

# **The effect of carbon ‘budget’ on demand reduction: Personal Carbon Allowances, labeling and information**

**Dr. Yael Parag**

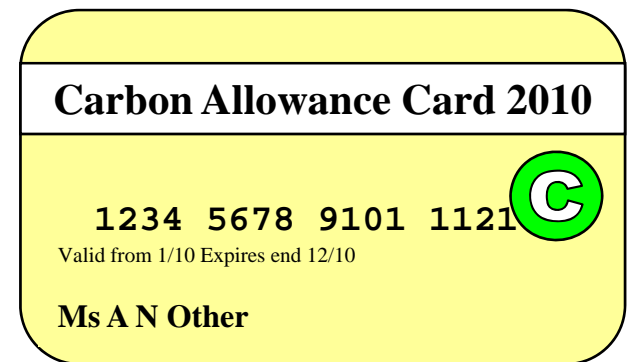
Lower Carbon Futures  
Environmental Change Institute  
Oxford University Centre for the Environment  
[Yael.parag@ouce.ox.ac.uk](mailto:Yael.parag@ouce.ox.ac.uk)

# Outline

- Personal Carbon Allowances
- Demand reduction and budgeting
- Labelling, information, and feedback
- Lessons from healthy diets to PCA

# What is PCA – in a nutshell

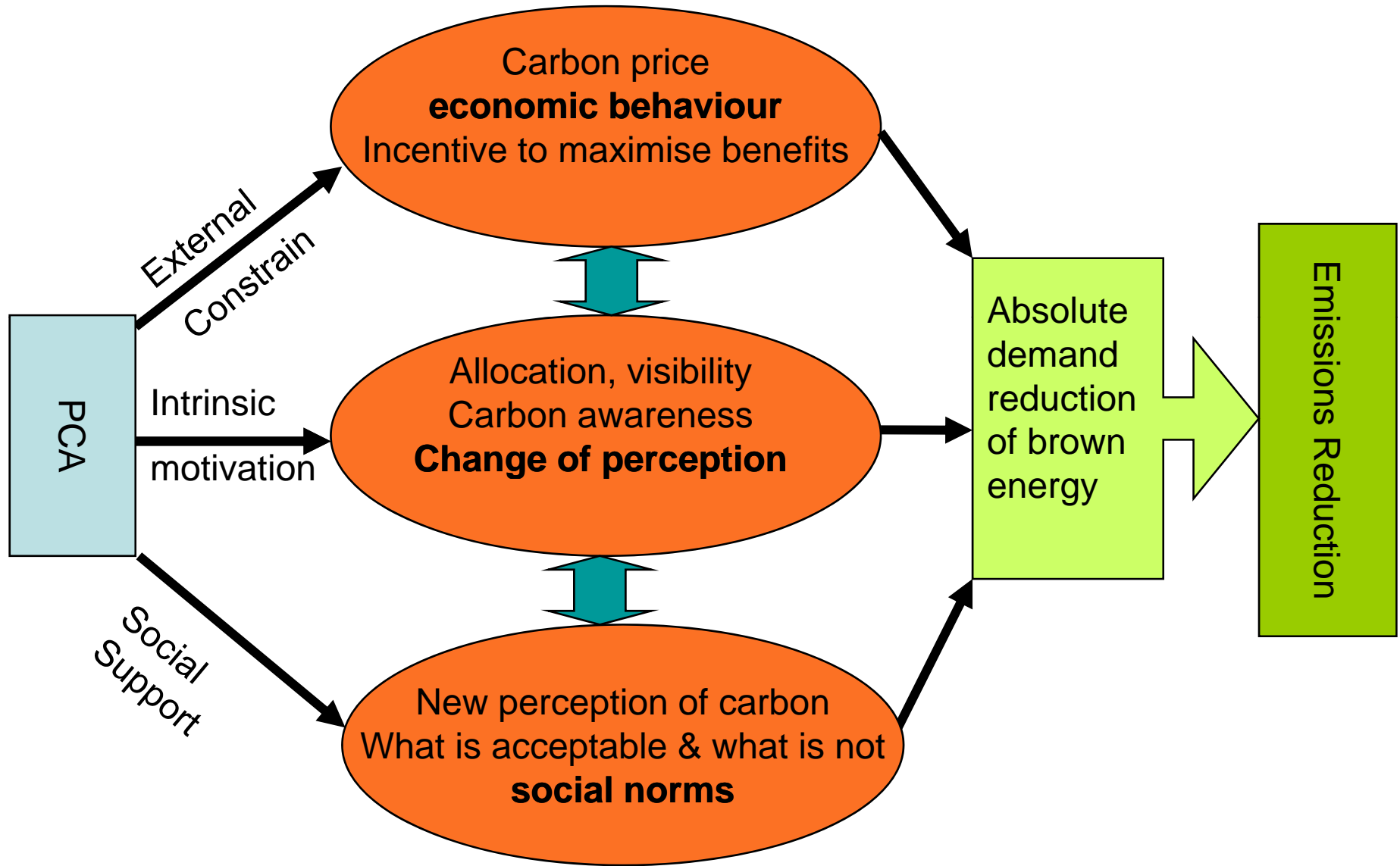
- National carbon cap divided to equal personal allowances
- Reduction of annual allowance over time, communicated well in advance
- To include personal transport & household energy use
- By swipe card or similar
- Tradable
- Mandatory



