



## **Toolkit** Insights into Energy Labels

Session 8

Peter Bennich, SEA; Kevin Lane, IEA – Pretoria, 16 October 2019

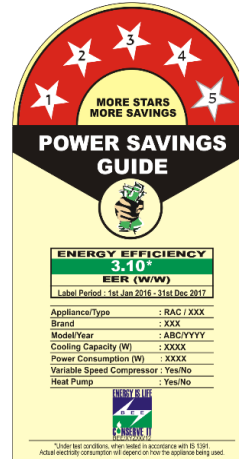
 #energyefficientworld

# Overview of the appliance training sessions

Monday 14 October 2019		
0	Introduction and roundtable	<input checked="" type="checkbox"/>
1	Planning energy efficiency programmes	<input checked="" type="checkbox"/>
2	Selecting products for MEPS and Labelling programmes	<input checked="" type="checkbox"/>
Tuesday 15 October 2019		
3	Assessing efficiency performance and setting MEPS	<input checked="" type="checkbox"/>
	Special - Regional harmonisation	<input checked="" type="checkbox"/>
4	Industry transformation	<input checked="" type="checkbox"/>
5	Stakeholder involvement and communication	<input checked="" type="checkbox"/>
6	The relationship between product efficiency and price	<input checked="" type="checkbox"/>
7	Modernising energy efficiency through digitalisation	<input checked="" type="checkbox"/>
Wednesday 16 October 2019		
<b>8</b>	<b>Insights into energy labels</b>	<input type="checkbox"/>
9	Monitoring, verification and enforcement	<input type="checkbox"/>
10	Evaluating policies and programmes	<input type="checkbox"/>
	Special - Available resources U4E	<input type="checkbox"/>
11	Roundtable discussion, review and report back	<input type="checkbox"/>

# What are energy labels?

- When people buy appliances they buy an energy service in two parts:
  1. They can see the appliance, and its cost
  2. They cannot see the energy consumed, or its running costs
- Energy labels provide consumers with information on the energy efficiency of a product
- There are two main types of labels:
  1. Comparative
  2. Endorsement



# Comparative labels

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- The label helps consumers to understand which products have the lowest total cost
- Energy label is attached to an appliance when it is displayed for sale: tells people about energy use **before** they buy
- Comparative labels may be voluntary, but mandatory is more common.
- Comparative labels usually communicates in two ways:
  - Quick visual rating
  - Data e.g. actual kilowatt-hours (kWh), Running costs, capacity/size



## Common Comparative Labels (dial & bar)

# Ghana

# Thailand

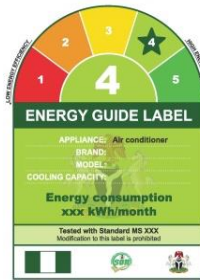
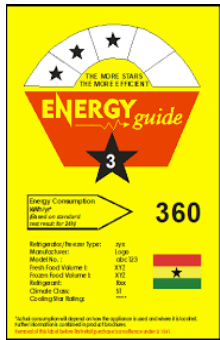
# South Korea

# Indonesia

## Nigeria

## Kenya

Singapore



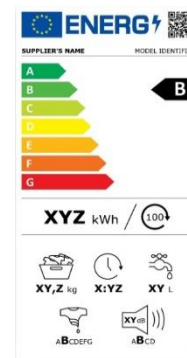
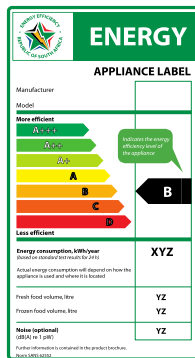
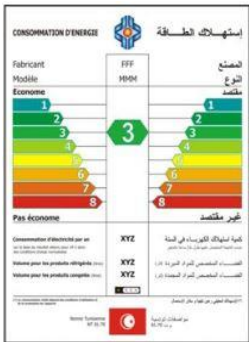
# Tunisia

