



Guide to Becoming an Energy Savvy Business!

This factfile details the basic information covered by the Medrwn Sustainable Tourism Workshops run by Green Snowdonia in Oct-Nov 2011. The information is arranged by the three workshop topics; Day to Day Environmental Management, Being a Sustainable Catering Establishment and An informal introduction to Renewable Energy. Additional information arising from the workshop discussions and useful links are also included.

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Day to Day Environmental Management

1. Read your electricity, water, oil/gas meters on a weekly basis, keep a note of your readings along with your occupancy rates for the week, this will enable you to calculate your energy/water consumption per bed night.
2. Use the data from your meter readings to benchmark your consumption with other similar businesses, and to predict and evaluate the savings realised from any efficiency measures.
3. Use a Smart meter to get a better idea of how and when you use electricity, they cost around £40, and no wiring or electrical knowledge is required to install them, but be warned they are addictive! www.electricity-monitor.com has lots more advice.
4. Do a walk round audit on a regular basis (ideally six monthly when the clocks change) using your own checklist. You can use the Carbon Trust template as a starting point (Assessing the energy use in your building: CTL003, available to download from the [Carbon Trust](#) or from the Green Snowdonia [Documents Library](#)) but then customise it to make it relevant to your property.
5. Use the results of your walk round audit to put together an environmental action plan, which details improvements you can make to the energy efficiency of your business. Address the simple low cost measures first, such as insulating pipes, schedule more costly measures into your business plan.
6. If your boiler is more than 12 years old it may be worth considering replacing it. How much you will save will depend on the fuel type and how old and inefficient your boiler is. To find out how efficient your boiler is look it up on the [Boiler Efficiency Database](#).
7. Make sure your boiler and other appliances are running at optimum efficiency by having them serviced regularly.
8. Fit your radiators with thermostatic radiator valves.
9. Set your heating thermostats to 18oC, and make sure your staff reset radiator thermostats when they clean the rooms. Turn thermostats down in rooms which are unoccupied and keep the doors closed.
10. Set your hot water thermostat to 60oC
11. Rethink your lighting: At last, LED bulbs are available which give instant, good quality light and are affordable. Whether you need a candle bulb, bayonet or screw fitting or halogen replacement there is an LED bulb available. www.energybulbs.co.uk has a good guide to LEDs and an energy calculator. See below for a guide to purchasing low energy lighting.
12. Chemical free cleaning: there several chemical free cleaning systems available. Hotels and B&Bs who have tried them speak very positively about the savings they have made, both from not buying chemicals and from using less hot water. Businesses are very

impressed with the quality of cleaning performance and in addition, staff benefit from not being exposed to harsh cleaning products. www.enjo.co.uk

13. Minimise your waste and maximise your recycling. Put in place simple systems for staff and guests, for example, provide cloth bags in the rooms for guests to put their newspapers and glass. Shop around for recycling collection contractors. Encourage suppliers to take away excess packaging, buy in bulk (perhaps purchase with other local businesses).
14. Environmental policy; write a brief statement (one side of A4) of your business's commitments to managing its activities in a sustainable manner, the aim of the policy is to convey to your guests that you care about the environment and are taking action to minimise the impacts of your business.
15. Involve your staff. There is no point in having a policy if it is stuck in a file; it is only useful if it is adopted by every member of your staff. Put environmental management on the agenda at staff meetings, and give staff the opportunity to make suggestions, encourage them to question procedures and be creative in solutions.
16. When choosing new equipment compare total lifetime cost (annual energy and maintenance cost x lifetime in years + quoted capital purchase and installation cost).

Being a sustainable catering establishment

In addition to the environmental management measures outlined above there are some additional measures specific to catering businesses.

1. If the energy costs for your kitchen are likely to be more than several thousand pounds then the installation of sub-metering should be pursued. For large catering establishments it may be worth sub-metering particular pieces of equipment.
2. Check that periods of high energy demand coincide with busy periods, this will help you to identify malfunctioning equipment. Use the data from your meter readings to predict and evaluate the savings realised from any efficiency measures.
3. Involve your staff: Ensure your kitchen staff are aware of their ability to minimise energy and water consumption. Involve them in the setting of realistic targets to reduce energy and water consumption. Appoint a member of staff as an energy champion. Catering establishments often have high staff turnover, so make sure environmental management is incorporated into your induction procedures.
4. Train your staff in good working practices;
 - Use correct size of utensils, pots and pans for heating ring/oven
 - Avoid over filling saucepans, kettles
 - Use lids and covers to retain heat, steam and fumes
 - Switch off grills, fryers and hobs immediately after use
 - Display cooking equipment preheat times
 - Keep hot storage of cooked food to a minimum
 - Switch on equipment only when necessary