**Policy Tool**

**Mechanism**

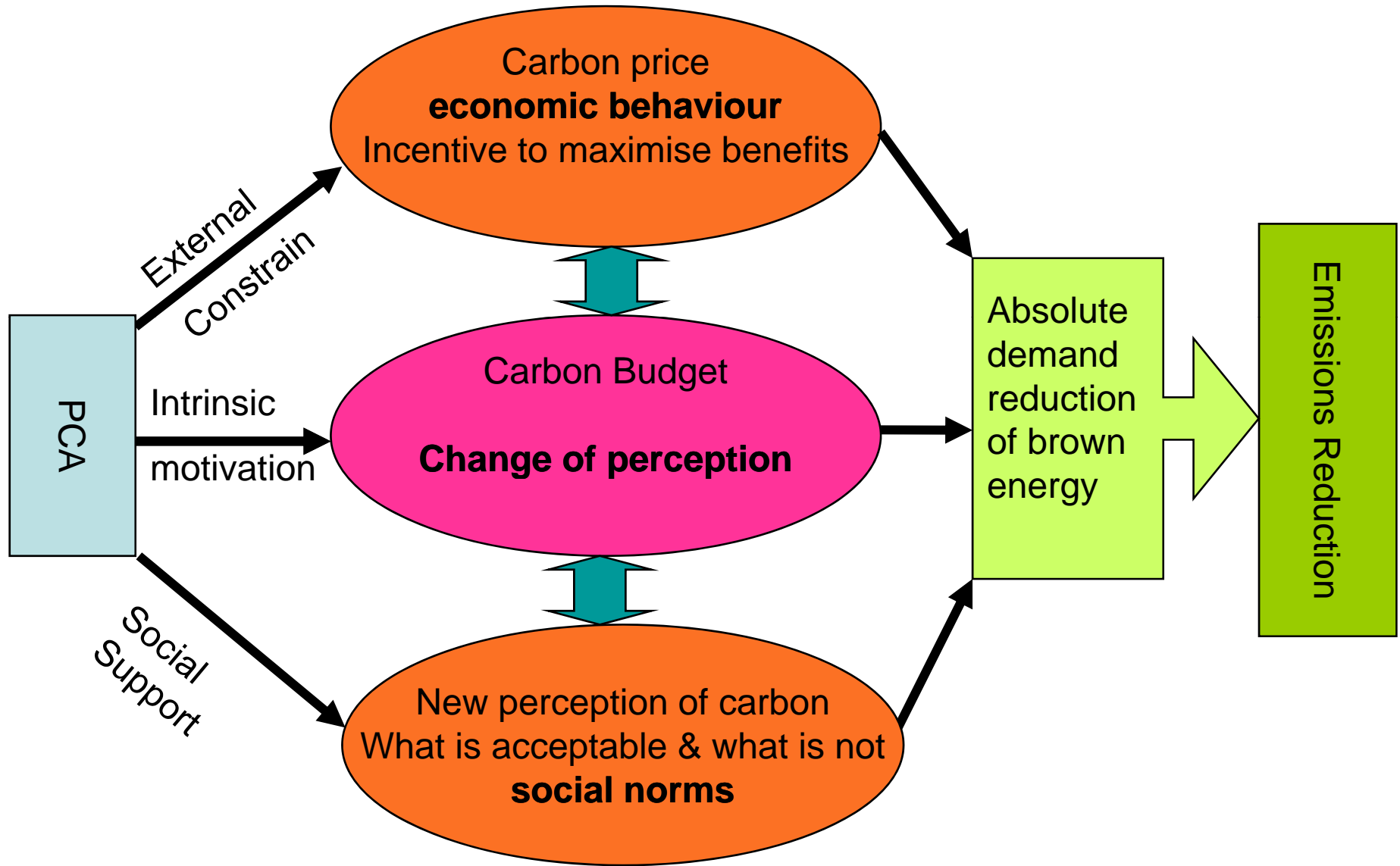
**Policy goal**




**Policy Tool**

**Mechanism**

**Policy goal**



# The usefulness of 'budgeting'

- Mental budgeting and accounting
  - Signals that the resource should be consumed with care
  - Defines a normative carbon emissions
  - Puts personal responsibility and promotes involvement
  - Sets a concrete personal target
  - Demand reduction in actual numbers, figures, and actions
  - Does not audit preferences
- 

# Managing a budget – What is needed?

- Limits
- Information (labels)
- Alternatives
- Opportunity to make choices (easy & simple)
- Feedback
- Advice
- Support (financial, social)

# Labelling

- Avoid confusion
- Similar units to enable comparison
- Information before action to support informed choices
- Reference to the whole budget (% of the whole budget)



CIAA

All you wanted to know about GDAs



