Energy Efficient Homes

Minimise Energy Bills in the Home & Energy Saving Technology

TMR Sales & Service Ltd.

When economic times are hard:

Decisions are made along 2 lines.

Conserve the Environment?

Versus

Preserve the Bank Account?

Being Energy Efficient in the Home

- No single method we can be energy efficient
- Use a combination of ways to reduce our costs and improve efficiency.
- As consumers we are mainly affected by:

Attitudes

Current Fuel Charge per kw/h : 0.23¢

Using a Kill-A-Watt Meter

"Energy Today" Radio Programmes

The Fuel Clause Adjustment appears on your electricity bill in the box headed: **FUEL ADJUSTMENT CENTS/kWh**.

The Fuel Clause Adjustment			
Tariff	Month		
-	Aug. 2008	Sept. 2008	Oct. 2008
Domestic Service, General Service	**23.5375** cents /kWh	**23.5375** cents /kWh	**23.5375** cents /kWh
All Other Tariffs	**49.4821** cents/kWh	**39.9634** cents/kWh	**35.4779** cents/kWh

Measure standby power consumption of appliances left on.

TV, VCR, Cable Box (MCTV), Microwave, Cell Phone Charger

Standby Power Consumption

Current Charge per kw/h : 0.23¢

Appliance	Standby Watts	Weekly $	Annual $
TV	2	0.04	1.8
VCR	7	0.12	6.4
Cable(mctv)	8	0.14	7.4
Microwave	3	0.05	2.8
Cell Phone Charger	1	0.02	0.9
		$0.37	$19.34

Decision Making

- Instant benefits or long term benefits?
- Cheapest price today can be the most expensive price down the road
- Can being **GREEN** save me money? YES

Where can we save at home?

- Cooling - Energy Efficient Air Conditioners
- Lighting Controls
- Thermal Coatings

Cooling - Energy Efficient Air Conditioners

Energy Efficiency Ratio

- Developed by Air- Conditioning, Heating and Refrigeration Institute
- Manufacturers of popular brands such as: Carrier, Trane, Mitsubishi,Haier, Frigidaire are members.

MITSUBISHI ELECTRIC
Changes for the Better

Frigidaire

Carrier
Turn to the Experts.

TRANE

Haier

Cooling - Energy Efficient Air Conditioners

Energy Efficiency Ratio

- Ratio of the amount of cooling output power to electrical input power

  i.e (BTU/h) : (Input in watts) OR kW:kW

- The higher the EER, the more efficient the air conditioner.

Air Conditioner Purchasing Considerations

- EER

- Energy Star Status- Efficiency requirements are 10% above minimum EER requirements.

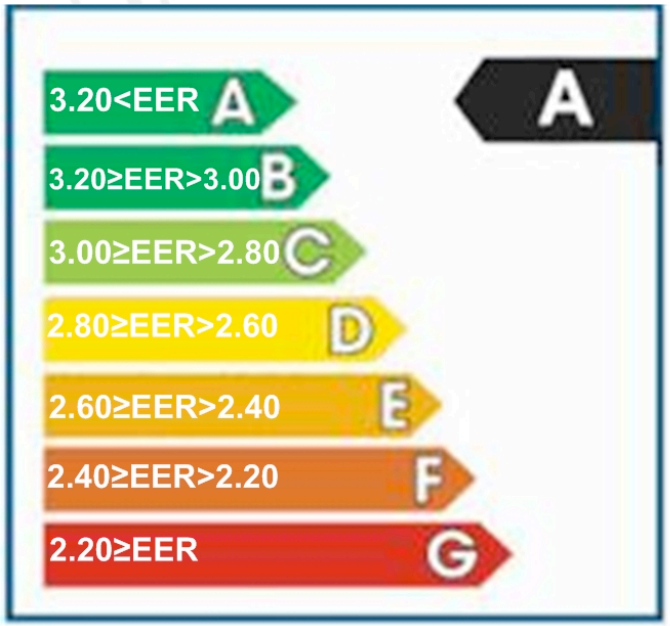
- Generally, High Efficiency

  A/C units costs more $$

Savings

	BRAND A	BRAND B
Price	$ 795.38	$ 1,148.00
EER	2.64	3.43
Energy Class Cooling	Class D	Class A

Assuming it takes 2.95 kW of power to cool an average bedroom 168 sq ft (12x14) per hour.



