Environmental guidelines for riding establishments

Reducing the cost of doing business

Fáilte Ireland
National Tourism Development Authority

Ireland
LAND OF THE HORSE

epa

AIRE
Association of Irish Riding Establishments

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INTRODUCTION

The purpose of these guidelines is to assist owners and managers of riding establishments to adopt good environmental practice in the management of their business and reduce their overhead costs in the process.

The guidelines were commissioned by Fáilte Ireland, in association with the Association of Irish Riding Establishments (AIRE) and the Environmental Protection Agency (EPA), and prepared by Certification Europe Limited.

The guidance contained in this document is based upon known best practice in addition to detailed environmental audits that were undertaken on six riding establishment in Ireland as part of this project. This document examines the environmental issues and challenges faced by riding establishments in their day-to-day operation and includes practical steps to address them. In particular, it focuses on a range of low-cost and no-cost measures which are easy to implement, many of which result in cost savings.

HOW SHOULD THIS DOCUMENT BE USED?

These guidelines advocate a systematic approach to environmental management of riding establishments through the preparation and implementation of environmental management plans.

The guidelines are intended for use by owners and managers of riding establishments, but the involvement of all staff in the implementation of the plans is critical to its success. An environmental management plan is a detailed action plan setting out the steps that a riding establishment can implement to improve its environmental performance. The document can also be used for training staff in implementing good environmental practice, which should be part of any environmental management plan while the guidelines make reference to environmental legislation which may be applicable to a riding establishment, this document is not intended as a definitive source of environmental legislation. The guidance document identifies where this information can be found.

FORMAT OF THE GUIDELINES

This document comprises the following sections:

Overview of environmental issues and challenges facing riding establishments

- Managing your resources
- Waste management
- Energy management
- Water management
- Environmental care on trekking routes
- Environmental care during equestrian events
- Environmental management practices
- Environmental policy
- Environmental awareness
- Environmental management plans

The section on 'Managing Your Resources' provides information and guidance on best practice and opportunities for improvement within the areas of waste, energy and water. Also included with these sections are checklists that can be used as a guide to good environmental practice.

PROFILE OF A TYPICAL RIDING ESTABLISHMENT

The principle activities are (not all establishments will provide all of these services):

- Provision of riding activities such as cross country, trekking and trailing;
- Provision of a livery service;
- Hosting of events and competitions;
- Provision of classroom-based and research activities

A typical establishment consists of indoor and outdoor equestrian activities. The general layout consists of a reception and administration area. Some establishments provide canteen and coffee shop facilities. There are stables and indoor and/or outdoor arenas. Other buildings are used for storing feeds, equipment and waste prior to disposal. Parking facilities are available at most establishments.

HOW DO RIDING ESTABLISHMENTS INTERACT WITH THE ENVIRONMENT

The principal environmental issues are related to the management and storage of waste, in particular horse manure and bedding waste, natural resource usage (energy and water) and interaction with the natural environment.

Most potentially negative impacts arising from these activities can be addressed satisfactorily by small changes in practice and behaviour as detailed in these guidelines.

The most effective way to ensure the implementation of these changes is to incorporate them into a formal environmental management plan.

OVERVIEW OF RESOURCE USE WITHIN RIDING ESTABLISHMENTS

Two areas which provide significant capacity for improvement of environmental practice are waste management and the use of natural resources. This was a principal finding of the environmental audits carried out as part of the project.

The type of waste generated across all riding establishments in Ireland is broadly similar. Of these, manure and bedding waste constitutes the greatest volume of waste generated. The environmental impacts from improper storage and disposal of this waste can impact negatively on groundwater and surface waters.

These guidelines outline steps that can be taken to improve the management of waste, thereby reducing its impact on the environment.

The use of natural resources, such as energy and water, is also an area where significant improvements can be made. There is scope to improve energy efficiency with resultant cost savings.

Water is a finite resource which can sometimes be taken for granted. Riding establishments source their water either from Local Authority supplies, group water schemes or from a private well on their own land. A common issue experienced by the establishments is the lack of information on resource usage, such as electricity, gas oil, water and waste volumes generated.

These guidelines point to the importance of managing these resources both for economic as well as environmental reasons.

WASTE

WHY IS WASTE MANAGEMENT IMPORTANT?

Waste generated on site includes manure and bedding waste, farm plastics, waste effluents and dry recyclable wastes.

There are a number of actions that can be taken that can:

- Reduce the demand on natural resources
- Reduce the amount of waste generated
- Ensure proper storage of waste
- Increase the amount of waste sent for recycling

These actions will lead to improved management of waste at establishments and will ensure compliance with environmental laws regulating the storage, treatment and disposal of waste.

MANURE AND BEDDING WASTE

Manure and bedding waste constitutes the largest volume of waste generated. This waste typically contains a mixture of manure, urine and bedding material such as straw or wood shavings. An average sized horse on a bedding of straw can generate approximately 19kg of waste manure and bedding per day. Approximately 35% of this waste comprises bedding materials[1]. Volumes of this type of waste vary depending on the methods used to clean out the stables, the bedding type and the number of horses.

Save up to 35% on the cost of bedding materials by careful choice of bedding material.