Calories	Sugars	Fat	Saturates	Sodium
140	3g	1g	0.3g	0.3g
7%	3%	1%	1%	10%

## Spinach & ricotta pizza

Nutrition information				Guideline daily amounts		
Typical values (cooked as per instructions)	Per 100g	Per ½ pizza	% RDI* in 100g for women	Women	Men	Children (9-10 years)
Energy	1001 kJ 238 kcal	1977 kJ 470 kcal	23.5%	2000 kcal	2500 kcal	1800 kcal
Protein	9.3g	18.4g	40.9%	45g	55g	24g
Carbohydrate of which sugars	28.7g 2.7g	56.7g 5.3g	24.7% 5.9%	230g 90g	300g 120g	220g 85g
of which starch	25.9g	51.2g	-	-	-	-
Fat	9.6g	19.0g	27.1%	70g	95g	70g
of which saturates	3.7g	7.3g	36.5%	20g	30g	20g
mono-unsaturates	4.0g	7.9g	-	-	-	-
polyunsaturates	1.6g	3.2g	-	-	-	-
Fibre	2.3g	4.5g	18.8%	24g	24g	15g
Salt	1.0g	2.0g	39.3%	6g	6g	4g
of which sodium	0.40g	0.79g	32.9%	2.4g	2.4g	1.4g

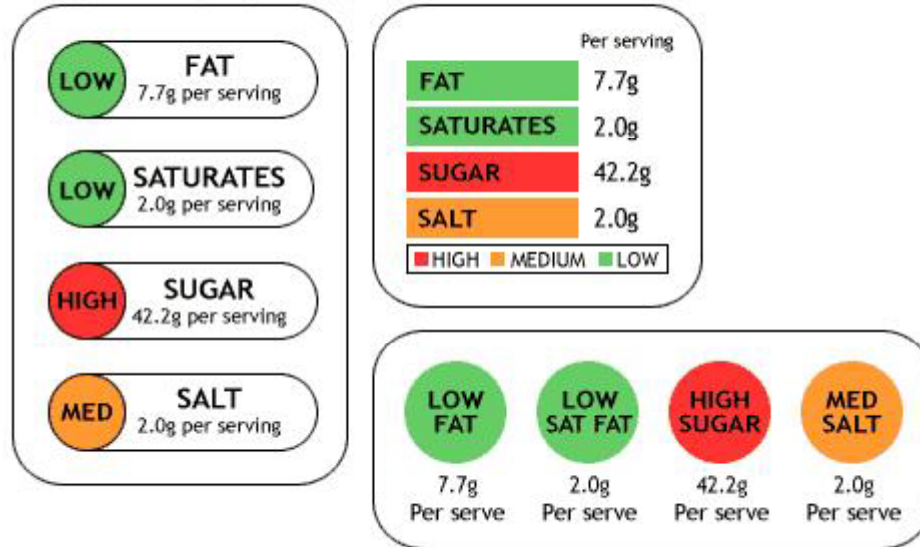
You may want to keep an eye on your **salt** intake as too much may increase your blood pressure.

