From Jul'09 to Dec'09)



Total electricity consumption: 16,809,962 kWh/six mth

Average consumption per month: 2,801,660 kWh/mth



# Example: Production/ output data/ raw material input/ floor area/ shipment value, etc (*after*)

ii. Production/ output data/ raw material input/ floor area/ shipment value, etc:

Year	Month	Production/output/raw material/floor area/shipment value/etc	
		Amount	Unit (please specify)
2009	Jul	470,000	Mton
2009	Aug	510,000	Mton
2009	Sept	380,000	Mton
2009	Oct	530,000	Mton
2009	Nov	550,000	Mton
2009	Dec	410,000	Mton

**Note:**

- Use Table 4 (Case A) if the company has only one type of product
- Use Table 4 (Case B) if the company has more than one type of product

\* Eg. units: Mton/pcs/kg/floor area/patient/people/shipment value, etc

Table 4

# Example: Specific Energy Consumption (after)

**Note:**

- Use Table 5 (Case A) if the company has only one type of product
- Use Table 5 (Case B) if the company has more than one type of product

iv. Specific Energy Consumption (SEC):

Year	Month	Electricity consumption* (kWh) [a]	Production/output/raw material/floor area/shipment value/etc (Total) [b]	Specific Energy Consumption (SEC) = Electricity consumption (kWh)/ Total production output [c]=[a]/[b]	Unit
2009	Jan	2,766,215	470,000	5.89	kWh/Mton
2009	Feb	2,801,536	510,000	5.49	kWh/Mton
2009	Mar	2,513,353	380,000	6.61	kWh/Mton
2009	Apr	3,032,457	530,000	5.72	kWh/Mton
2009	May	3,063,692	550,000	5.57	kWh/Mton
2009	Jun	2,632,709	410,000	6.42	kWh/Mton
TOTAL		16,809,962	2,850,000	-	kWh/Mton
AVERAGE		2,801,660	475,000	5.95	kWh/Mton

Table 5

Observation/finding(s):

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# Example: Percentage Reduction of Electricity Consumption and Specific Energy Consumption *(results)*

## v. Percentage reduction of Total Electricity Consumption and Specific Energy Consumption

### (a) Electricity consumption percentage reduction compared to baseline

Description	Value	Unit
Total electricity consumption for 6 consecutive months in the period reported (current)	16,809,962	kWh
Total electricity consumption for 6 consecutive months in previous period reported (baseline)	17,849,962	kWh
Percentage electricity consumption reduction	-5.8	%

SAMPLE

### (b) Specific Energy Consumption (SEC) percentage reduction compared to baseline

Description	Value	Unit
Average Specific Energy Consumption (SEC) in the period reported (current)	5.95	kWh/Mton
Average Specific Energy Consumption (SEC) in previous period reported (baseline)	8.41	kWh/Mton
Percentage SEC reduction	-29.2	%

Table 6

Observation/finding(s):