REDUCE THE AMOUNT OF BEDDING MATERIALS PURCHASED

Consider using rubber matting as the bedding material. This will reduce the amount of straw or wood chips purchased thereby reducing the amount of waste that needs to be handled, stored and ultimately disposed of. Using rubber matting in stables can also significantly reduce costs and labour. However, rubber matting may not be suitable for all stables and consideration to cost of installation, layout, size and drainage from the stable needs to be reviewed before choosing rubber matting.

It is not necessary to eliminate straw or wood chips used in the bedding but by varying the amount of materials used the amount of waste generated can be significantly reduced.

REDUCE THE AMOUNT OF WASTE MANURE AND BEDDING MATERIALS GENERATED

Selecting the correct bedding types is important for the welfare of the horse as is the method of mucking out. Using the deep littering method will reduce the amount of muck out waste generated and hence the amount of waste to be disposed of.

Reduce your manure and bedding waste by 40% by composting it[2].

[1] 1 Equine Science Centre, Rutgers University, (2006), *Factsheet 537, Horse Manure Management: Bedding Use.*

[2] Wisbaum, S., (2002), *The Horse Owner's Guide to Composting,* prepared for the Otter Creek Natural Resources Conservation

WHAT IS COMPOSTING?

Composting is the breakdown of organic material by organisms in a controlled environment. These organisms bring about decomposition by feeding on organic material. Horse manure and bedding waste can be composted under controlled conditions. This distinguishes composting from the biological decomposition processes which occur naturally in the manure heap.

HOW CAN I COMPOST MY WASTE?

Successful composting of organic materials requires the compost pile/row to have sufficient moisture and sufficient oxygen. In basic terms, water is added to the compost to maintain a certain moisture content, with the organic matter requiring turning to allow oxygen to enter the pile.

There are different ways in which a composting system can be set up ranging from a simple low cost compost heap to a fully automated system. Further information on how to compost horse manure can be obtained from Cré, the Composing Association of Ireland, www.cre.ie.

A suggested way to determine the effectiveness of composting is to trial the composting process for a smaller volume of waste. This will enable you to determine the length of time to compost and the quality of compost produced.

WHY COMPOST?

Composting

- reduces manure volume by up to 40%
- creates a valuable soil enhancer which can be safely applied to lands
- eliminates the risk of contamination from leachate
- stabilises ammonia nitrogen into a slow release form that gradually releases nutrients over time
- destroys weed seeds, fly larvae, and pathogens
- removes or reduces the cost of off-site disposal

MINIMISE MANURE HEAP LEACHATE

Typically, as stables are cleaned out the waste is placed on a manure heap. Where the waste is stored outside and exposed to rain it mixes with rain which then runs from the heap. This liquid is called leachate which can contain components that are damaging to the environment such as high concentrations of nutrients and pathogens.

The picture below shows a poorly positioned manure heap allowing run-off from the heap to contaminate local groundwater and surface water courses in its vicinity.

Leachate from manure heaps must be managed to avoid causing pollution. Generally, leachate from the manure heap should be collected and stored safely prior to disposal. It is important that the volume generated is minimised and this can be achieved by covering the heap or part of it with a roofed area or tarpaulin. This will reduce the amount of rain water falling on the manure heap. For further information on the construction a suitable containment tank refer to Building Stables for Horses, Series No. 1, published by Teagasc.

SEPARATING CLEAN WATER FROM DIRTY WATER

It is good practice that where possible clean water such as rain water is kept separate from dirty water such as leachate or wash water. This is to ensure that the clean water remains uncontaminated and can be disposed of safely to a stream, river or a local authority surface water system. However this may not be possible due to the layout of existing drains. Consideration should be given to this if building or re-developing buildings.

WHERE DOES MY WASTE WATER GO?

It is good environmental practice that each riding establishment should have a drawing outlining where the incoming mains water, pipe work, waste water and rain water discharges are located. At a minimum an accurate sketch should be prepared. If the location of the draining system is hard to determine consider using environmentally friendly dyes to track drains.

WATER DISCHARGES

Some equestrian centres may require licences to discharge trade or sewer effluent from their premises. The requirements for such a licence are outlined below.

Any business which discharges trade or sewage effluent to waters or sewers requires a trade effluent discharge licence. "Trade Effluent" means effluent from any works, apparatus, plant or drainage pipe used for the disposal to waters or to a sewer of any liquid (whether treated or untreated), which is discharged from premises used for carrying on any trade or industry, but does not include domestic sewage (unless discharge is directly to water or exceeds 5m3 in 24 hours) or storm water.

A discharge licence will stipulate a number of conditions which must be complied with in order to discharge to a water course or sewer.

GOOD WASTE MANAGEMENT PRACTICES

There are four simple steps to ensure good waste management at establishments:

1. Conduct a simple waste audit
2. Use the 'Hierarchy of Waste Management' which outlines the preferred options for waste management, right down to the least favourable option of disposal
3. Segregate all waste at source
4. Maintain waste management records

1. CONDUCT A WASTE AUDIT

A simple waste audit involves determining where waste is generated and how it is disposed of. This involves the identification of the various waste types or 'streams' and the volumes generated. This will provide baseline information on the current situation. Once you know the volume of each type of waste and where it is going, you can begin to make informed improvements. The audit will highlight both good environmental practice as well as gaps or areas of concern, i.e. a potential risk to the environment.

A simple Waste Management Audit Tool is contained at Appendix 1 to these guidelines. Additional waste auditing tools are available from www.greenbusiness.ie.