- When pans come to the boil, turn hobs down to the minimum to simmer (boiling does not speed up the cooking process)
 - Use microwaves to reheat relatively small amounts of food
 - Switch off extraction fans when they are not in use
5. Develop and implement a regular cleaning, maintenance and service programme for all kitchen equipment
 6. Consider replacing any equipment over 15 years old with more energy efficient models, consider induction hobs, combi-steam/convection ovens. Look for energy saving features such as triple glazed viewing doors, automatic fan switch off, heat recovery, multi-speed fans, automatic shut off for hob burners. Consider replacing one large piece of equipment with a number of smaller units - so that you can switch off empty fridges during quiet periods and only run dishwashers when full.
 7. Locate your refrigeration equipment in the coolest part of your kitchen, vacuum the ventilation grills regularly.
 8. Use 7 day time switches where possible to automatically switch off equipment at the end of shifts or when not trading. These can be used on refrigerated drink vending machines, bar cabinets and display fridges where no fresh items are stored.
 9. Minimise water consumption: Switch off taps after use and don't wash utensils under running water, install tap controls such as automatic switch off, install water efficient flow restrictors and aerators, these reduce volume of water whilst maintaining effectiveness, install shutoff valves for spray washers.
 10. Avoid simultaneously heating and cooling your kitchen, if the heating turns off at 20oC, then the cooling should come on at 25oC.

An informal introduction to Renewable Energy

'Greening your Business' does not mean immediately installing renewable energy technology. Considering whether renewables are appropriate for your business, and choosing which technology is most suitable, is a question you need to ask **after** you have taken steps to ensure that your building is as thermally efficient as possible and that you are not wasting electricity. Answering the following 6 questions will help you assess whether you are ready to consider renewables for your building.

1. Do you know what type of boiler do you have and how old is it?

If your boiler is more than 12-15 years old it is highly likely it is of a conventional (standard) type - these boilers are no longer available to buy due to their lower efficiency. If your boiler was installed after 1997 it is likely that it is a high-efficiency boiler.

If your businesses has a conventional boiler you should consider replacement with either a high-efficiency or a condensing model, or a renewable energy technology such as biomass (logs/wood chips/pellets) or ground/air/water source heat pumps.

2. Do you know how much energy you use in your property, and how that energy is used or when?

Read your meters regularly and record your consumption.

3. Do you know how much energy a similar type of energy efficient business should use?

Study your bills and reconcile with your meter readings.

Work out how much energy has been used and compare it with benchmark figures

4. Have you done an energy walkround?

This is a walk around your premises to:

- Assess what uses energy
- Assess when energy is used
- Identify areas for savings

Its common sense – aimed at identifying practical ideas. To get the most out of it you need to be open minded and creative.

Repeat at different times to get the full picture of energy consumption. For example, at lunchtime/night/weekends, when cleaners are on duty, at the beginning and end of heating system, when the clocks change.

5. Have you identified your energy wastage?

Is your energy consumption;

- *Unnecessary:* Equipment and light fittings that are redundant
- *Inefficient:* Poorly maintained boilers, standard tungsten lighting
- *Poorly controlled:* Timer and/or temperature controls wrongly set
- *Inappropriate:* Use of inappropriate fuels such as electric space heating

6. Have you implemented the ‘Top Ten’ low-cost projects to start saving carbon?

1. Turn off unnecessary lighting & equipment
1. Adjust heating controls / temperatures to suit activity
2. Keep doors and windows closed when heating or cooling
3. Replace lights with energy saving equivalents
4. Regularly maintain plant and equipment
5. Draught proofing
6. Insulate heating pipework and fittings
7. Use daylight
8. Train catering staff in the cost of energy
9. Turn off office equipment when not in use
10. Inform colleagues on all of the above!

If the answer to all of the above is YES, then you are ready to consider if installing renewable energy sources is appropriate for your business.

As a general guide the renewable technologies most likely to be appropriate for retrofit to existing tourism business properties are;

Solar: Photovoltaics / Solar water heating

Biomass: Log/pellet/woodchip stoves

Other technologies suitable for retrofit but which tend to be more complex to commission and install are;

Wind

Micro-hydro

Other technologies which are worth considering for buildings undergoing refurbishment or for new-builds are;

Ground and Air Source Heat Pumps (require small amount of electricity), useful when installed with underfloor heating.

For up to date descriptions of these technologies go to the [Energy Saving Trust](#) and [Carbon Trust](#) Websites.