# South Africa

## Brazil

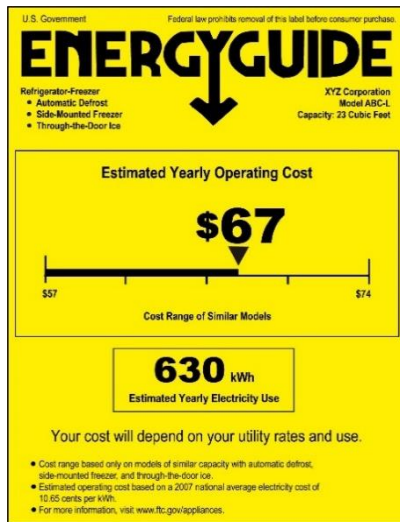
# China

EU

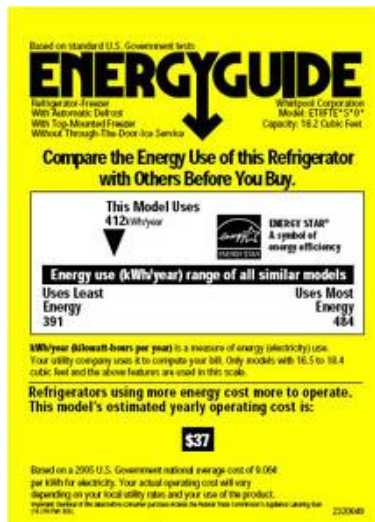


# Continuous Comparative Labels (continuous)

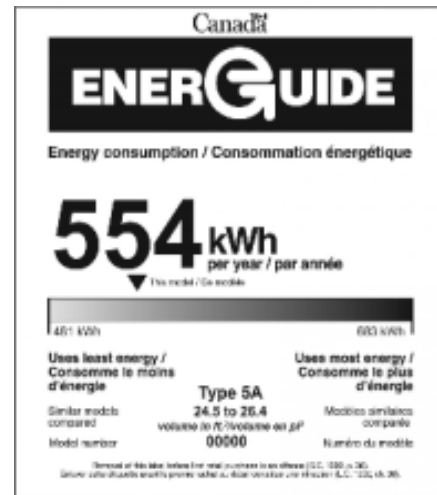
## United States



## Philippines



## Canada



**Comparative labels** allow consumers to **compare** performance among similar products using either discrete categories of performance or a **continuous** scale.

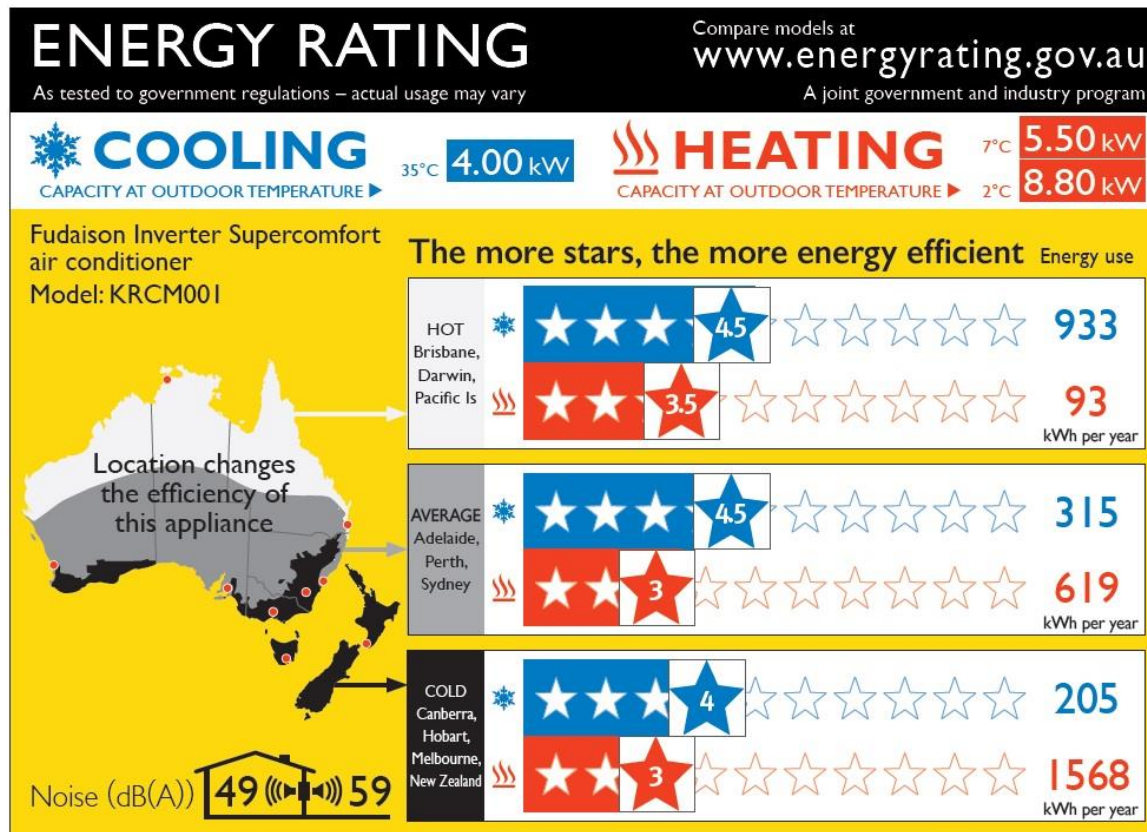
# Comparative labels

## Categories



**Comparative labels** allow consumers to **compare** performance among similar products using either **discrete categories** of performance or a continuous scale.

# Zoned Energy Rating Label – March 2019





# What information can be included? Philippines example

Check if the brand and model of the air conditioner match the given information on this label.

Here you will find a number which is the Energy Efficiency Ratio (EER) of the unit as tested and certified by an independent appliance testing laboratory.

EER is determined by the following formula:

$$\text{EER} = \frac{\text{Cooling Capacity}}{\text{Power Consumption}}$$

Use the formula to calculate the electricity cost and compare this with other air conditioners of the same cooling capacity.

Substitute the Power Consumption after converting it to kW. Do this by dividing it by 1000W/Kw

The Cooling Capacity expressed in kilojoules per hour quantifies the maximum amount of heat that the air conditioner can remove from an enclosed space.

The Power Consumption expressed in watts tells you how rapidly the energy is used when your air conditioner runs at its maximum cooling capacity.

This air conditioner has to meet the stated minimum standard.

Your current electricity bill will give you a good estimate of the power rate.

EXAMPLE:

kWh used = 650 kWh,  
Net Bill Amount : P5,739.50

Power Rate = P 5,739.50/850 kWh  
= P 8.83/kWh

This refers to the number of hours you operate your air conditioner in a month.