2. HIERARCHY OF WASTE MANAGEMENT

The most effective way of reducing the impact of waste on the environment and reducing the cost of waste disposal is to prevent it from being generated in the first place. The key to a successful waste audit is to identify waste that can be prevented. The hierarchy of waste management is detailed below.

The following waste prevention actions should be considered:

- Review your purchasing practice to determine whether any supplies can be supplied in bulk, thus reducing the amount of packaging waste you have to dispose of. In particular, the following should be considered:
  - Bulk delivery of feeds
  - Bulk delivery of bedding materials
  - Encourage suppliers to use reusable packaging, for example, a returnable pallet system.
- Compost manure and bedding waste
- Review the process by which bedding materials are selected and used to reduce the amount of bedding requiring disposal.

3. WASTE SEGREGATION

This primarily means that recyclable and reusable wastes are separated from non-usable/recyclable waste and are therefore diverted from landfill. This is best facilitated by on-site facilities such as waste bins for segregating at source.

The following are waste types that are required to be segregated and disposed of through approved waste contractors under Waste Management Regulations:

- Packaging waste, e.g. plastic, pallets, cardboard, steel
- Waste electrical and electronic equipment (WEEE)
- Batteries
- Tyres
- Asbestos
- Farm plastic
- Hazardous waste, e.g. fluorescent tubes, waste oils.
- Maintaining waste management records

4. MAINTAIN WASTE MANAGEMENT RECORDS

Under Irish waste management legislation, it is the responsibility of the producer of waste to ensure that it is disposed of correctly. It is important when waste is removed for disposal that you know it is being disposed of properly under the Waste Management Regulations. To ensure this, the following records should be kept for each waste shipment in order to demonstrate compliant waste handling:

- A copy of the licence or permit for the waste management contractor collecting the waste and a copy of the licence/permit of the waste management company treating the waste.
- A waste collection docket detailing the types and quantities of waste.
- A copy of the waste disposal documentation from the waste contractor detailing how the waste was disposed or treated.

Records of waste disposal should be kept indefinitely.

WHO IS RESPONSIBLE FOR WASTE?

The Waste Management Act 1996, governs how we must manage and dispose of waste in Ireland. When you generate waste you are responsible for how this waste is disposed of along with any company you use to collect, dispose of or recycle this waste. There is an obligation on all parties involved to dispose of waste in compliance with applicable legislation. Any company used to transport waste from your premises must have a waste collection permit to do so and must dispose of waste to a licensed facility.

For information on environmental legislation in Ireland visit www.envirocentre.ie.

CIVIC AMENITY SITES

There is a network of civic amenity recycling centres located in many counties in Ireland. The purpose of these centres is to provide a location for disposing of many waste types such as plastic, cardboard, light bulbs, as well as many other waste types. Most of these centres operate 'free of charge' to dispose of waste.

Riding establishments could consider this option as an alternative means of disposing of waste. For a full list of civic amenity sites, bring banks and recycling centres in your areas log on to www.repak.ie, where you can download a map of these facilities in your area.

WHERE CAN I GET MORE INFORMATION AND SUPPORT ON REDUCING WASTE AND INCREASING RESOURCE EFFICIENCY?

Greenbusiness.ie offers Irish businesses free impartial advice on improving resource efficiency through reducing the wastage of materials, consumables, water and energy. There are tips, tools, and case studies available on the website (www.greenbusiness.ie) that provide useful information on reducing waste and increasing resource efficiency.

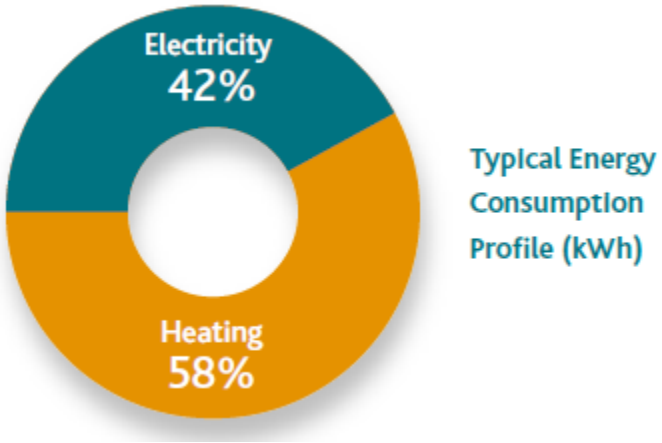
WASTE CHECKLIST

Question	Yes	No
Have you identified all your waste types or 'streams'?		
Have you determined/estimated the quantities of each waste type?		
Are all the waste types stored in adequate locations so as not to impact on the environment i.e. bunds are in place to prevent leaks to the ground?		
Have you segregated waste types/streams?		
Have you selected waste contractors based on the types of waste you generate?		
Do you have copies of all waste contractors' licenses and permits?		
Do you keep all records associated with waste shipments?		
Have you identified all hazardous waste types?		
Have you contacted suppliers and discussed bulk supply of certain materials?		
Have you undertaken a waste audit?		
Have you developed an environmental management plan to guide improvements in waste management?		
Have you reviewed the bedding materials used and investigated alternative bedding types?		
Have you considered composting manure and bedding waste?		
Have you conducted trial composting of manure and bedding waste?		
Have you located a Civic Amenity Centre close to you?		
Have you registered with greenbusiness.ie and availed of the support and information on managing and reducing waste?		