It's important to watch your **calorie** intake, as without regular exercise too many may lead to weight gain.

A diet low in **fat**, particularly **saturated fat**, could help to maintain a healthy weight and a healthy heart.

To maintain a healthy lifestyle, we recommend aiming for at least 30 minutes of moderate exercise each day, such as brisk walking.

Example labels proposed by FSA



Examples of front of pack labels:



Une portion de 250 g vous apporte pour votre journée\*:

24h



Matières Grasses



Sucres Simples



Sucres Complexes



Protéines



Fibres



Sel



2400 kcal.



1900 kcal.

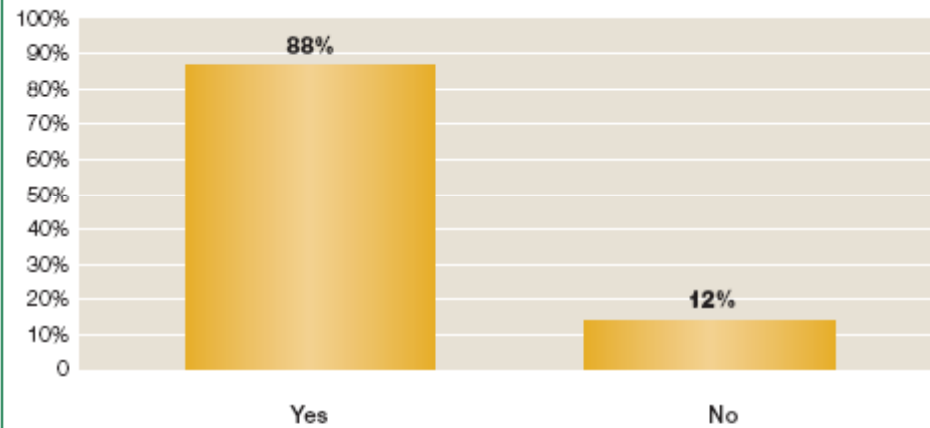
\* Calcul réalisé pour une personne dont les Apports Journaliers Recommandés sont de 1900 kcal.

**Variez, équilibrez, bougez !**



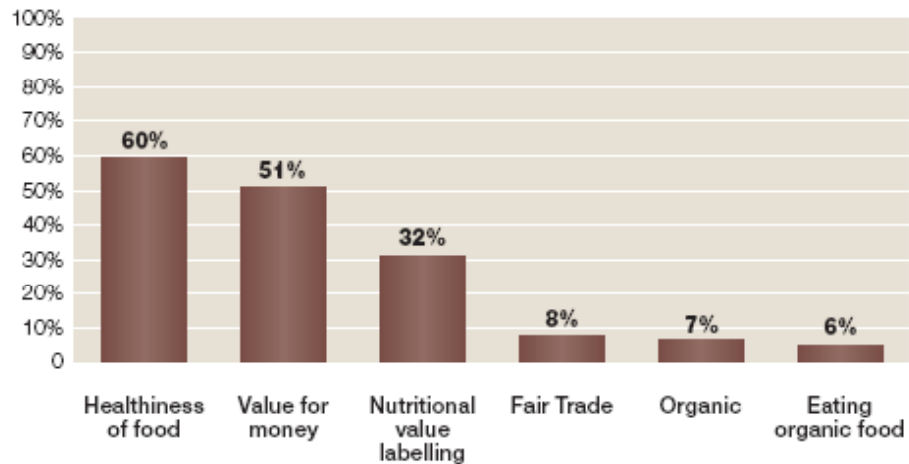
Pour un corps en pleine forme, consommez au moins 5 fruits et légumes par jour. Ces flageolets sont source de fibres qui contribuent à réguler votre transit intestinal.

