

## Energy



# Natural Resources





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# Carbon Emissions



# Drivers for Change

## Council

Legislation

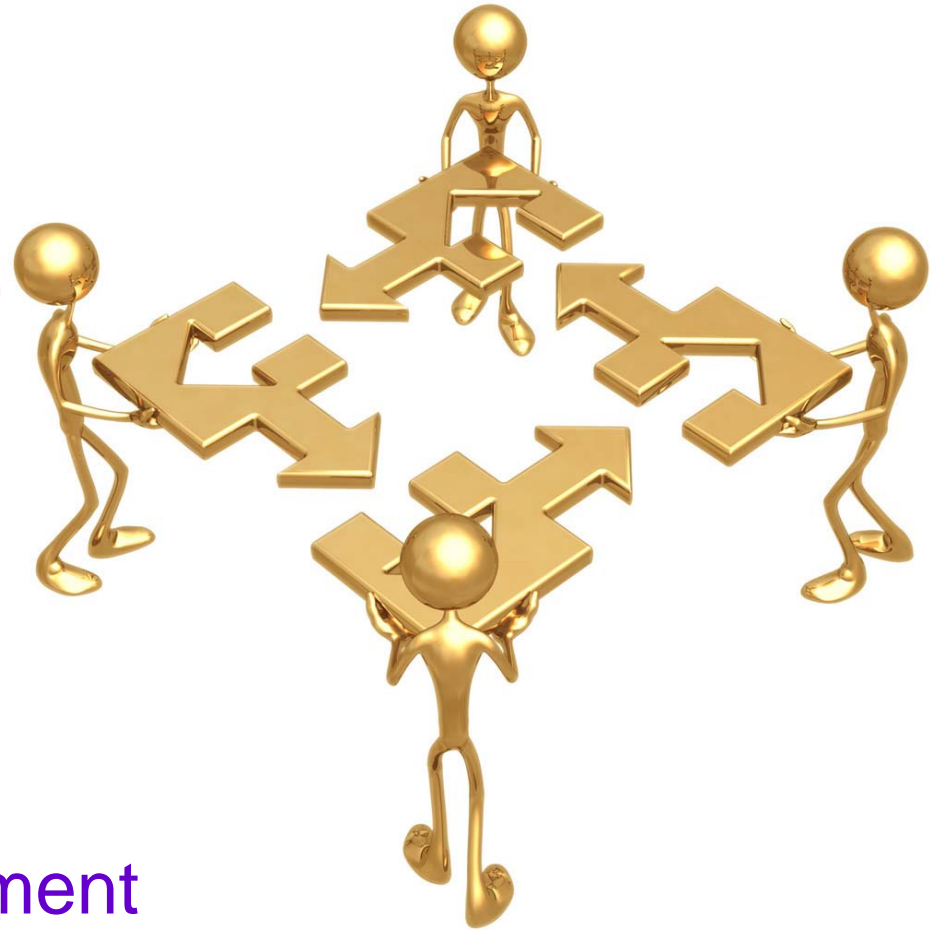
Cost

Social Responsibility

## Home

Cost

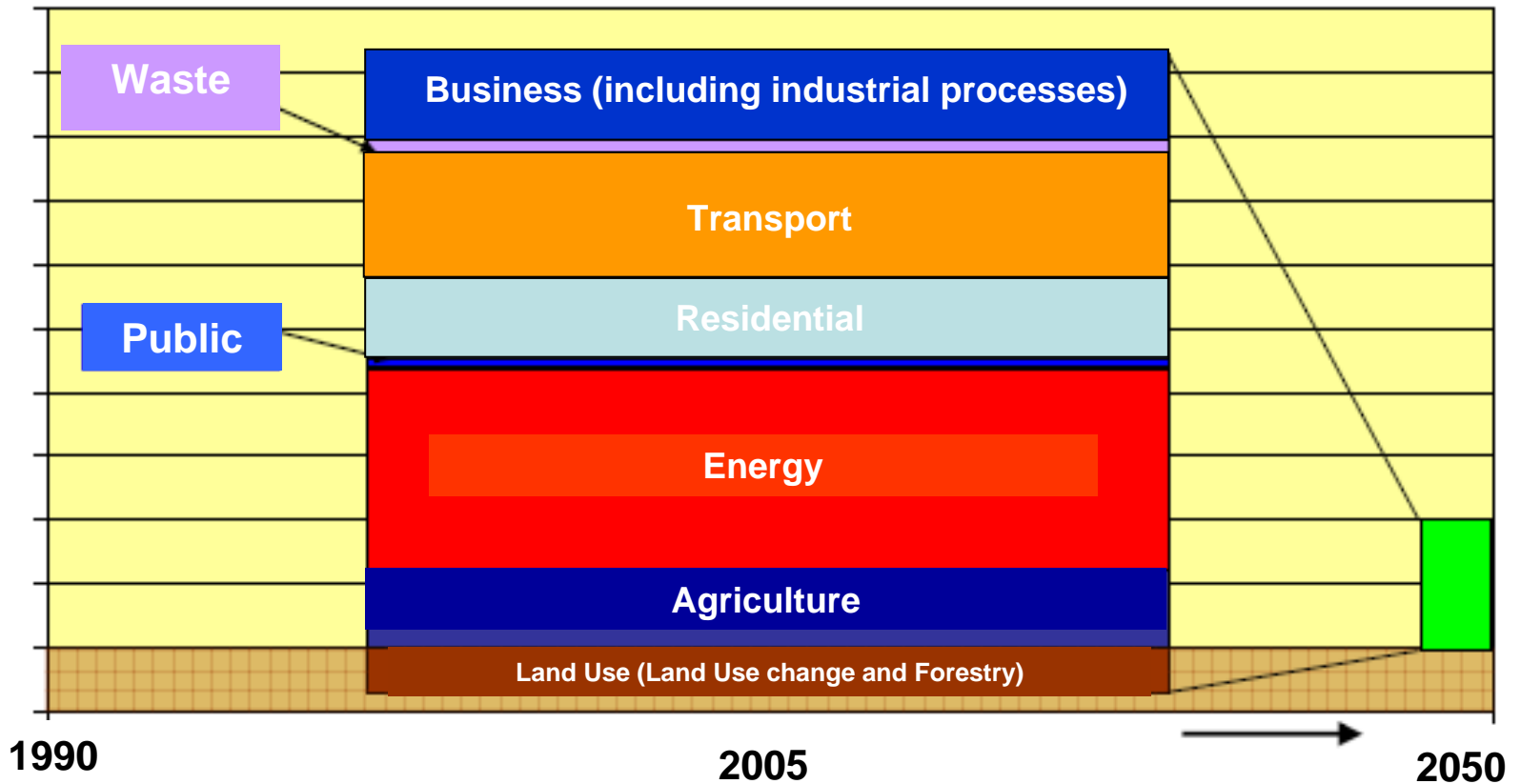
Environmental Improvement



# Scottish Government Targets

Total net GHG emissions in 2005 were 85% of 1990 emissions

These need to fall to 20% by 2050



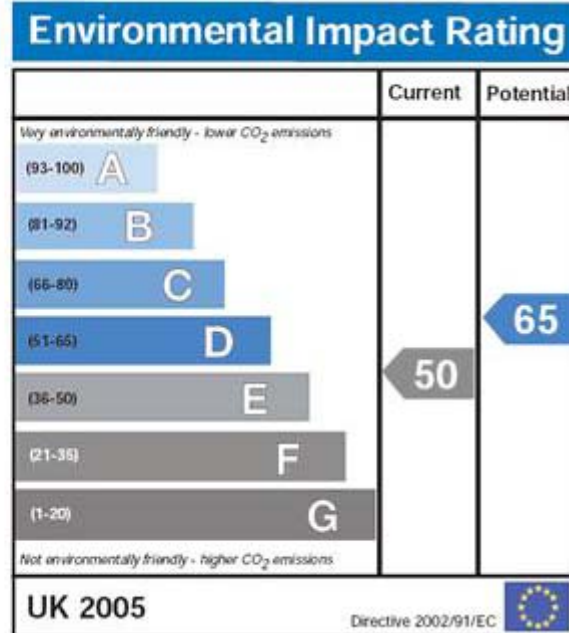
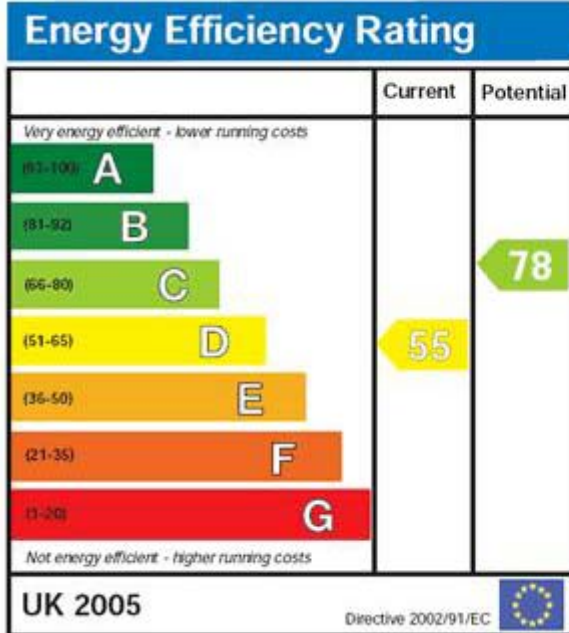
# Carbon Reduction Commitment

- Pay to Pollute Scheme
- From April 2010
  - Buy allowances from a reducing pot
- Initially £12 per tonne



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# Energy Performance



Will be used to assess running cost of buildings