If you are planning to install an electricity generator or heating system fuelled by renewable sources then recent financial incentive schemes introduced by the Government will make a big difference to calculating the payback times on your investment. The government is supporting the small-scale generation of electricity from renewable sources through the **Feed-in Tariff (FiT) scheme**. The scheme aims to encourage eligible businesses to install these technologies through the provision of financial incentives in the following ways:

A Generation tariff – This is a set rate paid by your energy company/supplier for each unit (kWh) of electricity that is generated by your particular technology. For new entrants to the scheme, this rate will change annually (except for the first two years), once you have joined your particular tariff remains the same for 20 years or 25 years for solar electricity (PV).

An Export tariff – If you export electricity back to the grid, you will receive an additional 3p/kWh from your energy supplier. This export rate is applicable to all technologies. This encourages energy efficiency as more will be paid for electricity generated and exported, rather than used on site.

Energy bill savings – a result of generating your own electricity to power appliances means a savings on your electricity bills as less electricity should be purchased from the energy supplier.

[The Energy Saving Trust](#) has produced a [Cashback Calculator](#) to determine payback periods for renewable installations.

In April 2011 the Government introduced the [Renewable Heat Incentive \(RHI\)](#). The Renewable Heat Incentive is designed to provide financial support that encourages the switch from using fossil fuel for heating, to renewables such as wood fuel. When replacing or

supplementing an existing fossil fuel heating system (e.g. gas, oil or coal) with renewable technologies (e.g. wood fuel) a set amount each year will be paid out by the Government. This is an incentive to reduce any non renewable energy consumption, CO2 emissions and help prevent climate change.

There are no proposals to measure the heat generated from installations. An estimated figure will be used to work out payments. This estimated figure represents the amount of heat energy needed to warm the home / buildings and/or hot water you use.

The Government introduced the RHI for commercial properties in April 2011. Technologies which are eligible for RHI are;

Air, water and ground-source heat pumps

Solar thermal

Biomass boilers

Renewable combined heat and power (CHP)

Use of biogas and bioliquids

To be eligible for FIT/RHI payments your system must be installed by an installer registered with the Microgeneration Certification Scheme (MCS). To find certified installers in your area go to the [Microgeneration Certification Scheme Website](#).

Funding Environmental Management Initiatives

Carbon Trust Interest Free Loans: The Carbon Trust offers 0% business loans to businesses in **Wales**.

- You can borrow between £3,000 and £100,000 interest free to purchase energy saving equipment
- Anticipated energy savings offset the loan repayments. So new equipment should pay for itself and you should continue to make savings year on year
- The loans are government funded and unsecured
- A straightforward and fast application process with no arrangement fees
- You'll receive a conditional offer within 24 hours of your application being processed
- Loans can be repaid over a period of up to 4 years
- You can track the progress of your application online

The size of the loan offered and its repayment period will be based on the projected CO2 savings of a project, which will be assessed by the Carbon Trust. They will give £1,000 of loan for every 2.5 tCO2 saved per annum for a project. Many types of project will be considered, provided they meet the on-site fossil fuel saving requirement. A number of energy saving projects can be grouped together to meet the energy saving requirements, for example changes to lighting fittings and controls can be combined with improvements to building insulation to meet the minimum £3,000 loan limit.

Green finance is available to all UK businesses and public sector organisations through the [Energy Efficiency Financing scheme](#) from the Carbon Trust and Siemens Financial Services.

[Enhanced Capital Allowances \(ECAs\)](#) are a straightforward way for a business to improve its cash flow through accelerated tax relief. The ECA scheme for energy-saving technologies encourages businesses to invest in energy-saving plant or machinery specified on the Energy Technology List (ETL) which is managed by the Carbon Trust on behalf of Government.

The ECA scheme provides businesses with 100% first year tax relief on their qualifying capital expenditure. The ETL specifies the [energy-saving technologies](#) that are included in the ECA scheme. The scheme allows businesses to write off the whole cost of the equipment against taxable profits in the year of purchase. This can provide a cash flow boost and an incentive to invest in energy-saving equipment which normally carries a price premium when compared to less efficient alternatives.

[Sustainable Tourism Powys](#) is offering grants to businesses in Powys for Green Tourism projects – 50% of the project costs up to £5000. To apply contact the Sustainable Tourism Team who will issue an Expression of Interest Form. Once assessed, the project officers will visit eligible businesses and assist in completing a full application form for submission to the grant panel.

Additional discussion points

- **Guide to purchasing low energy lighting:** Most people are familiar with the compact fluorescent energy saving light bulbs, but in the last year LED light bulbs have become available in most fittings (GU10, MR16, bayonet, and screw) at a much more affordable price (£3-£25 depending on bulb and fitting). It is worthwhile taking another look at your lighting to see if you can make savings.

