TENAGA NASIONAL

Empowering Customers Towards Greener Living

Home Energy Calculator

Better Environment Brighter Future

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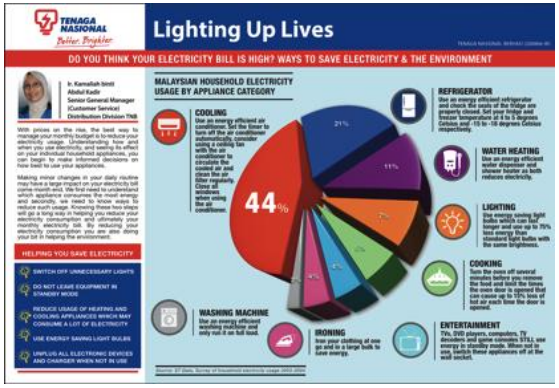
- Introduction – Energy efficiency programs by TNB
- Survey on Energy Consumption & Energy Knowledge Index
- Home Energy Calculator (HEC)
  - Energy Usage Calculator
  - Appliance Calculator
  - Energy Saving Tips
- Conclusion

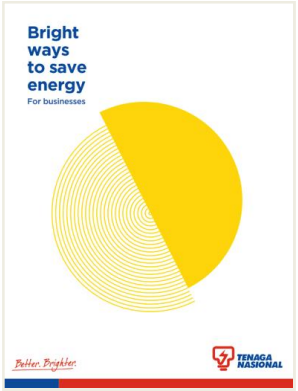
Introduction – TNB is actively promoting Energy Efficiency Initiatives

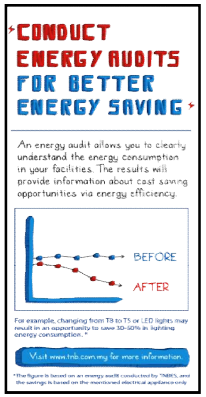
TNB is committed :-

- To support National Green Agenda
- To exceed customers expectation

- EE Awareness Programs - Schools, IPTAs
- EE Tips – Website, Electric bill, Video, Facebook
- EE Articles - Newspapers
- EE Booklets and Pamphlets
- EE Demonstration Buildings
- EE Services – TNBES : Energy Audit, PF Solutions
- EE Studies - UNITEN







To know our customers better we conducted Energy Saving Knowledge Index Survey

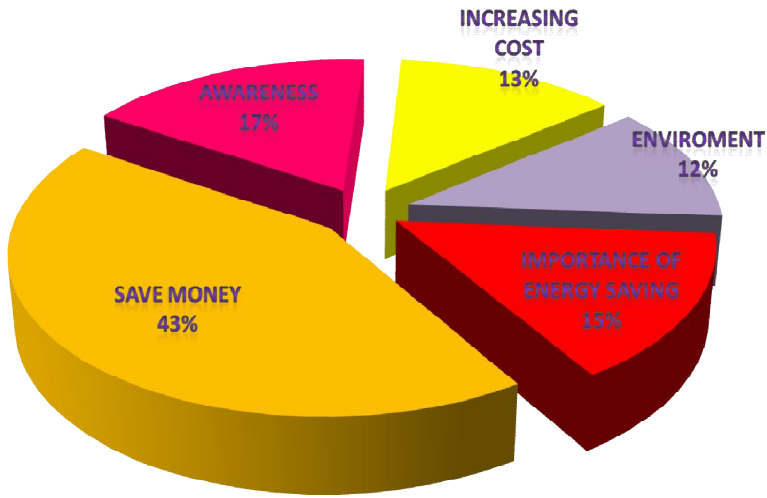
- The survey was conducted to assess the level of knowledge of consumers towards energy savings.
- We managed to get 1300 respondents. Questionnaire consist of 3 elements – Knowledge, Attitude, and Action

Knowledge • MODERATE

Attitude • POSITIVE

Action • SIGNIFICANT

Motivating Factors Of Energy Saving Behaviour



To enhance our knowledge on our customers we conducted the Energy Consumption Survey

- An online survey on the typical electrical appliances usage among Malaysian households.
- Objective : To determine patterns of energy consumption in a household
- About 2680 respondents.