**MALAMIG COOLING CORPORATION**

Brand: Cool  
Model: MCC-123456  
Type: Window-type RAC

Cooling Capacity: 12,000 kJ/h  
Power Consumption: 930 W  
Frequency: 60 Hz/1 Phase/220-230 V

**ENERGY GUIDE**

ROOM AIR CONDITIONERS

**11.5**  
ENERGY EFFICIENCY RATIO

For units with the same cooling, higher EER means lower electricity cost. For this model, the minimum EER standard set by the government is 9.1.

The monthly operating cost of this model will be approximately:

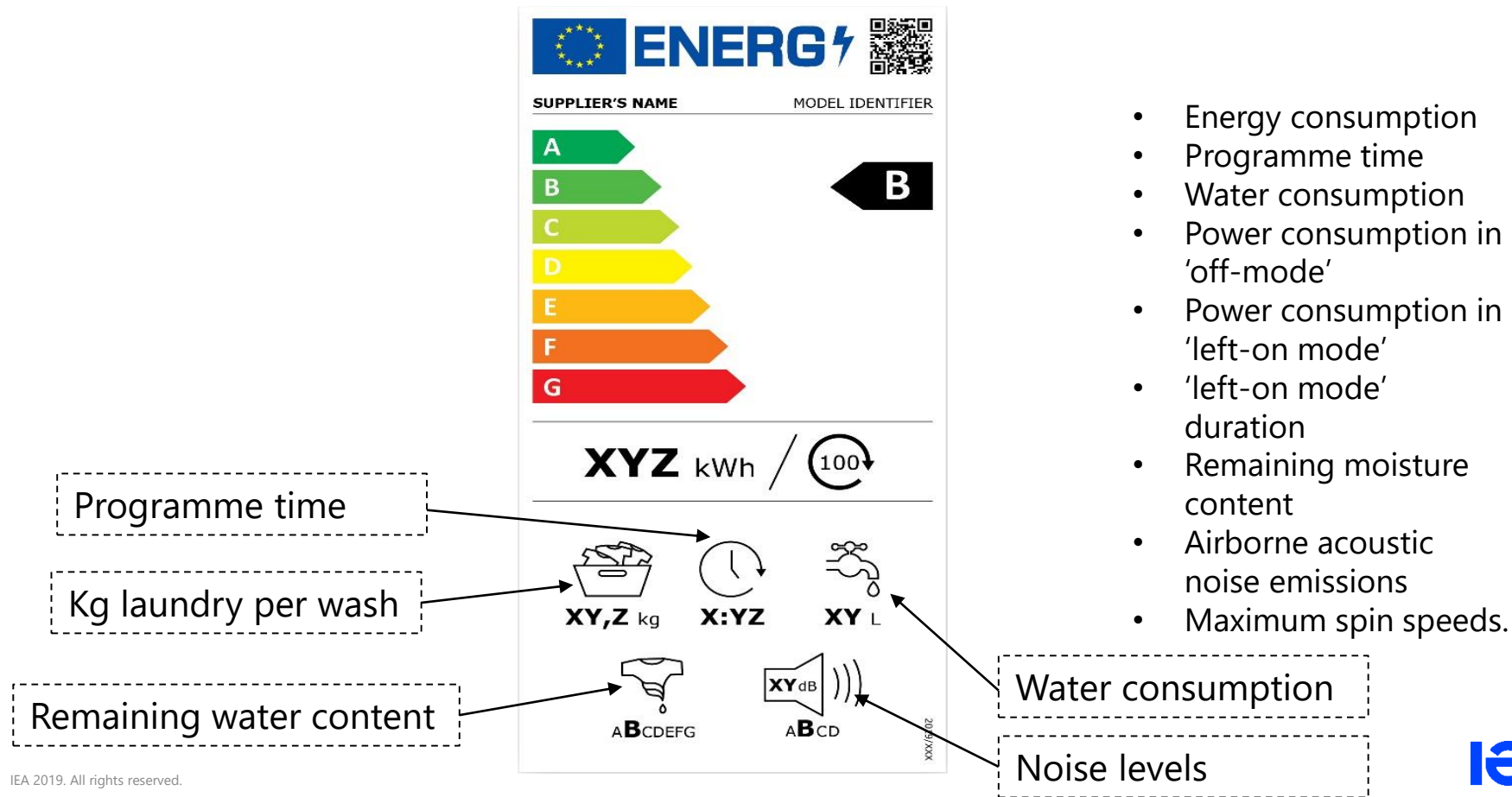
RATED POWER DEMAND (Watt 1 to 250)	MONTHLY USAGE (No. of hrs)	POWER RATE (Pesos/kWh)	COST OF OPERATION (Pesos)

Info on this label:

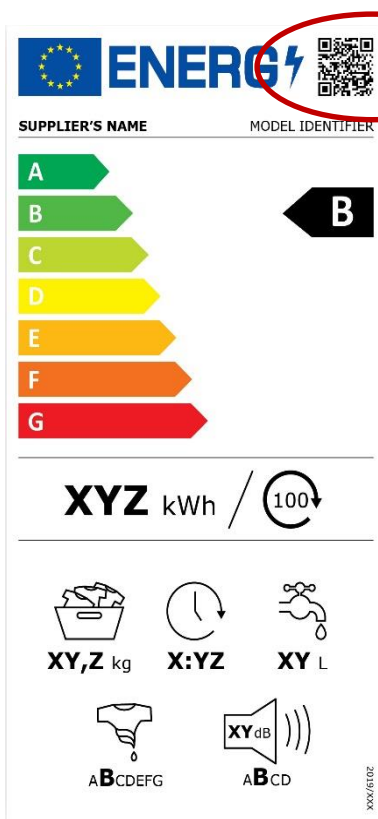
REMOVAL OF THIS LABEL BEFORE CONSUMER PURCHASE IS A VIOLATION OF REPUBLIC ACT NO. 7264

For additional information, ask your dealer or write or call the Department of Energy, Lighting and Appliance Testing Laboratory, PIVOC-ERDC, CompuLand, Commonwealth Avenue, Calamang, Quezon City. Tel. Nos. 479-2900 to 259 / 927-7201 • Fax: 927-7137

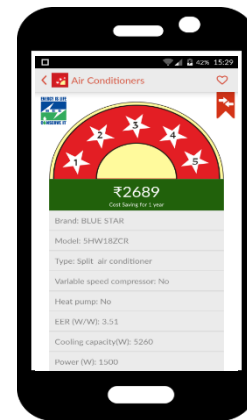
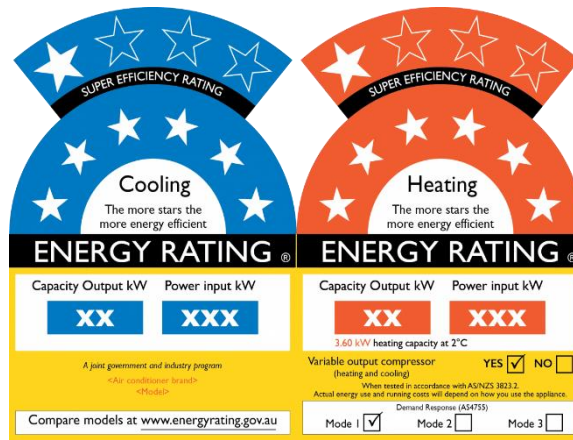
# What information can be included? EU example



# What to do when you run out of space?



- Reconfigure label e.g. EU from A+++ to A
- Help consumers access more information e.g. via QR codes and or apps

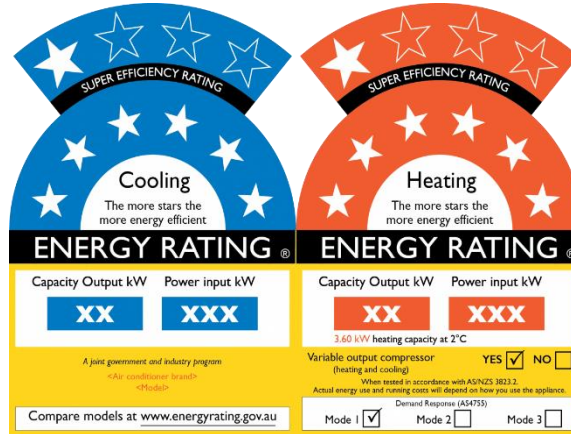


# Endorsement labels

- Identify the most energy efficient models, i.e. not all products labelled
- Generally endorsement labelling schemes show little product specific information for each model
- Endorsement labels are voluntary
- Can be updated more rapidly than a comparative energy label
- Usually paid for by manufacturers, third party tested
- Often linked to other policies - incentives



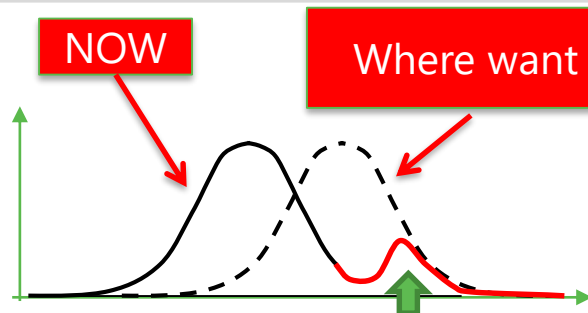
# How to promote super efficient products?



**ENERGY STAR 2018**  
Emerging Technology Award

# Market Transformation: impact of different policies

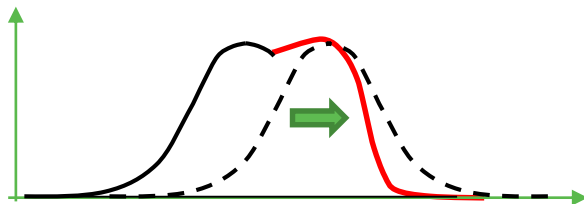
**Leading Edge:**  
establishing new  
technologies in the  
market



Innovation

- R&D\*
- Demonstration
- Technology transfer
- **Endorsement labels**

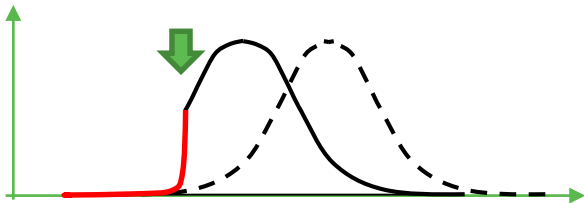
**Mid Market:**  
spreading good  
practice