### Does food labelling make a difference to what you buy?



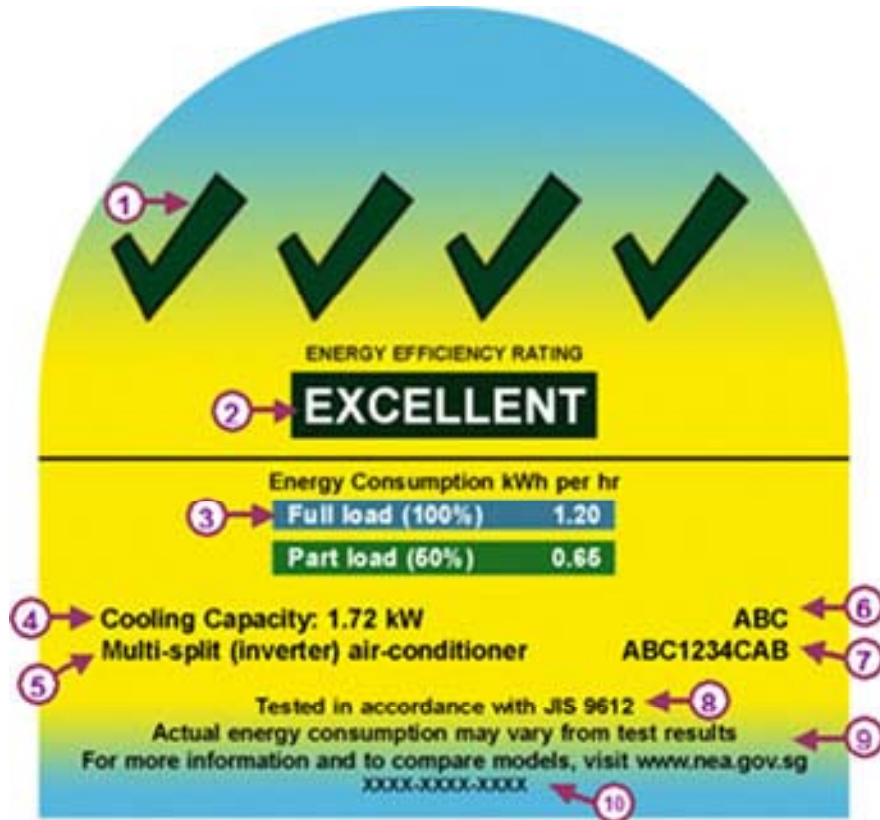
Source: MSTS

### How important are the following when making a decision about which food to buy



Source: MSTS

# Singapore



<b>Energy</b>		Fridge-Freezer
Manufacturer Model		
<b>More efficient</b> 		<b>A</b>
<b>Less efficient</b> Energy consumption kWh/year <small>(Based on standard test results for 24h)</small>		<b>325</b>
<small>Actual consumption will depend on how the appliance is used and where it is located</small>		
Fresh food volume l Frozen food volume l		190 126 <b>****</b>
<b>Noise</b> (dB(A) re 1 pW)		
<small>Further information is contained in product brochures</small>		
<small>Norm EN 153 May 1990 Refrigerator Label Directive 94/2/EC</small>		

Thailand

### Ghana Air Conditioner Label

THE MORE STARS  
THE MORE EFFICIENT

**ENERGY** guide

**3**

THIS MODEL'S EFFICIENCY  
**3.5 EER\***

APPLIANCE: ROOM AIR CONDITIONER  
TYPE: NO REVERSE CYCLE, LOUVERED SIDES  
COOLING CAPACITY: 3.82 kW/hr  
MANUFACTURER: COMPANY A  
MODEL: 1234; REFRIGERANT: R22