Show what measures can be used to improve the building

Give owners better information about the carbon dioxide emissions.

# Inherent Problems



ity



**Take Action**

**Save Money**

**Save Energy**

**Save the World**

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Energy consumption can be reduced in a number of ways:

- 1. Increase awareness** of needs to reduce consumption at devolved levels
- 2. Improved knowledge** of energy saving measures
- 3. Implementation of simple monitoring procedures**

# Green Ambassadors

- 1. Know what you can do!**
- 2. Know how to do it.**
- 3. Know how to assess the benefit.**

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- **Behavioural**
- **Energy Efficiency**
- **Technological Changes**
- **Fuel changes**

## Green Housekeeping: Up to **20%** savings based on use

- Lighting
- Heating
- Office Equipment
- Power



# Simple Actions at Work



TURN DOWN

A PC monitor consumes **3 times** the energy in use than it does on stand-by

TURN OFF

Switching off monitors will save up to **£39 p.a.**

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# Simple Actions at Home



TURN DOWN

Turning the thermostat down by **1°C** could reduce energy consumption by as much as **10%**

TURN OFF

Switching off or unplugging the microwave has no costs and can save **£10** per microwave per year.

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## Read the Meters

- Every Monday is good
- Monday and Friday is better



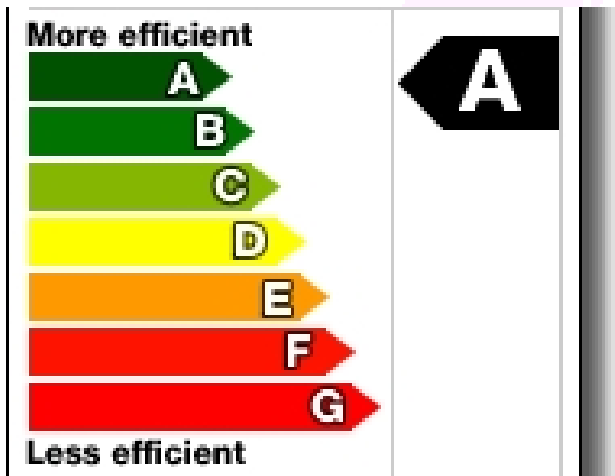
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# Increased Awareness