Reduce barriers

- Access to information / finance
- **Comparative labels**

**Laggards:**  
discouraging  
bad practice



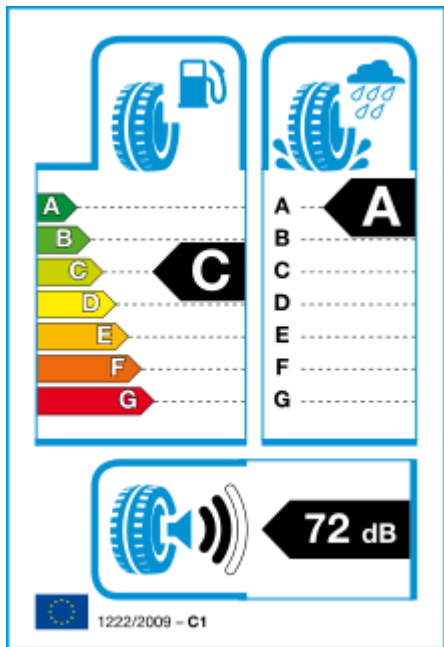
Remove worst

- Performance standards

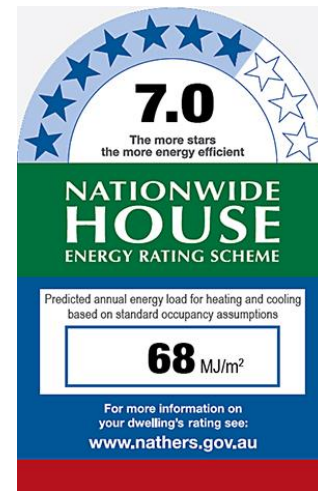
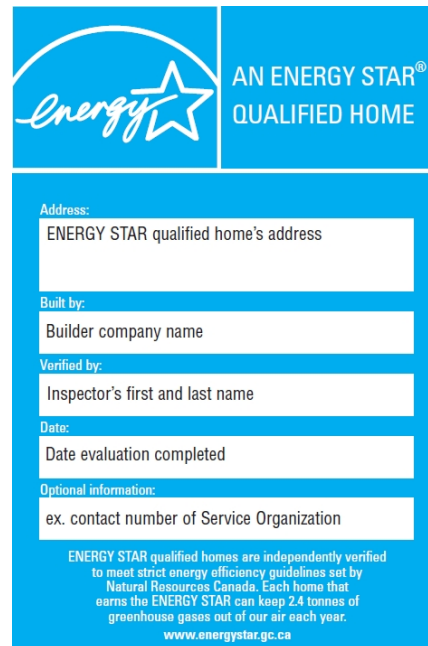
Market  
mechanisms  
increase  
incentives  
for higher  
energy  
efficiency  
across the  
whole  
distribution

\* Research and Development

# Energy labels are not just relevant for appliances



EU fuel consumption label for tires (November 2012)



What other products could have energy labels



# Label placement







# Label placement





# Label placement



I just want  
something to sit on

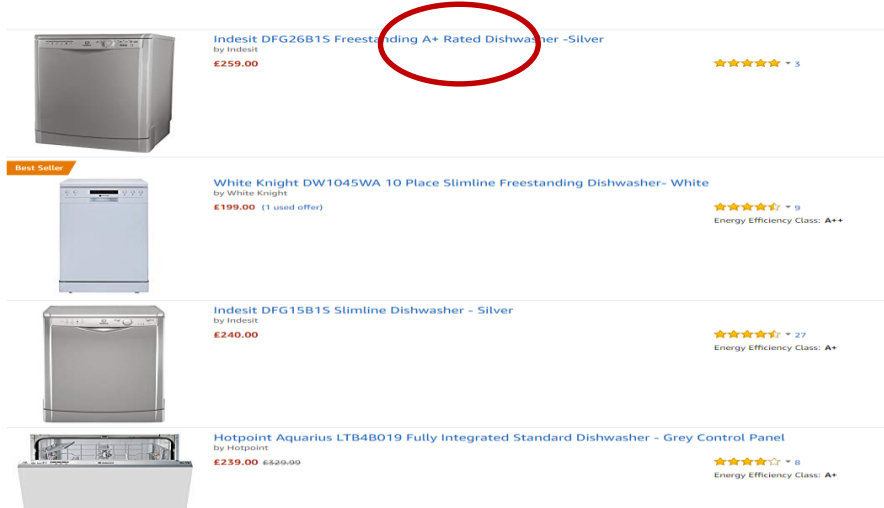
# Label Design

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- The most effective labels are visually intuitive
  - Need to be clear, easy to understand and communicated.
- Do not put too much information on the label – ‘over crowding’ will likely lessen consumer response and impact
- But different labels work in different ways to reflect cultures & different perceptions
  - Letters vs number vs symbols
  - Language, script, left to right ranking
  - Positional indicator – how does this model rank on absolute scale and in relation to other models?
  - Is high number or low number better?
- Need to select one label format and stick to it.
  - Takes years for buyers to become familiar with labels.

# Label placement

- Clear instructions for retailers
- Training for retailers
- Information on labels should also appear on electronic formats such as websites where consumers may purchase products online



Source: Amazon UK



Source: REI

# Label placement



The best of both types of label?