ENERGY CONSUMPTION OF THIS UNIT IS  
**3,274kWh/yr\*\***

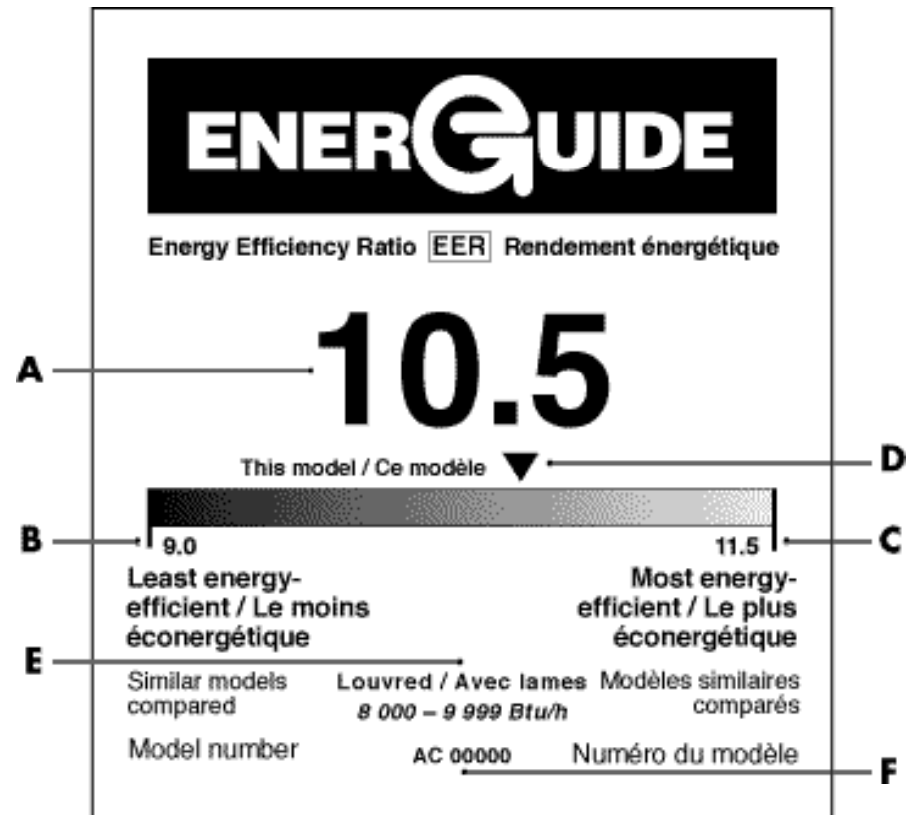
\*EER (Energy Efficiency Ratio) is the measure of energy efficiency for Air Conditioners, expressed as kWh/kWh of cooling. It is calculated by dividing the cooling capacity (kW) by the power input (kW). The higher the EER, the more efficient the unit is. The given data are according to the Energy Efficiency Labeling regulations for non-domestic conditions under Clause Standard Number (S) 30.  
\*\*Total and kWh/yr. Actual consumption may vary depending on utilization of the product.  
Removal of this label before first retail purchase is an offence under U 1541.

ฉลากแสดงระดับประสิทธิภาพอุปกรณ์ไฟฟ้า  
**ประเภท เครื่องปรับอากาศ**  
ขนาด 12,942.05 บีทียู/ชั่วโมง

ผลิตภัณฑ์	AHU ELECTRIC	รุ่น XY7 123
ประสิทธิภาพ	-- 5	บีทียู/วัตต์
ค่าไฟฟ้า	3,500	บาท/ปี
ใช้พลังงานไฟฟ้า	3,500	หน่วย/ปี
ชุดแฟนคอยล์รุ่น	XY7 123	
ชุดคอนเดนซิ่งรุ่น	XYA 123	

โครงการส่งเสริม  
ประเทศไทย  
MI 00000

# Canada



Based on standard U.S. Government tests

# ENERGYGUIDE

Central Air Conditioner  
Cooling Only  
Split System

XYZ Corporation  
Model 12345

Compare the Energy Efficiency of this  
Air Conditioner with Others Before You Buy

This Model's Efficiency  
11.6 SEER

**Energy efficiency range of all similar models**

Least Efficient 10.0	Most Efficient 16.9
----------------------------	---------------------------

SEER, the **S**ea**s**onal **E**nergy **E**fficiency **R**atio, is a measure of energy efficiency for central air conditioners.

**Central air conditioners with higher SEERs are more energy efficient.**

- This energy rating is based on U.S. Government standard tests of this condenser model combined with the most common coil. The rating may vary slightly with different coils.
- Federal law requires the seller or installer of this appliance to make available a fact sheet or directory giving further information about the efficiency and operating cost of this equipment. Ask for this information.

As required, placement of this label follows certain guidelines which the Federal Trade Commission's Appliance Labeling Rule (16 C.F.R. Part 101.2).

Manufacturer and model number.

Information about features, capacity and size helps you compare brands.

The energy efficiency rating for the product. The higher the number, the more energy-efficient the product, and the less it costs to run.


The range of ratings for similar models, from "less efficient" to "more efficient." This scale shows how a particular model measures up to the competition.

Important information on energy use and operating costs is published in fact sheets and product directories. Installers and contractors are required by law to provide these to you.