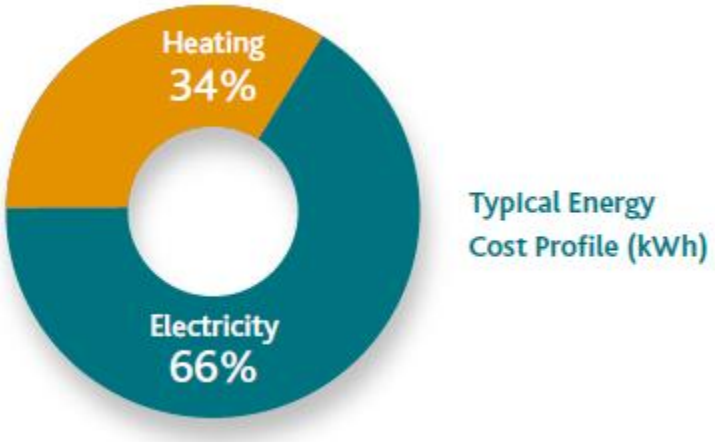
ENERGY

Any one riding establishment can use different energy types for a variety of purposes, including powering electrical equipment, space heating and heating water. It is likely, however, that consumption levels of fuel and electricity will vary from one establishment to the next. The majority of activities undertaken are outdoor and are not energy dependent. However, heating and lighting of indoor areas are energy dependent. Electricity is primarily used for lighting, equipment, space heating and kitchen appliances. Gas and oil are primarily used for space and water heating.

The following chart profiles energy consumption in a typical riding establishment.



It is obvious that heating with gas, oil or wood consumes more energy than electricity, however when compared with the cost per kilowatt hour (kWh), electricity costs more than other fuel sources, as can be seen below.



Energy cost based on SEI Commercial Fuel Cost Comparisons, October 2009.

The cost of a kWh of electricity can be compared to the cost of a kWh of other fuels. The table below shows typical costs of fuels converted into Kilowatt hours.

Fuel Type	**Cost cent / KWh**
Electricity	16.39
LPG	8.41
Gas oil	6.27
Natural gas	4.85
Wood (pellets bulk delivery)	3.58

Source:- SEI Commercial Fuel Cost Comparisons, October 2009.

HOW TO READ YOUR ELECTRICITY BILL

If you are only looking at the bottom line of your electricity bill and don't know the composition of the total cost, then you may be paying too much.

WHAT IS A KWH?

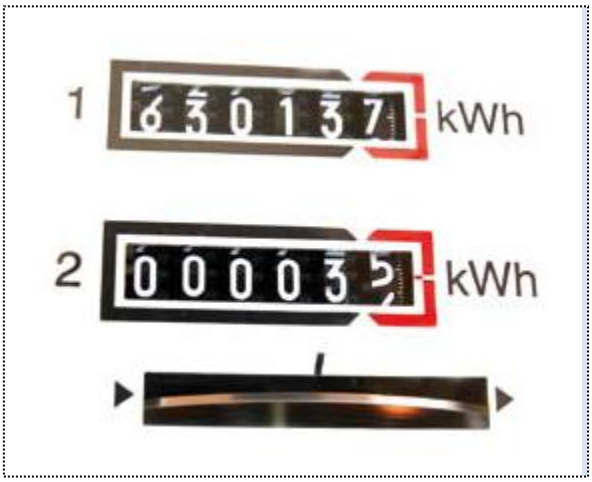
A watt is a unit of power. A kilowatt (kW) is 1000 watts. A kWh is the amount of power consumed over a period of one hour. You are charged for each kilowatt hour (kWh) used.

Your electricity bill is based on a tariff structure agreed with your energy supplier. These tariffs can be based on the electricity demand i.e. some tariff structures are based on maximum electricity demand, others use a general purpose or a day and night rate tariff. It is important to know and understand what tariff you are on because you may be paying too much if you are on the wrong rate.

Your electricity bill contains all the information you need to monitor your energy consumption. Understanding the bill is important. Most bills are based on a unit measurement from the on site meter i.e. a kWh. This is not always read by your supplier and your bill may be estimated based on previous energy consumption patterns. It is important, therefore, to read this meter regularly and update your electricity supplier with this information. This will ensure that you only pay for energy used.

HOW DO I READ MY ELECTRICITY METER?

Your electricity meter is the most accurate way to determine your electricity consumption. It is important that you read the meter accurately and monitor usage over time. The type of meter you have may depend on your tariff.



To determine the correct way to read the meter, you should contact your energy supplier.

HOW OFTEN SHOULD I READ MY METER?

You should read the meter once a day until you have developed an electricity profile; as a rule this should be done for one to two weeks. Then on a weekly or monthly basis, record the information from your meter in the Energy Tracker Form included at Appendix 2 of these guidelines.

If you have two or more electricity bills for the riding establishment you will have the same number of meters so make sure you include these additional meters.

HOW CAN I READ MY METER IF IT IS SHARED WITH OTHER ACTIVITIES?

It can be common practice that there is only one meter on site. T his meter may include other business activities attached to the establishment such as a hotel or domestic dwellings. This makes it difficult to isolate the energy used specifically by the riding establishment. In such cases, the most effective step is to install a sub-meter that will record the electricity usage by the riding establishment alone. Meters must be installed by a qualified electrician.

TIPS TO REDUCE YOUR ELECTRICITY BILL

Save 15% on your lighting costs by implementing these no & low cost actions![3]

Lighting is used in most areas of a riding establishment. An effective lighting efficiency programme can reduce energy consumption by between 10% and 15%. There are a number of no cost and low cost improvements that can be made to save energy.