Typical Household

- The number of occupants varies from 2 to 6 people per household
- Most live in single or double storey house
- Typically there are 3 to 4 rooms in a single home

Air-conditioner

- Most households use 1 to 2 airconds. Mostly use 1hp
- The amount of inverter aircond used is roughly the same as amount of non-inverter
- Time of usage is roughly 4 to 9 hours a day

Other Electrical Appliances

- A typical household has 1 medium size fridge. Roughly half are rated at 5 Star by ST
- Most household uses dry iron type with typical usage of 1-6 hours a week
- Most households use a medium sized top loading washing machine

Television

- A typical household consists of 1 TV set
- The type of TV used varies between LED, LCD and plasma with LCD as the most commonly used and size being 30 -50 inches
- Average hours of TV watched is about 6 hours a day

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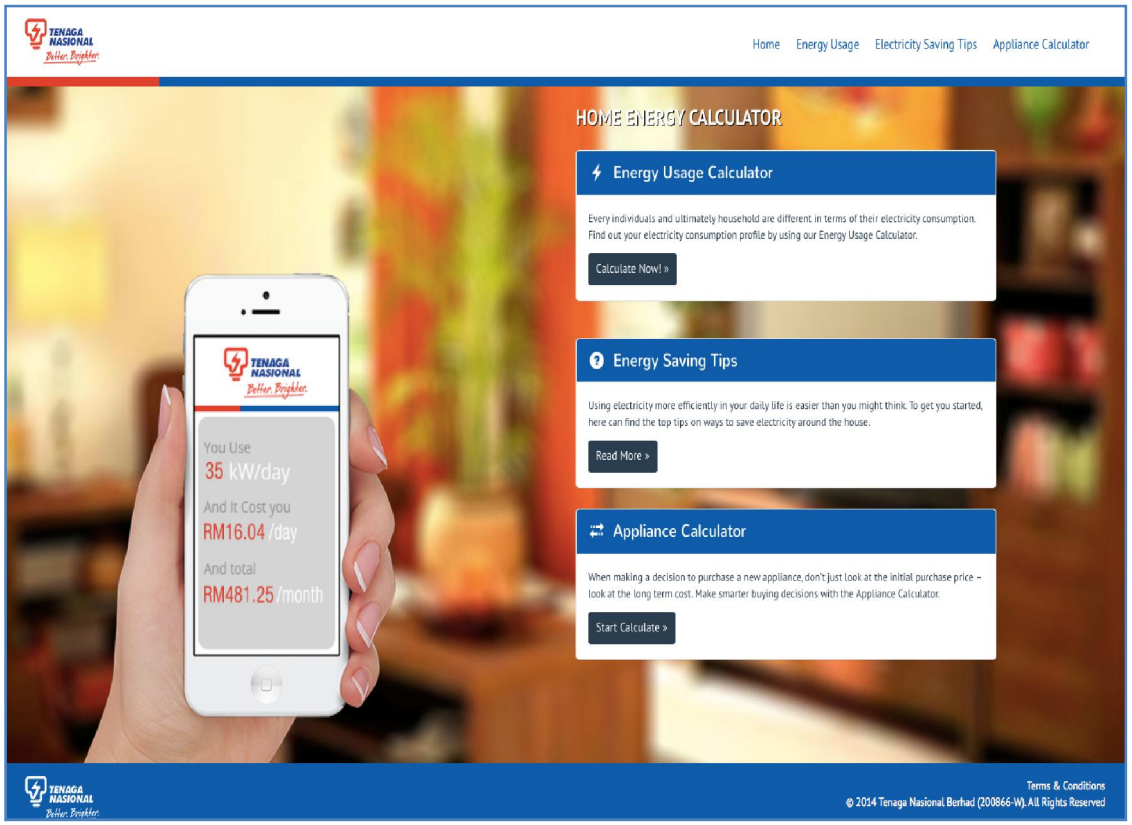
Now, we understand customers' behavior and their high interest in saving money

So…..TNB empowers them to achieve this through HEC...