## Look for unauthorised and unnecessary appliances

- Re-use equipment
- Offer unwanted/surplus equipment to other departments (maybe via staff noticeboard)
- Check for unwanted equipment prior to purchasing new goods

## European Energy Label



- Modern household appliances now come with an energy label
- Label shows consumer electricity usage in (kWh)
- Extra information on the label includes water usage, performance and noise level

# Energy Labels

### Energy Window

Energy Index (kWh/m <sup>2</sup> /year) <small>(Energy Index certified by BPRC and based on UK standard window. The actual energy consumption for a specific application will depend on the building, the local climate and the indoor temperature)</small>	<b>-39</b>
The climate zone is:	<b>UK</b>
Thermal Transmittance (U <sub>window</sub> )	1.8 W/m <sup>2</sup> .K
Solar Factor (g <sub>window</sub> )	0.38 W/m <sup>2</sup> .K
Effective Air Leakage (L <sub>acc30</sub> )	0.02 W/m <sup>2</sup> .K

Reg. No.: [www.bfrc.org](http://www.bfrc.org)

This label is not a statutory requirement. It is a voluntary label provided as a customer service to allow consumers to make informed decisions on the energy performance of competing products.

### Energy Washing machine

Manufacturer: [ ]  
Model: [ ]

**More Efficient**

Energy consumption kWh/cycle  
(based on standard test results for 60° C cotton cycle)

Actual energy consumption will depend on how the appliance is used.

Washing performance A: higher G: lower AB **C** DEFG

Spin drying performance A: higher G: lower ABC **D** EFG

Spin speed (rpm)

Capacity (cotton) kg

Water consumption

**Noise** Washing Spinning  
(dB(A) re 1 pW)

Further information is contained in product brochures.

Norm: EN 60456  
Washing Machine Label Directive No 95/12/EC

## Energy Performance Certificate

### Address of dwelling and other details

10 High Street Anytown X1 4ZZ	Dwelling type: Name of protocol organisation: Membership number: Date of certificate: Reference number: Total floor area: Main type of heating and fuel:	Semi-detached house [protocol organisation] [membership number] 08 January 2008 0000-0000-0000-0000-0000 148 m <sup>2</sup> Ground source heat pump, radiators, electric
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### This dwelling's performance ratings

This dwelling has been assessed using the RdSAP 2005 methodology. Its performance is rated in terms of the energy use per square metre of floor area, energy efficiency based on fuel costs and environmental impact based on carbon dioxide (CO<sub>2</sub>) emissions. CO<sub>2</sub> is a greenhouse gas that contributes to climate change.

### Energy Efficiency Rating

	Current	Potential
<i>Very energy efficient - lower running costs</i>		
(92-100) <b>A</b>		
(81-91) <b>B</b>		
(69-80) <b>C</b>		
(55-68) <b>D</b>		<b>56</b>
(39-54) <b>E</b>	<b>39</b>	
(21-38) <b>F</b>		
(1-20) <b>G</b>		
<i>Not energy efficient - higher running costs</i>		

Scotland EU Directive 2002/91/EC

### Environmental Impact (CO<sub>2</sub>) Rating

	Current	Potential
<i>Very environmentally friendly - lower CO<sub>2</sub> emissions</i>		
(92-100) <b>A</b>		
(81-91) <b>B</b>		
(69-80) <b>C</b>		
(55-68) <b>D</b>		<b>66</b>
(39-54) <b>E</b>	<b>49</b>	
(21-38) <b>F</b>		
(1-20) <b>G</b>		
<i>Not environmentally friendly - higher CO<sub>2</sub> emissions</i>		