Knowing what is available and how to compare available technologies can be complex, download a guide comparing available bulb types.

Buying low energy light bulbs can lead to disappointment when they claim to be 100, 60, 40 watt equivalent but don't deliver the expected results. If you want to know how bright a light bulb really is you need a figure that measures its actual light output, this is measured in lumens. Fortunately, bulb manufacturers now have to quote the light output on all new bulbs. Once all the old stock has been cleared from the shelves, every new bulb you see in the shops will have its **light output in Lumens** clearly printed on the packet. What does this mean?

Matching lumens to Watts for tungsten filament bulbs

Lumens	GLS equivalent	Where to use it
1,200 to 1,300	100W	Usually the brightest bulbs in the house, single light fittings for lighting the whole room.

650 to 700	60W	Wherever a less bright bulb will do, e.g. smaller rooms, rooms with more than one fitting.
350 to 400	40W	Individual reading lamps, fittings that take more than one bulb.
200 to 225	25W	Usually used to give ambient effect only, or to light cupboards etc.

Matching lumens to Watts for halogen downlighters

When it comes to replacing halogen downlighters with LEDs, the numbers are slightly different. LEDs are naturally directional and don't need reflectors to make them into spotlights. Also, halogens are often fitted in large numbers and may be giving off far more light than is actually needed. This means that an LED may be able to replace a halogen even if its output in Lumens is significantly lower.

Lumens	Halogen equivalent	Where to use it
300+	50W	If you currently have a few 50W halogens and you want to keep the same brightness.
200+	35W	If you currently have 35W halogens, or lots of 50W and you could manage with less light output
100+	20W	Usually for local lighting such as display cabinets, rather than general lighting.
less than 100	-	Not usually useful.

(Source: www.energysavingtrust.org.uk/In-your-home/Lighting/Lighting-output-and-colour)

www.energybulbs.co.uk has a useful guide to LEDs.

R63, R80 bulbs: 11 Watt Low Energy CFL light bulbs are now available with R63 fittings. Approximate price £3.50/bulb. 15 Watt low energy CFL light bulbs are now available with R80 fittings. Approximate price £4/bulb

Disposal and hazards of Compact Fluorescent (CFL) bulbs: CFL light bulbs contain mercury and so should NOT be put in glass banks, and should NOT go into household waste. They can be disposed of at most local authority recycling centres.

How to deal with broken Compact Fluorescent low energy light bulbs

- it's good practice to minimise unnecessary exposure to mercury
- you should clean up materials and ventilate the room for 15 minutes

- do NOT use a vacuum cleaner, and use rubber gloves when cleaning materials away

Solar powered lighting for signs; a quick google search found several UK companies offering bespoke solar powered signs. A cheaper option would be to use a number of solar flood lights to illuminate signs, these are widely available and relatively easy to install.

- **Register your septic tank** - if you have a septic tank for your property you must register it with the Environment Agency. www.environment-agency.gov.uk
- **Insulating wall-linings:** Wall linings are available as a means of controlling condensation on cold walls, where mold is a problem. Although they will have some insulating properties they should not be relied upon to deliver significant energy efficiencies.
- **Hempcrete** is a mixture of hemp hurds (shives) and lime (possibly including sand, pozzolans or cement) used as a material for construction and insulation.
- **Nest:** If your business property is also your domestic property you may be able to benefit from Nest, this is the Welsh Government's fuel poverty scheme which aims to help people in Wales reduce the impact of their fuel bills. Nest offers a range of advice through expert partners, as well as a full home energy assessment and home improvements for the most energy inefficient homes – at no cost to the householder. www.nestwales.org.uk/How-Nest-works
- **Enter into the energy market** and consider using a broker or energy consultant to purchase your energy: An energy consultant can help negotiate a good deal and better contract functionality on your behalf. Membership benefits of the [British Hospitality Association](#) include a partner promotion with Co-Save which provides access to savings via a professional procurement service for energy and utilities.
- **Use biodegradable bags and packaging for pack lunches** www.green-fox.co.uk

Useful Links

North Wales Energy Advice Centre: www.ecocentre.org.uk

Carbon Trust: www.carbontrust.co.uk

Energy Saving Trust: www.energysavingtrust.org.uk

For Visit Wales Sustainable Tourism website go to www.dmwales.com and click on Sustainable Tourism

Considerate Hoteliers: www.consideratehoteliers.com

Sustainable Restaurant Association: www.thesra.org

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