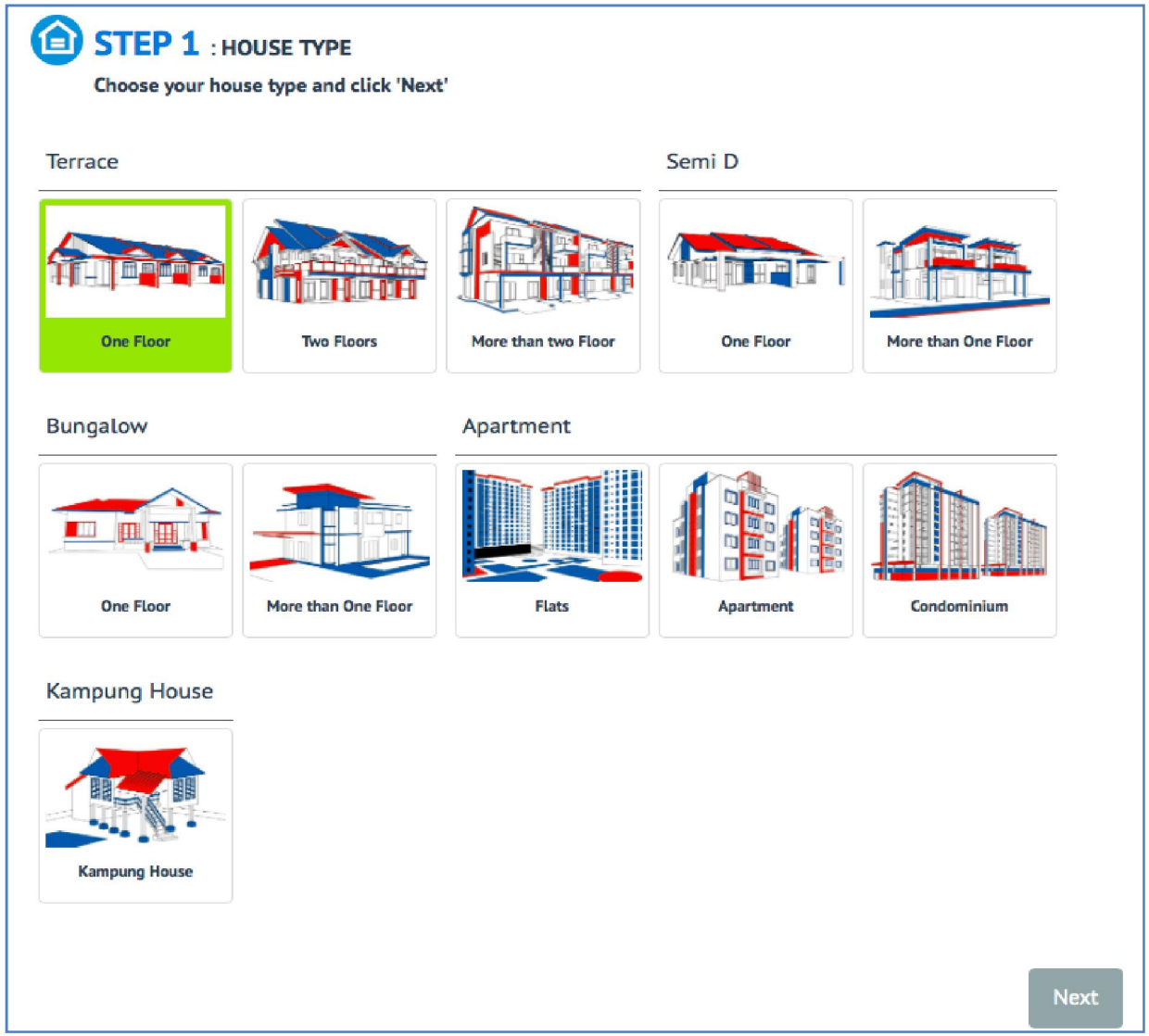
Home Energy Calculator (HEC)

- The objective of HEC is to help consumers make better energy efficiency decisions through:-
  1. Energy Usage Calculator
  2. Appliance Calculator
  3. Energy Saving Tips
- Consumers can estimate their energy consumption and choose the right measures towards achieving greener living.



Let's Walk through Energy Usage Calculator
Step 1 : Choose House Type

- Step 1
  Choose House Type
- Step 2
  Select Rooms
- Step 3
  Add Appliances
- Step 4
  Add Appliance's Info



Energy Usage Calculator
Step 2 : Choose Your Rooms

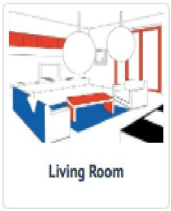
Your House

Terrace

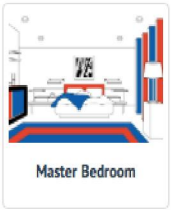
These houses usually share a wall with the adjoining property on both sides. They are typically one or two stories high but occasionally they consist of three floors.