NO COST ACTIONS

- **Switch lights off**
  A typical establishment will have a number of different buildings on site for various uses. These include offices, training rooms, indoor arenas, toilets, stables and tack rooms, all of which are occupied some of the time. Staff and visitors should be encouraged to switch lights off when they leave an area or when they depart in the evening. Stickers on lights reminding people to switch off lights are very effective and these are available from your energy supplier.

- **Keep lighting fixtures and windows clean**
  Clean lighting reflectors, roof lighting and windows on a regular basis to allow for optimal efficiencies.

- **Make use of natural daylight**
  Where possible encourage people to make use of the natural daylight in offices and stables, thus switching off lights and reducing the demand for lighting.

[3] Sustainable Energy Authority of Ireland, *Managing Energy: A Strategic Guide for SMEs*

LOW COST ACTIONS

- **Replace old Tungsten bulbs**
  When changing or replacing light bulbs consider using Compact Fluorescent Lamps (CFL). Compared to traditional tungsten bulbs, CFLs use only about a quarter as much power. A 22 Watt CFL has about the same light output as a 100 Watt traditional tungsten bulb.

- **Replace old T12 or T8 Fluorescent tubes**
  When changing or replacing fluorescent tubes consider using High Efficient T5 (12mm) fluorescent tubes. You can achieve up to 50% energy savings and twice the lamp life, depending on the existing tube.

- **Lighting Zones**
  Plan your lighting in zones so that you can switch off lighting in areas not required. Zoned lighting is effective in places where there is good natural daylight and in areas that do not require full lighting. For example, if you have a light switch that controls all of the lighting in your stables, consider installing additional switches to control individual zones. This will reduce the amount of electricity consumed.

- **Use Occupancy detectors**
  Occupancy detectors/sensors fitted to lights are ideal for switching off lights in areas where there is low occupancy. This cannot be applied to all areas but consideration should be given to installing these in offices, yard and walk ways between buildings.

- **Time controllers**
  Fit a time controller on lighting so that it switches on and off at required times. This could be applied to outdoor security lighting.

- **Lighting lag switches**
  There may be a need to occupy a building or room for a short period of time. Time lag switches can be installed and once pressed, will keep lights on for a pre-determined time before switching them off. These could be used in stables and tack rooms.

- **Natural Daylight**
  Most arenas have a mixture of natural daylight and electrical lighting. Consider the feasibility of switching lighting off and relying more on daylight. Daylight sensors are available that can switch lights on and off as needed but these only work with certain lighting fixtures.

Further information on energy efficient lighting is available from www.seai.ie and www.esb.ie.

TIPS TO REDUCE YOUR HEATING BILL

Save 18% on your annual heating bill with simple low cost actions![4]

Energy such as electricity, natural gas and oil are used to heat water for domestic use, showers, washing horses and heating. It is important, therefore, to supply heat to the points of use as efficiently as possible.

NO COST ACTIONS

- **Set the heating to the correct temperature**
  Unless it's too cold for comfort, try to keep your thermostat at 19°C. Your heating costs will increase by 8% each time you raise the temperature by just one degree.

- **Reduce the temperature of your hot water**
  Reducing the temperature of hot water to 55-60°C is recommended. It is inefficient to heat water to higher temperatures just to cool it down again by adding cold water. This is applicable to hot water in the offices and could be considered for hot water used to wash horses.

- **Leave plenty of space around radiators**
  Placing furniture in front of a radiator requires it to work harder to heat the room.

- **Don't heat unused space**
  Storerooms or corridors don't need to be kept as warm as areas in which people spend periods of time. Equally, if people are involved in physical work in a particular area, heating can be turned down.

- In cold weather keep doors and windows closed, and draught-proof doors and windows. If employees are too hot, try turning the heat down first before opening windows while the heat is still on.

- Keep thermostats away from draughts or hot and cold spots, as these will affect the thermostat and increase your heating costs.

- Place vending machines and refrigerators away from direct sunlight and consider placing them on a time switch.

- Make use of cheaper night rate electricity. If you are on a day and night rate tariff, make use of the cheaper night rate electricity to dry equipment in tack rooms. Night rate electricity can be as much as 50% cheaper than day rate electricity.

[4] Sustainable Energy Authority of Ireland, *Managing Energy: A Strategic Guide for SMEs.*

LOW COST ACTIONS

- **Maintain your equipment properly**
  Failure to regularly check your heating equipment could add as much as 10% to your heating bill. Service your boiler equipment at least annually to ensure efficient and safe operation.

- **Insulation**
  All pipes should be insulated to prevent heat loss. Regular checks of heating pipes, valves and radiators should be carried out to identify leaks or corrosion, as damp insulation is not effective. Insulation should always be replaced when maintenance work is completed.

- **Heating Zones**
  Activities and occupancy levels vary throughout the year so it is important that you use energy to heat areas only as required. For example, some riding centres have function rooms and training rooms that are used less frequently than office and stable areas.

- **Time controllers**
  Install time controllers on equipment such as immersion heaters or boilers to switch the equipment on and off at predetermined times. Manual switching can result in equipment being left on accidentally.