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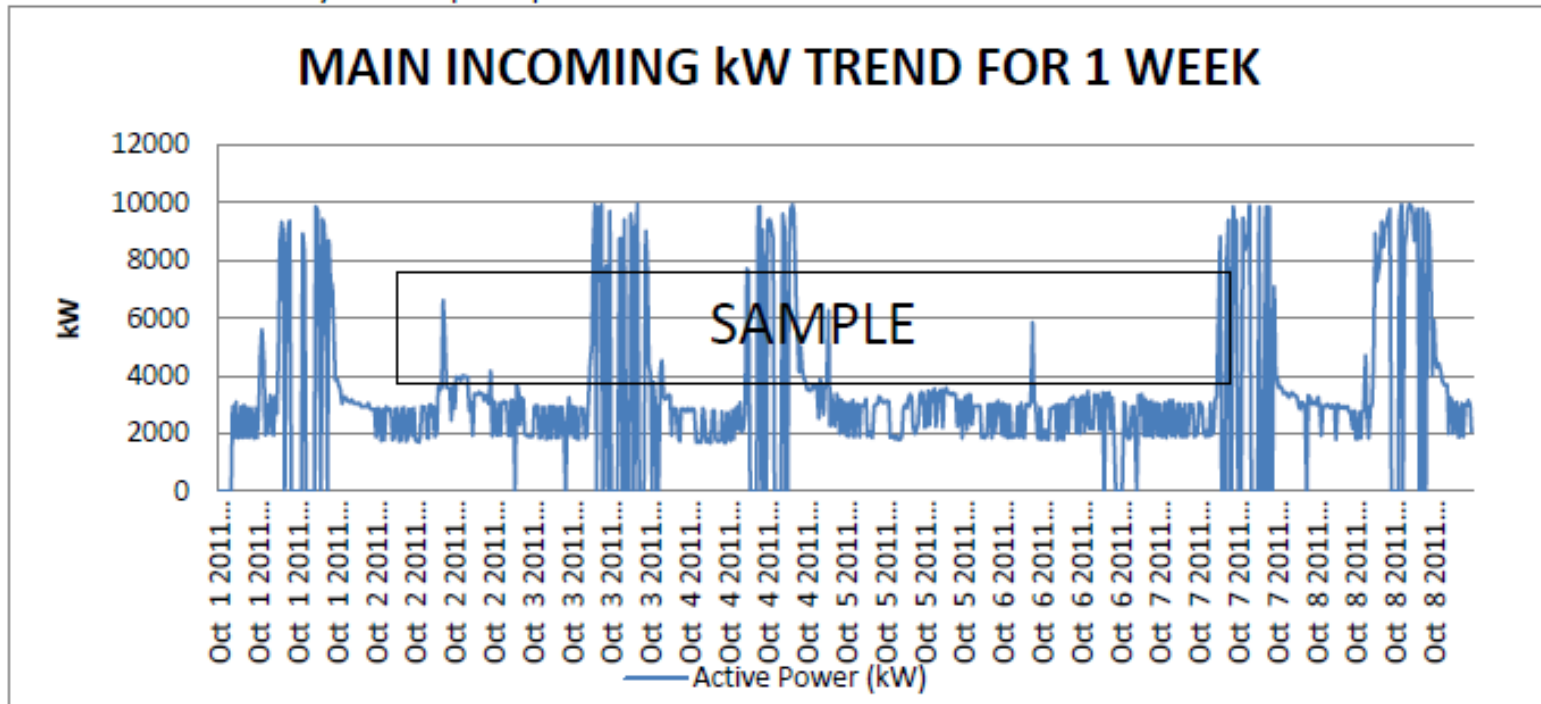
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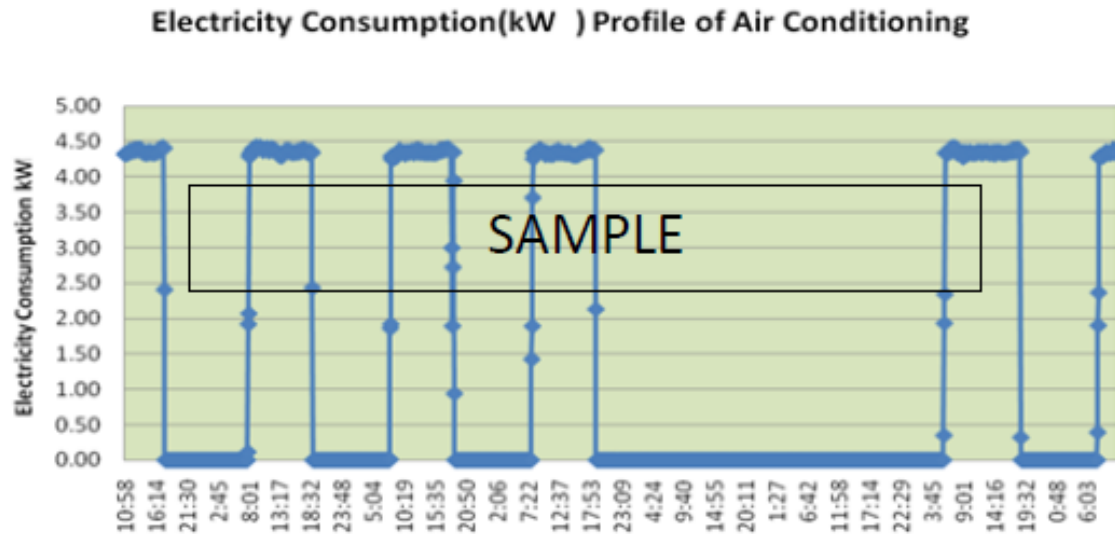
# Example: Electricity Consumption Pattern (*audit findings*)

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iii. Electricity consumption pattern and distribution breakdown:



# Example: Electricity Consumption Pattern *(audit findings)*



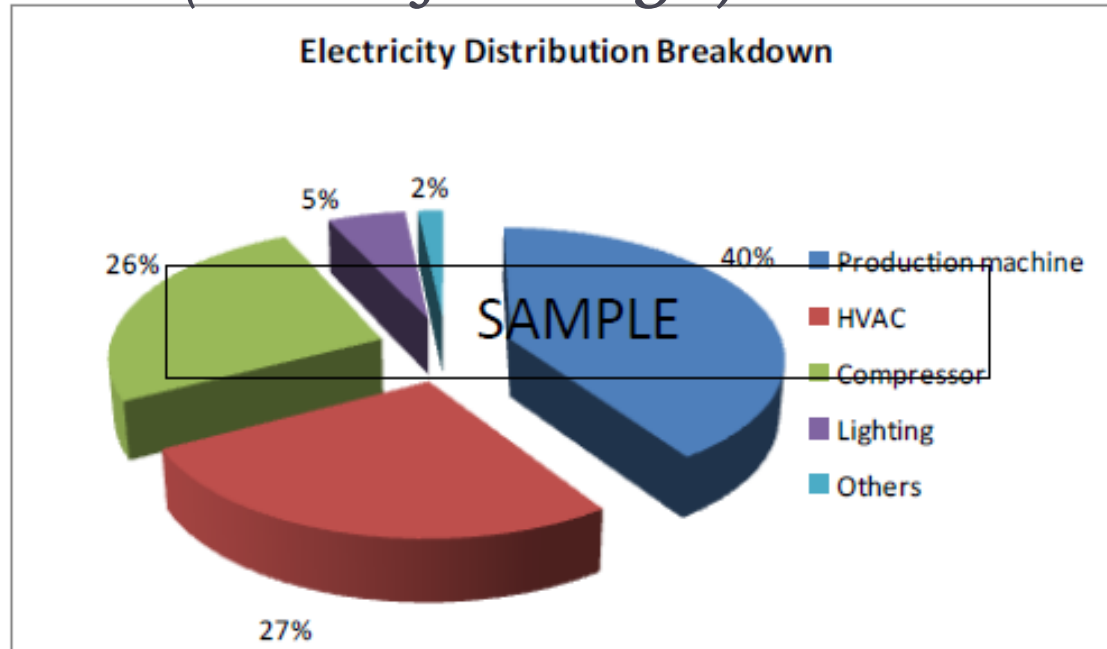
Observation/finding(s):

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# Example: Electricity Distribution Breakdown *(audit findings)*



No	Area	Energy Percentage (%)	Average operating hours daily/weekly/monthly
1	Production machine	40.6	18/day
2	HVAC	26.7	16/day
3	Compressor	25.7	18/day
4	Lighting	5.3	12/day
5	Others	1.6	2-4/day

Observation/finding(s):

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# Table: List of Energy Saving Measures (*current status*)

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No.	EEEM Activities/Projects	Brief description	Investment cost (RM)	Status (Completed/ Rejected/ In progress)	Remark/Comment(s)
1					
2					
3					
4					
5					

Note: If completed, state when the project completed (eg. completed in Aug'09) in remark/comment(s) column  
If rejected, reason(s) for not implementing proposed EEEM activities/projects must be clearly explain in remark/comment(s) column  
If in progress, state when the project will complete (eg. expected to complete in Feb'10) in remark/comment(s) column

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# Table: Actual Energy Saving Measures Implemented *(completed)*

No.	EEM Activities/Projects	Brief description	Baseline consumption (kWh)	Current consumption (kWh)	Investment cost (RM)	Savings			Return of investment (yr)	Measurement tools	Duration of measurement (day/week/month)	Remark/ Comment(s)
						kWh	RM	Percentage				
1						Estimate:	Estimate:	Estimate:	Estimate:			
						Actual:	Actual:	Actual:	Actual:			
2						Estimate:	Estimate:	Estimate:	Estimate:			
						Actual:	Actual:	Actual:	Actual:			
3						Estimate:	Estimate:	Estimate:	Estimate:			
						Actual:	Actual:	Actual:	Actual:			
4						Estimate:	Estimate:	Estimate:	Estimate:			
						Actual:	Actual:	Actual:	Actual:			
5						Estimate:	Estimate:	Estimate:	Estimate:			
						Actual:	Actual:	Actual:	Actual:			

Note: Savings calculation for each EEM activities/projects must be submitted using separate sheet





# Table: Proposed Energy Saving Measures *(future)*

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No.	Proposed EEEM Activities/Projects	Brief description	Estimated savings			Estimated Investment cost (RM)	Return of investment (yr)	Remark/ Comment(s)
			kWh	RM	Percentage			
1								
2								
3								
4								
5								

Note: Savings calculation for each proposed EEEM activities/projects must be submitted using separate sheet

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# Other(s): Fuel usage

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## Other(s) Fuels usage

**Note:**

- Use Table 7 (Case A) if the company has only one type of fuel
- Use Table 7 (Case B) if the company has more than one type of fuel

Year	Month	Fuel type	Usage	Unit	Cost (RM)
<b>TOTAL</b>					
<b>AVERAGE</b>					

Table 7



# Responsibility

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**\*Prepared by:**

\_\_\_\_\_  
(Name:            )

(Designation:    )

**\*Must be prepared by company personnel**

**\*\* Verified by Registered Energy Manager**

**\*\*Verified by:**

\_\_\_\_\_  
(Name:            )

(PTE No:            )



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*If you can't measure something, you can't understand it. If you can't understand it, you can't control it. If you can't control it, you can't improve it."*

Dr. H. James Harrington

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*Thank you*

Email:

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