# Energy labelling at present

- Purchasing appliances once every few years
- Difficult to understand but message is clear: 'A' better than 'B' or 5★ better than 3 etc.
- Energy units and not carbon (kWh/year; kWh/cycle)
  - Carbon emissions vary according to source
- Enables comparison of same appliances only

# Energy labelling for budgeting

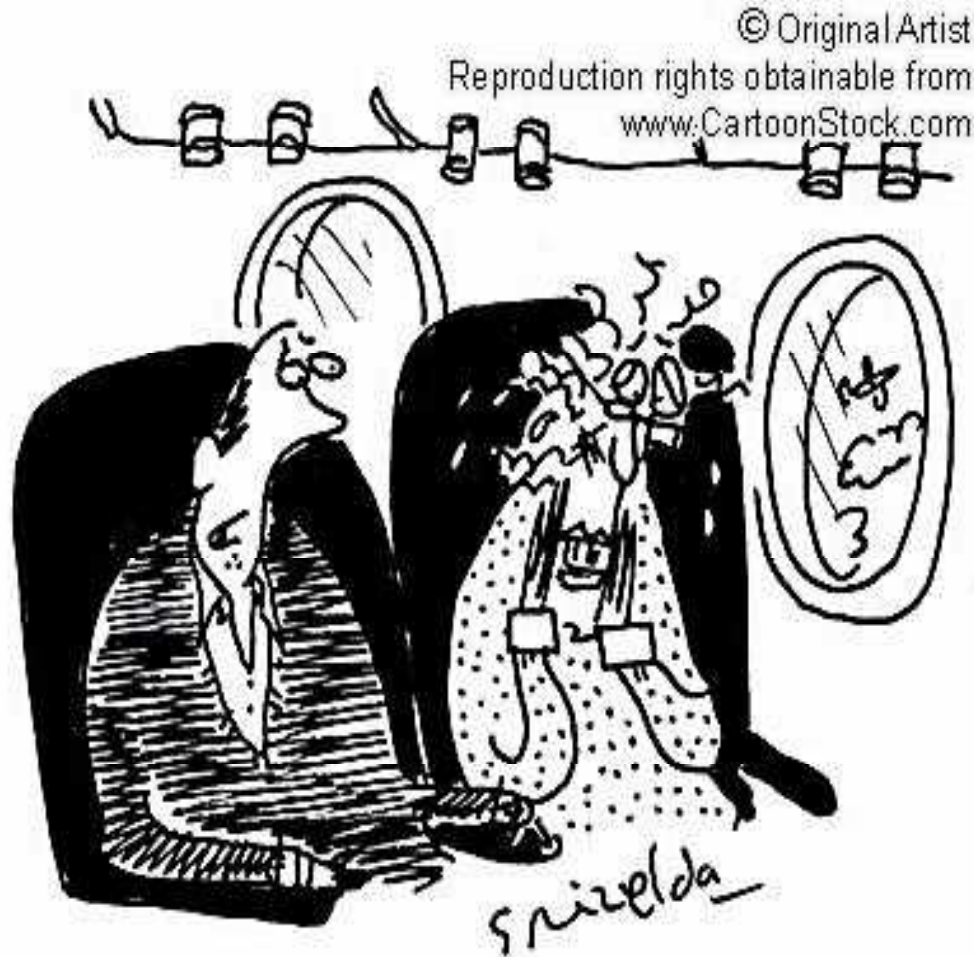
- Units of budget
  - Difference between fridges (working non-stop) and washing machine (influenced by user choices e.g. temp / program / load)
  - Labelling per activity (e.g. 1 hour of tumble drier)
  - Reference to compare with (overall consumption or overall emissions)
- 

# Feedback

- Challenge: how could feedback impact decision making about the next action?
- Learning process is complex
- Can we provide the feedback information immediately before next act?
- Can a label provide this?

# Conclusions

- Budgeting requires involvement and decision making
- Labels are important for informed choices
- The budget currency are important
- Labels should be meaningful for consumers
  - Unit per meaningful activity / unit of time
- Refer to the budget and the contribution of each activity to the budget management



“Stop feeling so guilty about flying, you’re giving off carbon emissions.”

Questions  
are  
welcome

[Yael.parag@ouce.ox.ac.uk](mailto:Yael.parag@ouce.ox.ac.uk);

[Yael.parag@gmail.com](mailto:Yael.parag@gmail.com)