MEDIUM COST ACTIONS

- **Consider upgrading older heating systems**
  New boilers can achieve greater heating efficiency resulting in cost savings. Modern high-efficiency boilers can achieve efficiencies of 75-80% while a condensing boiler can achieve efficiencies of 90-95%. If your boiler is old and needs to be replaced, consider replacing the
  boiler with a more efficient boiler, upgrading the heating controls and insulation.

  Support may be available from the Sustainable Energy Authority of Ireland (SEAI) under the Accelerated Capital Allowance (ACA) Scheme. The ACA is a tax incentive for companies paying corporation tax and aims to encourage investment in energy efficient equipment. It offers an attractive incentive allowing companies to write off 100% of the purchase value of
  qualifying energy efficient equipment against their profit in the year of purchase.

CAN I SHOP AROUND FOR CHEAPER ENERGY PRICES?

Electricity can be generated from a number of different sources. The main fuel types used by electricity suppliers in Ireland are fossil fuels such as oil, peat and coal.

Improving your environmental performance should involve reducing the demand on fossil fuels and moving towards cleaner fuel. In today's energy marketplace there is now a choice of electricity suppliers, many of which supply electricity generated from renewable sources.

Energy generated from clean sources such as wind can have a positive impact on the public image of the riding establishment. Talk to your energy supplier and other suppliers at least annually and compare prices. The type of energy supply should be taken into consideration together with the amount of renewable energy being used to generate your electricity.

Generate your own renewable energy!

WHAT IS RENEWABLE ENERGY?

Renewable energy provides an unlimited supply of natural energy. The main sources of renewable energy are sun, wind, water (hydro-energy), geothermal (energy from below the surface of the earth) and biomass (organic material). Using sustainable energy reduces your demand for energy from non-renewable sources such as fossil fuels.

CAN I USE RENEWABLE ENERGY IN MY RIDING ESTABLISHMENT?

Most renewable energy technologies are available and proven to work. Renewable energy technologies that can be used include: solar, small scale wind power and geothermal energy.

The main benefit to establishments of using these sources of renewable energy is the potential to provide heat for arenas and other indoor spaces, as well as for water heating. There are costs associated with the installation of renewable energy technologies and, therefore, the cost benefits of these options need to be carefully considered.

SOLAR ENERGY

There are three basic approaches used today to gain maximum benefit from the use of solar energy in buildings:

- **Active Solar Heating** is one of the primary ways for buildings to use solar energy. This technology uses solar collectors to transform solar energy into heat to provide space and/or water heating. A correctly sized solar water heating system can provide 50-60% of hot water heating requirements.
- **Solar Photovoltaic (PV)** uses daylight to convert solar radiation into electricity. The light which shines on the PV cells creates an electric field causing electricity to flow. The greater the light intensity, the greater the flow of electricity.
- **Passive Solar** is a building design approach which maximises solar gains in the building through good orientation, layout and glazing. This technology is more applicable to new building work or refurbishment that an establishment may be considering.

GEOTHERMAL OPTIONS - GROUND SOURCE HEAT PUMPS

Heat pumps are used for space heating and cooling, as well as water heating. They operate on the basis that the earth beneath the surface remains at a constant temperature throughout the year, and that the ground acts as a heat source in winter and a heat sink in summer. This technology can be used to supply heat to hot water systems and space heating.

RENEWABLE ENERGY - WOOD CHIP BOILERS

Woodchip boilers can provide an alternative source of heat from renewable source. Wood energy can be generated from:

- Industrial wood wastes
- Forest residues
- Energy crops
- Wood pellets

CAN I GENERATE MY OWN ELECTRICITY?

Microgeneration is becoming increasingly available to commercial and agricultural customers. A microgenerator may use any one of the following technologies to generate electricity:

- Wind turbine
- Photovoltaic panels (also known as solar electric panels)
- Micro-hydro (scaled down version of a hydro-electricity station)
- Micro-CHP (fuelled by bio or fossil fuels)

There are two types of microgenerators that can be used at a riding establishment:

- Stand Alone Systems generate electricity and store it for use in a battery bank.
- Grid Connected Systems generate electricity that is connected directly to the mains supply and should over generation occur this is supplied to the network.

IS MY LOCATION SUITABLE FOR MICROGENERATION?

There are a number of factors that need to be considered before Microgeneration is feasible. For more information on this contact the Sustainable Energy Authority of Ireland, www.seai.ie.

WHERE CAN I GET MORE INFORMATION AND SUPPORT ON ENERGY EFFICIENCY AND RENEWABLE ENERGY?

The Sustainable Energy Authority of Ireland (www.seai.ie) is Ireland's national energy agency which was set up to promote the use of sustainable energy. SEAI provide a number of tools and ideas for recording energy consumption, energy saving tips and case studies on energy efficiency.

They also offer a mentoring service and in some cases, an SEAI advisor will come on site and assess the energy efficiency of your business and provide tips and advice on where improvements can be made. In addition to this, tax incentives for energy efficient equipment under their Accelerated Capital Allowance Scheme (ACA) run by SEAI may also be available to your business.