# Awareness-raising

- Effective labels require buyer awareness-raising campaigns.
- Buyer purchasing decisions that favor energy-efficient and high quality products ultimately provide a “pulling” force in the market.
- Encouraging consumers and others to buy products at the high end of efficiency and quality creates market demand (and drives down prices)

**Energy Saving Tips for Refrigerators**

1. Allow the hot food to cool first, then put in the fridge.
2. Excessive loading of refrigerator creates trouble in the circulation of cold air inside. "Do not overfill your refrigerator"
3. Refrigerator set to lower than needed will increase your energy consumption by ~20 - 25%. "Set the refrigerator temperature as per need"
4. Frequently opening of refrigerator door will increase energy consumption by 1%. "Don't open refrigerator door unnecessarily"

By cleaning up the condenser coil, you can reduce energy consumption by approx. 5%. "Clean it regularly".

To get Extra Saving go for star labelled refrigerator: Old inefficient refrigerators consumes as much as 40% more energy than a five star rated refrigerator.

**More the star more the saving:**

BEE five STAR LABEL LED refrigerator models energy savings thereby cost saving in comparison with one star model available in the market for the following capacities:

Capacity (Storage Volume)	Non Star Energy Consumption (kWh/year)	Five Star Energy Consumption (kWh/year)	Energy Saving (kWh/year)	Monetary saving (Rs./year) (Rs. 5/unit)
190	378	154	224	1120
210	385	157	228	1141
230	393	160	232	1162
260	403	164	238	1194
290	414	169	245	1225
310	421	172	249	1247

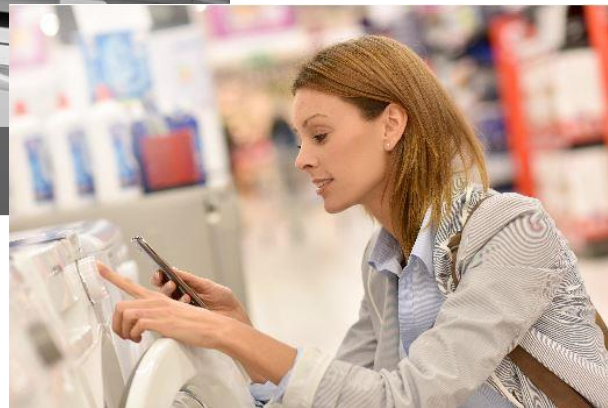
For more details, visit [www.beeastarlabel.com](http://www.beeastarlabel.com)  
Now the same is also available in BEE's "Mobile App" downloadable from iOS store, google play store & windows play store.

**BUREAU OF ENERGY EFFICIENCY**  
Ministry of Power, Government of India  
New Delhi-110086, Tel: 011-26108500 & 011-26108501 Fax: 011-26108502, Website: [www.beeindia.gov.in](http://www.beeindia.gov.in)

# Comparison Tools PocketWatt tool



[Home](#) [PocketWatt](#) [Retailers](#) [Partners Roundtable](#) [News](#) [Publications](#) [Contact](#) [About](#) [PocketWatt Web](#) [English](#)





# Label Awareness Raising

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<https://www.youtube.com/watch?v=G5KPNYcHCNg>

# Energy Labels – key considerations

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- MEPS and labelling often work closely together
  - Lowest rank of comparative label begin at MEPS level
  - Endorsement labels align with higher ranks
- Consumer awareness is crucial
- Checking compliance is important
- Ongoing evaluation of energy labels (and their S&L programme) is needed to measure how well it is working and if it can be improved

# Exercise

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Divide into three groups

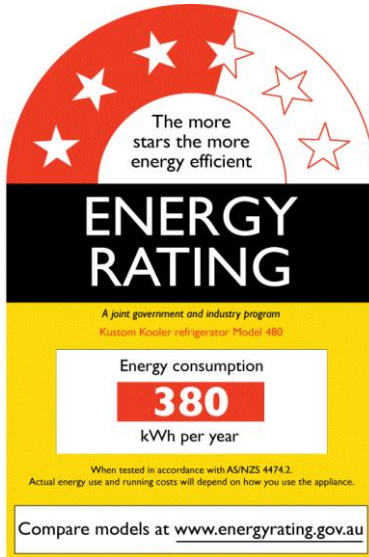
Examine the labels

Each group to discuss and report back about the effectiveness (pros and cons) of one comparative label

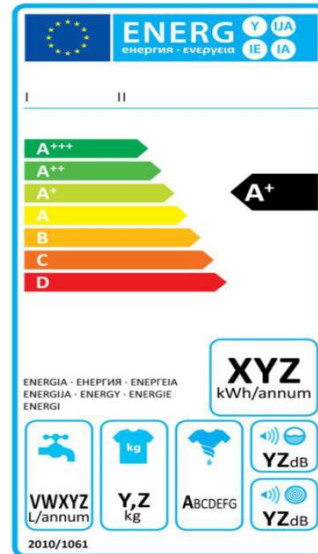


# Exercise

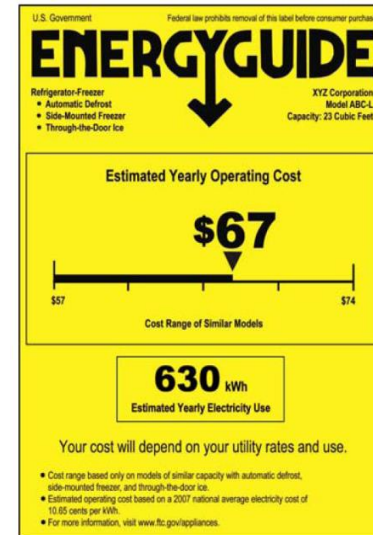
## 1. Dial Australia



## 2. Bar EU



## 3. Continuous US



# Label vs Actual Consumption

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# Scenario

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A newspaper article has questioned the validity of energy labels on refrigerators, saying that the label does not reflect real usage. Your manager has asked you to outline a response.