Savings

FUEL CHARGE FOR 8 HOURS OF COOL SLEEP		
	BRAND A	BRAND B
NIGHTLY	$2.10	$1.62
ANNUAL	$766.50	$591.13

PAYBACK- *(APPROXIMATE LIFESPAN 8 YEARS)*

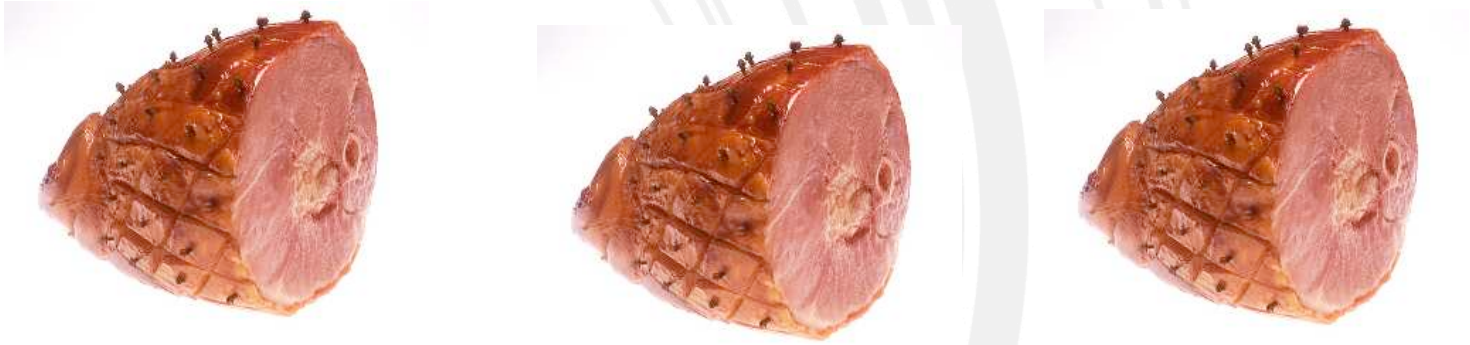
- 2 YEARS, 3 DAYS, 17HRS,
- Net Total Fuel Charge Savings = $1049.84

WHAT DOES THIS MEAN?

After Year 2, if you deposited $175.37 every year for 6 years at the current interest rate of 4%, your total savings would be

$1049.84 + $157.35 = **$1207.19**

OR



Environmentally Friendly Practices

Green Gas

- **R-410 Refrigerant**
  Residential air conditioners have normally used R-22. Because R-22 released into the atmosphere causes long-term damage, R-22 will not be allowed in new equipment starting in 2010, but will still be available for repairs.
- Manufacturers have started shifting to R-410a for their products.
- At present, there is often a price premium for air conditioners with R-410a refrigerant.
- After 2010 the cost of the R22 gas will be more expensive that R-410

Occupancy Sensors

(indoor)

- Detects finer movements unlike traditional motion sensors which rely on larger amplitudes of motion as can be found in corridors or driveways.
- Built in relays which can switch the light or air conditioning on directly.
- Three main types of Occupancy Sensors
  - Infrared
  - Ultrasonic
  - Acoustic

  - Easily incorporated in the building design or retrofitted

As complicated as a house alarm or as simple as an adapter to a light fixture.

Sensors

Wall Switch

Wall Mounted

Ceiling Mounted

Occupancy Sensors do decrease the life hours of the light but the replacement cost is **outweighed** by the operating costs saved.

Occupancy Sensors & Lights

<u>Ideal Areas:</u>
Patios, Hallways
Bathrooms
Walk In Closets

Ultrasonic:

- Detects the presence of people by sending out ultrasonic sound waves into a space and measuring the speed at which they return.

- Covers the entire space and do not require a line of sight. As a result, they can detect people behind obstacles.

Integrated photosensor keeps the light off, if it detects sufficient daylight.

Radiant Control Coatings.

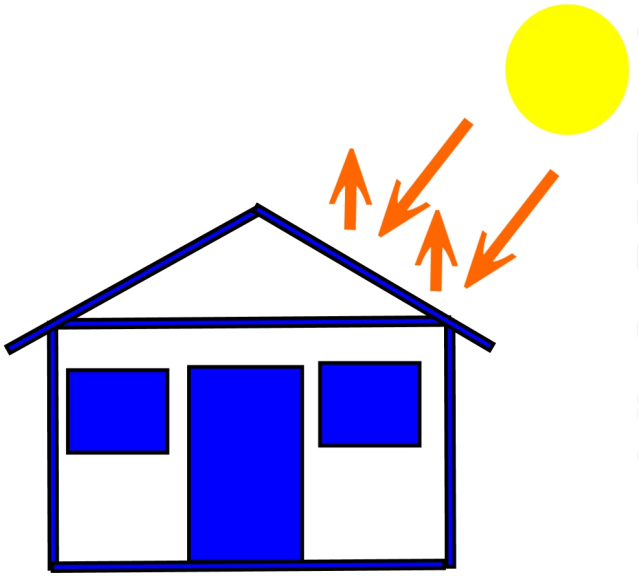
A portion of the sun's energy is radiant energy

Radiant energy when it is absorbed by the building becomes radiant heat

Roof and walls actually stay hot for hours after sundown. Materials in the walls and roofs holds the heat during the day and dissipates it slowly.

So, while your ceilings or walls stay warm, your fans and air conditioning system work extra hard to reduce that heat build up!

Radiant Control Coatings.



Radiant barriers or reflective coatings reflect the sun's radiant energy.

The coatings operate on 3 principles

- **Reflect**
- **Refract**
- **Dissipate**

Applied to: Metal Roofs, Concrete, Tile Roofs & Shingle Roofs

- Can lower the temperature of your roof by about 10°
- Enhances your comfort level in the home
- Reduces Cooling Costs.
- Reduces Thermal Shock

Summary

- Buy the most efficient air conditioner you can afford, especially if you use (or think you will use) an air conditioner frequently and/or if your electricity rates are high.
- The higher initial cost of an energy-efficient model will be repaid to you several times during its life span.
- Choose occupancy sensors to fit your application.
- Radiant Control Coatings reduce energy requirements, which lowers utility bills.