ENERGY CHECKLIST

Question	Yes	No
Do you know the amount of energy used per month?		
Do you monitor energy on a regular basis?		
Have you checked with your supplier of electricity that you are on the correct tariff?		
Do you know how to read your electricity bill?		
Do you supply your energy supplier with actual meter readings?		
Have you looked at the SEAI website for information and support?		
Have you developed your environmental plan for energy efficiency?		
Have you reviewed the types of light fittings and identified which ones should be replaced with CFL low energy bulbs?		
Have you reduced the temperature of your heating and hot water?		
Have you trained your staff on the energy efficiency plans you are putting in place and how they can help?		
Have you made efficient use of natural daylight in your premises?		
Do you maintain all your equipment properly and annually?		
Are the pipes and boilers insulated to prevent heat loss?		
When replacing or purchasing equipment do you purchase energy efficient (A or A+ rated) equipment?		

WATER

Water is used for drinking, cleaning, and dust suppression in arenas and for domestic use. A finite resource, water needs to be protected as well as managed efficiently. It can be supplied to establishments in one of three ways:

1. Local Authority supply: there is a cost to supply water and in some areas a cost to dispose of it.

2. Local well: there is no direct cost, however there are indirect costs associated with pumping and distributing water.

3. Group water scheme: although costs vary depending on the scheme these tend not to be significant.

WHY DO I PAY FOR WATER?

If you are supplied with water from a Local Authority, you may be metered by the Authority for measuring and billing purposes. This purpose of this charge is to recoup the cost incurred by the Authority in treating and supplying the water. If you are metered and discharging to a public sewer you may also be charged for the disposal of the water and this will be indicated on your water bill.

WATER MONITORING

It is important that the amount of water used is known by the establishment particularly if there is a cost associated with supply. If your water supply is metered then it is good practice to record the consumption on a weekly or monthly basis. If your water source is not metered then metering should be considered. Record the information from your meter in the Energy Tracker Form included at Appendix 2 of these guidelines.

WATER CONSUMPTION

It is important once you know where and when water is used that you try to reduce the amount of water consumed on site. One way of doing this is to reduce the flow in taps, toilets, outdoor hoses etc, through a series of measures. Further detail on ways to reduce the amount of water consumed in your business can be sourced from the audit and awareness tools provided at www.greenbusiness.ie.

LEAKAGE PROGRAMME

The cost of water is sometimes not considered, however there are direct costs such as Local Authority rates and indirect costs such as the energy consumed to pump water. Water leaks from taps, hoses and pipes sometimes go ignored. It is recommended that a leak detection exercise is carried out to identify leaks and repair them.

WHAT IS A LEAKAGE PROGRAMME?

1. Compile a list of areas and equipment that use water. These could be water tanks for dust suppression, yard taps and toilets.

2. Read and record the water meter on a daily basis to get a water usage profile.

3. Read and record the water meter over a period of inactivity i.e. last thing at night and first thing in the morning to determine if there is any water being consumed. This may indicate water lost through leakage.

4. Record the volume of water lost and calculate the annual cost of leaks.

5. Start a programme of systematically checking all water-using equipment, pipe work and storage tanks for leaks.

6. Identify, quantify (where possible) and tag for repair.

7. Once the repairs have been completed, repeat these steps to calculate the savings.

RAIN HARVESTING

Rain water harvesting can reduce your consumption of Local Authority, group water or well water supply by up to 70%. A typical riding establishment can save up to €900 a year by using harvested rainwater for cleaning yards, stables, equipment and vehicles instead of a Local Authority supply.

WHAT IS RAIN WATER HARVESTING?

Harvesting is the collection, storage and use of rain water from building roofs which will reduce the demand on supplied water. Annual rainfall in Ireland makes this feasible.

HOW DO I KNOW IF RAIN WATER HARVESTING WILL SAVE MONEY?

1. Quantify the amount of water you currently use. This can be done by checking recent water bills, or reading the water meter. This will also allow you to see the impact of rainwater harvesting on your costs.

2. Quantify the maximum water you can harvest. This is achieved by using the following equation.

   Annual rainwater yield (Y) in meters cubed (m3) = P x A x 0.8

   Where P = annual precipitation (in metres) - this information is available on the Met Éireann website, www.meteireann.ie and A = collection area (in square metres) - riding establishments that have indoor arenas are ideally positioned to harvest rainwater.

   0.8 = typically, you should expect to collect approximately 80% of this water each year, due to small losses in filtering and small rainfalls that do not generate enough run-off.

3. Quantify the cost
   Check your water bills to find out how much you pay for water and how much you could save by the use of rainwater harvesting.

WHAT DO I NEED TO CONSIDER BEFORE INSTALLING A RAINWATER HARVESTING SYSTEM?

1. Water quality
   When considering this, water quality and its potential re-use must be considered. For example, drinking water for horses may require large quantities of high quality water, whereas water for staff toilets, dust suppression in the arena together with yard & stable cleaning will require less treatment.

2. Storage - tanks and pipe works
   Once volume and required water quality is known, you should determine where to locate the rainwater storage and consider modifications to your existing drainpipes.

Deciding on the type of rain water harvesting system and the proposed use of the water has a significant impact on the cost.

CONDUCT A WATER AUDIT

You can track your water usage and develop ideas and actions to reduce water consumption by conducting a water audit. The greenbusiness.ie website contains useful information on how to conduct a water audit.

WATER CHECKLIST

Question	Yes	No
Have you located your water meter?		
Do you know the quantity of water consumed each year?		
Do you know how much you are paying for the supply and disposal of water?		
Do you read your water meter regularly?		
Do you collect rainwater for re-use?		
Have you installed automatic water feeders?		
Have you checked for leaks in the pipe work?		
Have you investigated where you can use water from rain water harvesting?		
Have you determined where the most water is used in your property and where water saving devices, e.g. trigger hoses, hippos, etc. can be installed?		
Have you trained and informed staff of water saving measures they can take in the every day running of the business?		
Have you conducted a water audit using the greenbusiness.ie water audit tool?		