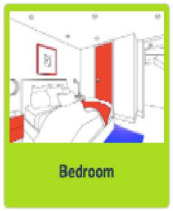
STEP 2 : ROOM SELECTION

Choose the rooms in your house by clicking the images below. Unclick to unselect the room


Living Room


Bathroom


Master Bedroom


Bedroom


Dining Room


Kitchen

Added Room

Bathroom

Bathroom

Add Room

Bathroom X

Bedroom

Bedroom

Add Room

Bedroom X

Kitchen

Kitchen

Add Room

Kitchen X

Back to House Type | Next

Energy Usage Calculator
Step 3 : Add Electrical Appliances

Your House

Terrace

These houses usually share a wall with the adjoining property on both sides. They are typically one or two stories high but occasionally they consist of three floors.

Rooms

STEP 3 : ADD APPLIANCE

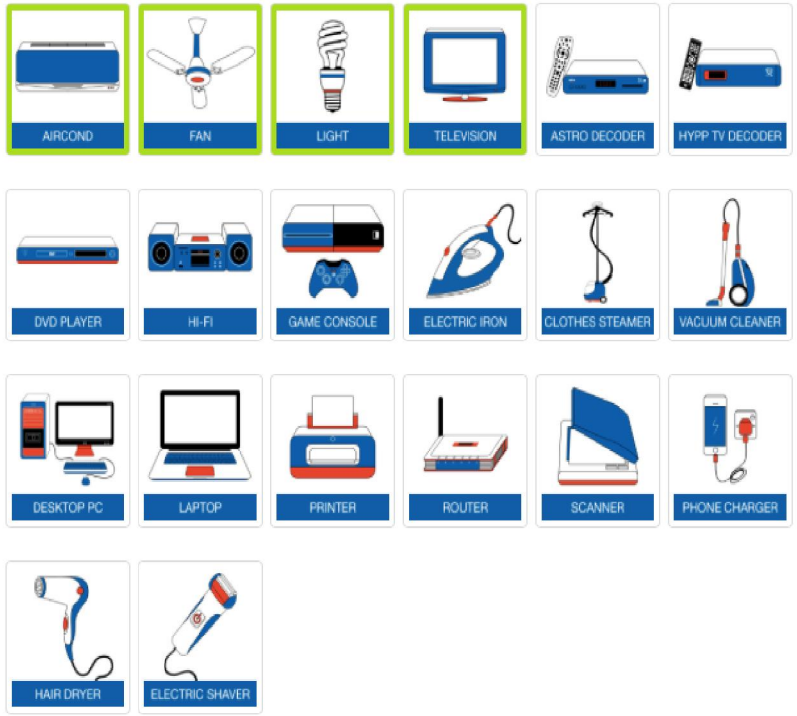
Expand the room section and press '+' to add appliances. Then select the appliances available

Bathroom −

Bedroom +

Kitchen +

Bedroom −



Note : Please make sure you have added your appliances before you choose 'Next'. If you choose 'Reset', you will go back to the House Type and all data keyed in will be reset

Reset Next

Energy Usage Calculator
Step 4 : Add Appliances' Info

- ✧ Hour of usage per day
- ✧ No. of days used per month
- ✧ Wattage of appliance

STEP 4 : ADD APPLIANCE'S INFO

Insert the duration of usage in hours, days and appliances wattage.

Bathroom

Appliances	Usage Per Day (Hour)	Number of days used per month	Watts
Light	8	30	18
Water Heater	1	30	1000

Bedroom

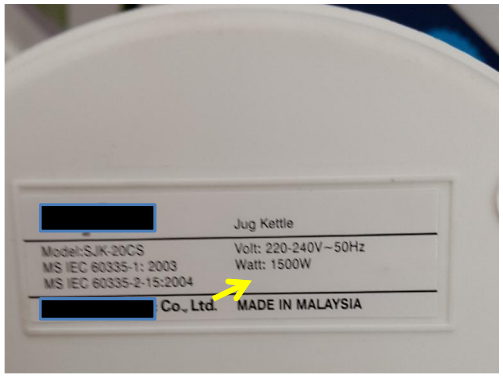
Appliances	Usage Per Day (Hour)	Number of days used per month	Watts
Air Condition	4	30	746
Fan	8	30	90
Light	8	30	18
Television	2	30	50