*What do you say?*



# Understanding the issue

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What information is included on the label, how is it sourced?

What do we think might be the explanation?



- Results on label based on 'standard' laboratory test
  - E.g. International, regional or local technical standard
  - Plus any guidelines for conducting test
- Laboratory test gives energy performance under strict conditions
- Average usage patterns, energy costs, calculated to give other indicators
- You **would not** expect each refrigerator to provide the exactly same performance in the home as in the laboratory

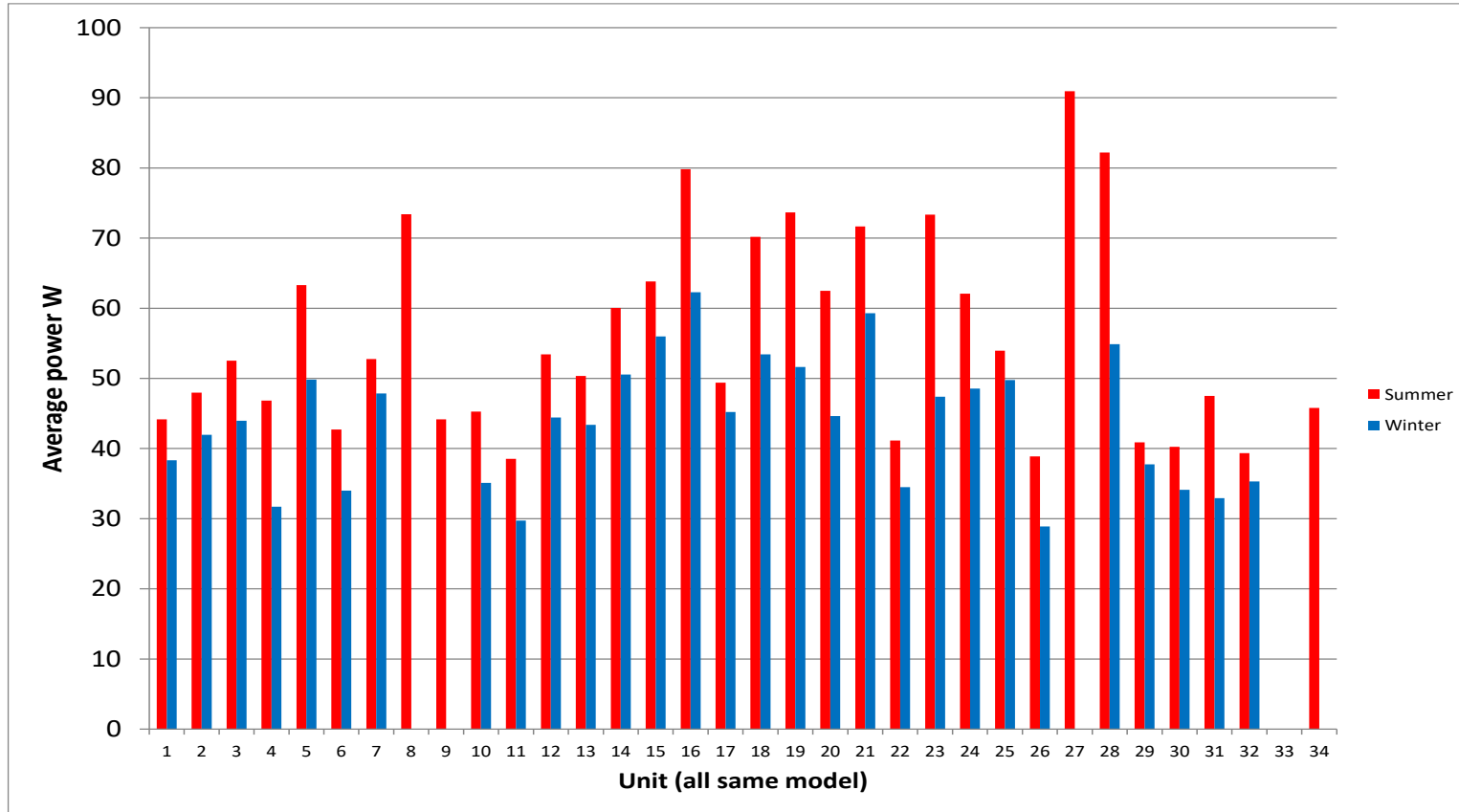
# Case study

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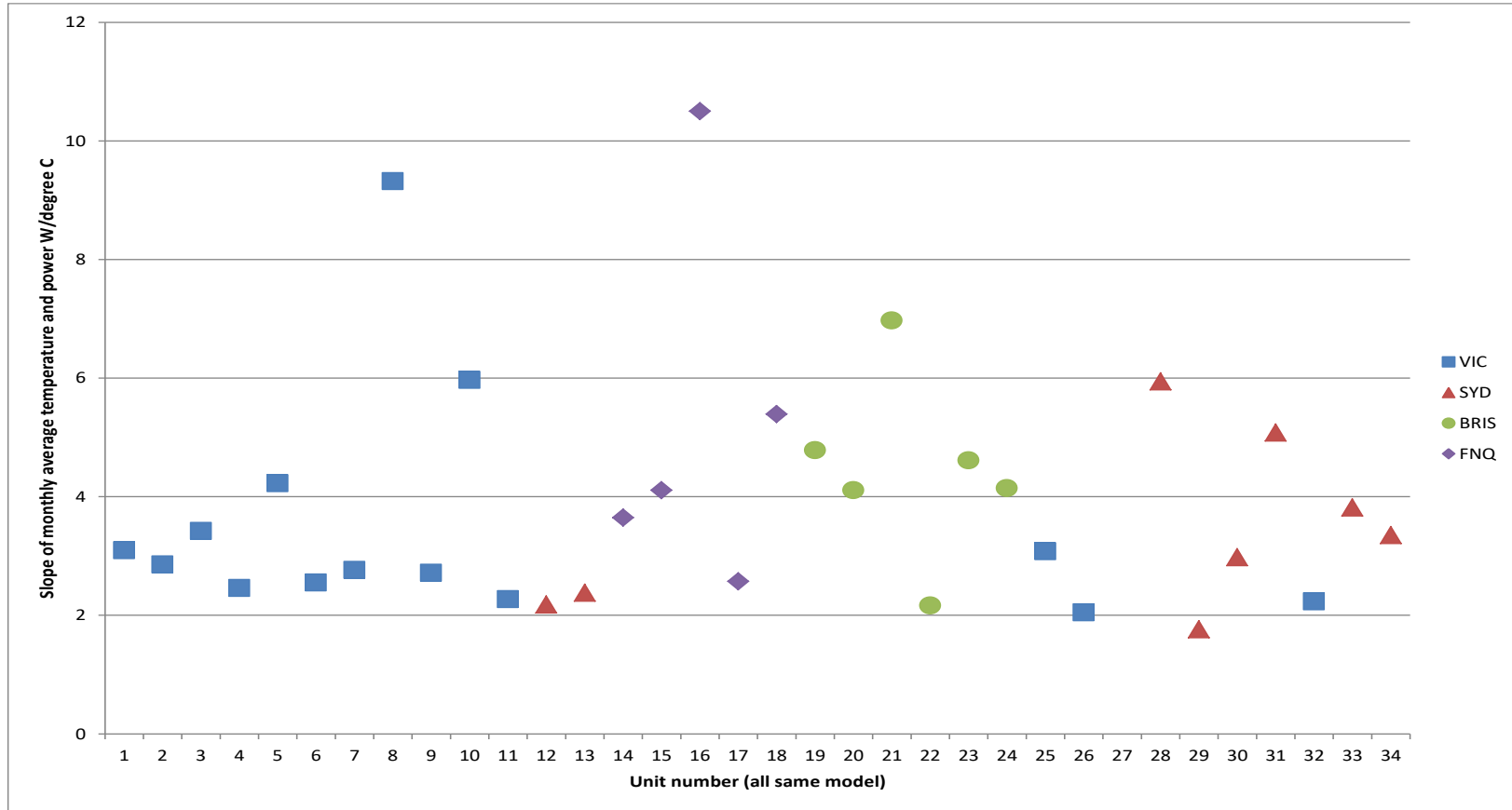
- Why may real use of a refrigerator vary from the test results?
- Possible variations
  - Climate – ambient conditions
  - Door opening frequency
  - Loading - foodstuff



# Summer and winter same model: impact of ambient temperature



# Same model, different households: impact of users



# Test Label vs actual performance

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So:

- You **would not** expect each refrigerator to provide the exactly same performance in the home as in the laboratory

But problems arise if they are too different (not sufficiently representative):

- Consumer complaints