Scotland EU Directive 2002/91/EC

# Typical Running Costs

Type of Appliance	Average Use	Annual Cost
Regular Light Bulb (100W)	5 hrs/day	<b>£22</b>
E E Light Bulb (20W)	5 hrs/day	<b>£5</b>
Shower (Electric)	5 mins/day	<b>£27</b>
Bath	1 bath/day	<b>£56</b>
Television	50 hrs/week	<b>£35</b>
Television	On Standby	<b>£39</b>
Cooker (Electric)	15 hrs/week	<b>£123</b>
Microwave	2 hrs/week	<b>£9</b>
Fridge-freezer (10 yrs old)	Constant Use	<b>£87</b>
Fridge-freezer ('A' Rated)	Constant Use	<b>£35</b>
Washing Machine (10 yr old)	4 loads/week	<b>£48</b>
Washing Machine ('A' Rated)	4 loads/week	<b>£24</b>



\*Costs are based on an average electricity price of 12p per unit

# Energy Efficiency

- **Insulation**
- **Draughtproofing**
- **Controls**



# Technological Changes

- **Lighting**



- **Heating**



- **Renewables**



# Lighting

- Switching Off unnecessary Lights
- Keeping Lights Clean
- Replacing Fluorescent Tubes
- Automatic Controls

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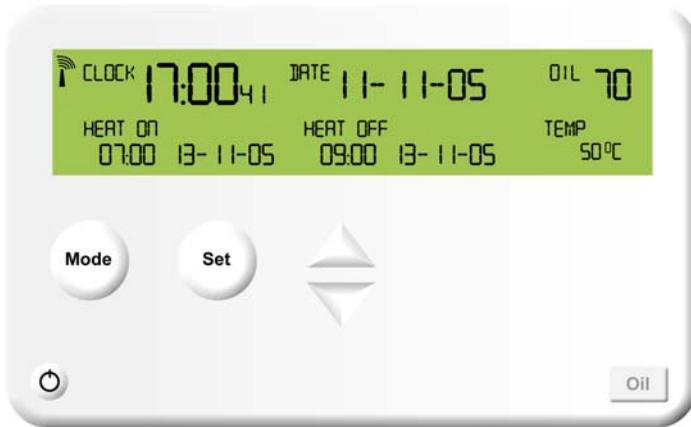


- Lighting accounts for **10-15%** of electricity bill
- Modern CFLs use **one fifth** of the energy of an ordinary light bulb
- Many CFLs are guaranteed to last up to **10 times longer** than the normal light bulb
- Many styles and makes available and best quality bulbs will last over **10,000 hours**

# Heating



- Check Control
- Keep Clean
- Switch off when not needed



# Renewables

- Solar Thermal
- Solar Electricity
- Wind Turbines
- Heat Pumps



**Energy Team can advise what is appropriate**

# Fuel Changes

- Oil to Gas
- Biomass
- Renewables



# Information and Help



In terms of Scotland's Ecological Footprint, if everyone in the world were to consume natural resources and generate Carbon Dioxide (CO<sub>2</sub>) at our rate, we would need three planets to support us. Of course, we only have one planet and we are using its resources faster than we can replenish them.

*Stockholm Environment Institute - March 2007*


Reduce your ecological footprint at work.....



**Energy**

The Highland Council is committed to reducing CO<sub>2</sub> emissions from Council buildings by 15% by 2010.

[How can you help?](#)



**Travel**

Through the development of a green travel plan emissions from staff travel can be reduced.

[Do your bit to help.](#)



**Waste**

The Highland Council is committed to reducing the amount of waste produced and increasing recycling by 50% by 2009

[How can you help?](#)

- **Web Site**

- **Energy Team**

- **Sustainability Team**

**Thank you for listening**  
*Any questions?*

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