Reset | Calculate Now

How To Convert Horsepower (Hp) To Watt

Do you know that air-conditioner's unit of power is 'Horsepower'? To convert into watt, use this table :

Horsepower (hp)	Wattage (Watt)
0.5	373
1.0	746
1.5	1119
2.0	1492
2.5	1865
3.0	2238
4.0	2984

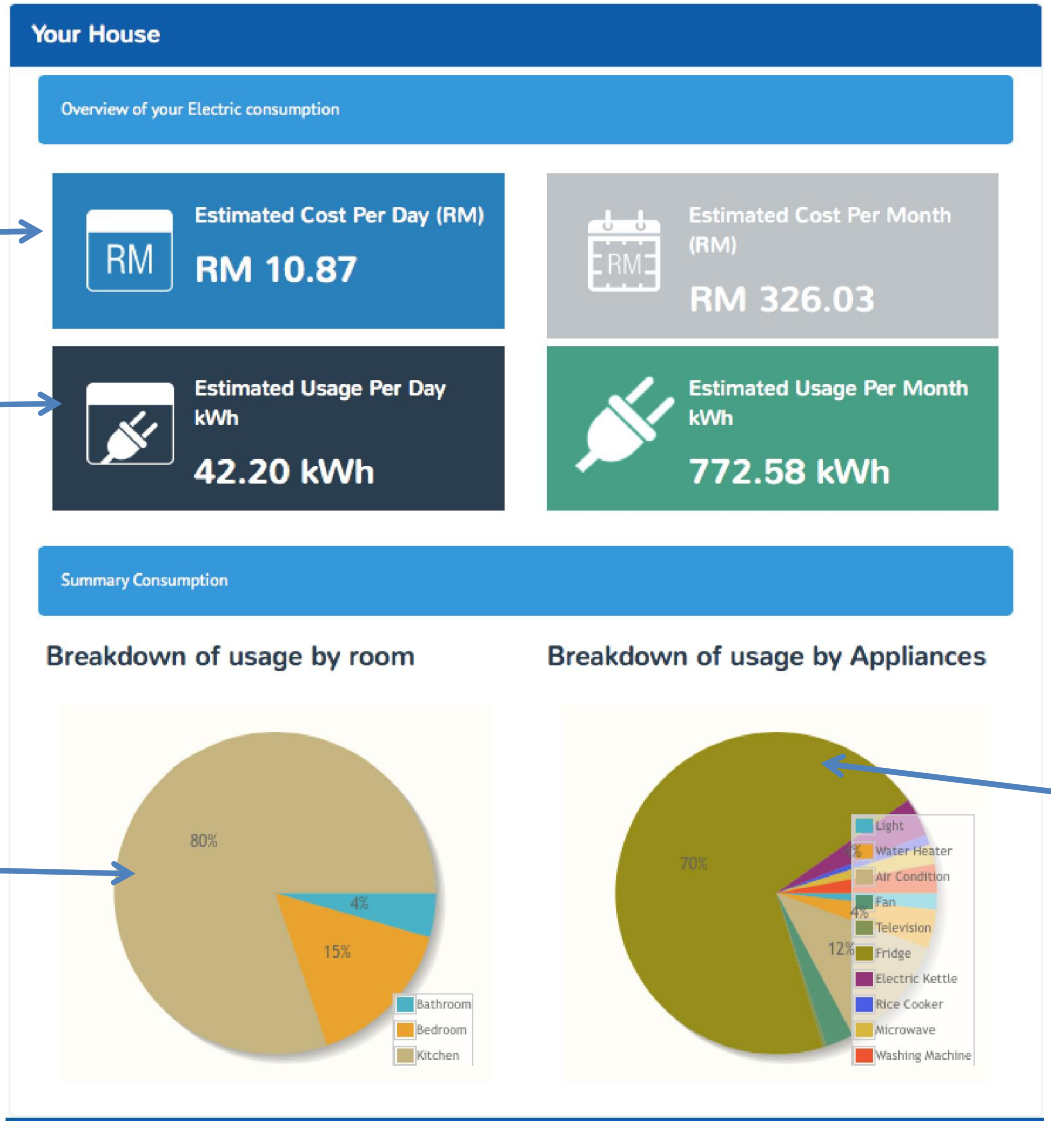


Energy Usage Calculator - Results

Estimated Cost

Estimated Usage

Room that consumes the highest energy!