- Unrealistic savings estimates & cost-benefit
- Poor signal to product designers
- **Products sense that they are under test**

# Final points..

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- Performing differently under test from general use is not conclusive evidence of a fraudulent product
- Why? Because the test procedure may not be reflective of 'normal' circumstances
- The better tests try to mimic either a range or an average set of conditions reflective of the 'real world'
- However, a single test cannot replicate the many differing ambient and usage conditions found
- So some divergence is inevitable
- Detailed observation of product behaviour under different conditions may be required for conclusive proof

# Resources

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<https://www.iea-4e.org/document/343/energy-standards-labelling-programs-throughout-the-world-in-2013>

<https://www.anti-circumvention.eu/about-project/project-introduction>

[PocketWatt tool](#)

[https://www.youtube.com/watch?v=INWxQ\\_6P4lw](https://www.youtube.com/watch?v=INWxQ_6P4lw)

<https://www.youtube.com/watch?v=lwsnqT68B0o>

<https://www.youtube.com/watch?v=G5KPNYcHCNg>

<https://clas.maillist-manage.com/click.zc?od=2d5a885a69b60a9728b9f335ce1521b9b1185630859ca1fd0&repDgs=143c97170cc8a2df&linkDgs=143c97170cc88583>

[www.facebook.com/SAEnergyLabel](http://www.facebook.com/SAEnergyLabel)