Electrical appliance that guzzles the highest energy!

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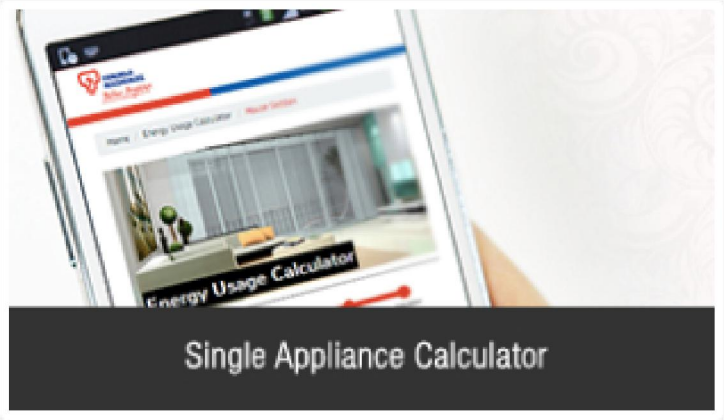
HEC is a tool for customers to conduct self energy audit to understand their household consumption.

Now, TNB provides another feature in HEC to assist customers in making better decision in choosing appliance….

Appliance Calculator assists customers to choose which appliance to buy and estimate the energy cost for the appliance

Home / Comparing Device Tools



The first tool enables customers to compare and decide which appliance to choose when making a new purchase

Compare New Appliance to be Purchased

USAGE DETAILS	
Expected Number of Years of Usage	5
Usage Per Day (Hours)	5
Number of Days Used Per Month (Days)	20
Average Cost Per kWh	0.3166

Average selling price based on national grid is 31.66 cent/kWh

APPLIANCE 1	
Appliance Label *(Eg: Brand Name)*	XXX
Price (RM)	1200
Wattage (Watt)	1000
Estimated Cost Per Month (RM)	31.66
Estimated Cost Per Year (RM)	577.79
Total Cost of Ownership (RM)	4,089

APPLIANCE 2	
Appliance 2 Label *(Eg: Brand Name)*	YYY
Price (RM)	1500
Wattage (Watt)	850
Estimated Cost Per Month (RM)	26.91
Estimated Cost Per Year (RM)	491.13
Total Cost of Ownership (RM)	3,956

Reset Calculate

What Is 'Total Cost Of Ownership'?

Note: Total cost of ownership is the purchase price of an asset plus the costs of operation such as the cost of usage. The item with lower total cost of ownership will be the better value in the long run.

Appliance 2 has lower TCO which is the better value in the long run

The second tool is to assist customers in calculating the estimated energy cost

SINGLE APPLIANCE CALCULATOR

Usage Per Day (Hours)	5	
Number of Days Used Per Month (Days)	20	
Average Cost Per kWh	0.3166	*Average selling price based on national grid is 31.66 cent/kWh*
Wattage (Watt)	1000	
Estimated Cost Per Month (RM)	31.66	
Estimated Cost Per Day (RM)	1.06	
Estimated Cost Per Hour (RM)	0.04	

Note:

- Please refer to your appliance's product description label for 'Wattage'
- Calculation is based on Domestic Customer Tariff = RM0.3166 (Tariff effective Jan 2014)
- Voltage = 230V
- Monthly average = 30 days

Reset Calculate

HEC also provide some energy saving tips to help customers with ways to save energy

Click image to view all the energy tips

Energy Saving Tips

Find out more on bright ways to save energy at home:

General	Washing Machine	Water Heater	Air Conditioner	Lighting	Fridge
Water Pump	Kettle				

5-star appliances give you 5-star savings.
5-star rated appliances are designed to run more efficiently, reducing your consumption.

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Conclusion

- TNB supports the Green Energy efforts by Government agencies towards greener living, better environment and brighter future
- HEC is designed with empowering customers in mind
- HEC enables customers to audit their energy usage and take appropriate energy saving measures

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THANK YOU