PROTECTION OF THE ENVIRONMENT BY ENSURING PROPER CHEMICAL STORAGE

The proper storage of chemicals on site is necessary to prevent spillage and resulting damage to the environment. As riding establishments do not have a requirement for large volumes of chemicals or fuels on site this can be achieved quite simply.

Typical chemicals stored on site include:

- Detergents
- Fertilisers
- Lubricants and oils
- Veterinary products
- Fuel oil
- Liquid wastes, e.g. waste oils

Oils, once released to the environment, can cause significant damage. Clean-up costs associated with oil spills can be expensive and, therefore, proper storage is required. Fuels and oils should be stored in a bunded area. The bunded area is typically constructed of mass concrete or impermeable material built around the base of the tank.

If a spillage occurs the bund will retain the spillage and prevent it from entering the ground. Bunded tanks can be purchased to hold fuel and oils and in many cases these are ideal. It is important to ensure that the bunded areas are sized correctly to include for rainwater also. Therefore bunded areas should be sized to take a volume of 110% (i.e. the full volume of the tanks and a 10% allowance for rainwater).

Bunded areas should be developed so that a number of chemical containers (for example, hydraulic oils and greases) can be stored safely on site. The location of the bunded storage area should be indoors if possible and at a distance from sensitive environmental areas such as rivers or streams. Liquid waste such as waste oil should also be kept in a bunded area prior to disposal.

The following figure shows a typical bunded area

Riding establishments should have sufficient spill absorbent materials, for example sand and wood chip, to reduce the effect of a spillage and to aid the clean up process.

Further information on secondary containment is available from the Environmental Protection Agency, www.epa.ie.

HOW DO I CHECK IF A MATERIAL IS HAZARDOUS

Each chemical purchased is supplied with a Material Safety Data Sheet (MSDS) and, if hazardous, should be labelled appropriately. The following are examples of labels on the containers of hazardous material.

An MSDS for a chemical will also include information on the potential health and environmental risks associated with that particular chemical and also provides guidance on the handling, storage and disposal of the chemical. It is important that the recommendations on a MSDS are adhered to so as to prevent impacts on your health and on the environment.

MANAGING YOUR ENVIRONMENTAL IMPACTS WHILE TREKKING

An important factor for any riding establishment to consider is that the environment and countryside used for trekking is not impacted upon negatively by these activities. In order to minimise potential negative impacts, establishments should sign up to and comply with the seven principles contained in the Leave no Trace code of outdoor ethics:

1. Plan Ahead and Prepare
2. Be Considerate of Others
3. Respect Farm Animals and Wildlife
4. Travel and Camp on Durable Ground
5. Leave What You Find
6. Dispose of Waste Properly
7. Minimise the Effects of Fire

These principles, which are outlined in more detail in the Leave No Trace Ireland Outdoor Ethics brochure available to download on www.leavenotraceireland.org, should be communicated clearly to all users of the riding establishment.

Any potential impact on biodiversity on tracks and pathways used for trekking, either on your own property or public land should be minimised at all time.

MANAGING YOUR ENVIRONMENTAL IMPACTS DURING EVENTS

Many riding establishments hold indoor and outdoor equestrian events where members of the public can view and/or participate in activities. These can increase the impact on the environmental as there are a greater number of people travelling to the event, electricity and heating demands may increase as does the volume of waste generated such as food and packaging waste.

However, there are many ways in which event organisers can limit and prevent these impacts. Fáilte Ireland has published a guide entitled *How to Make Your Event a Green One*, which contains both information on the mandatory requirements and practical advice on 'greening' your event. This publication is available at www.failteireland.ie.

IMPLEMENTING ENVIRONMENTAL MANAGEMENT PRACTICES

To systematically address the advice and recommendations contained in these guidelines, there are three key steps that should be followed:

- Prepare an environmental policy
- Develop your environmental management plan
- Devise and implement an environmental awareness programme

ENVIRONMENTAL POLICY

An environmental policy is a one page statement outlining the commitment of owners and management to reduce their impact on the environment, to comply with relevant environmental legislation and to implement a range of environmental good practice measures. A draft of the policy should be discussed with staff before it is adopted.

It should then be signed, dated and displayed in a prominent place in the establishment as well as on your website. A sample environmental policy for a riding establishment is included at Appendix 3 to these guidelines.

ENVIRONMENTAL MANAGEMENT PLANS

How can I transform the recommendations in this guidance document into results?

An important element of environmental management is to have a structured and systematic plan in place to ensure that implementation is effective. This practical document identifies the task to be undertaken, the person or people responsible for carrying it out, the timeline for action and the current status of the task. A sample of an environmental management plan is contained in Appendix 4 of the guidance

ENVIRONMENTAL AWARENESS

What can I do to raise Environmental Awareness?

An environmental awareness programme is key to the successful management of the environment. Having and using this means that you are adopting a systematic approach to the communication of relevant environmental issues. There are a number of actions you can take to increase awareness:

- Establish the key environmental issues you want to communicate.
- Communicate environmental issues and management plans to all persons (management, staff and visitors) by way of notice boards, staff emails and inclusion in induction programmes.
- Communicate resource management measures which result in cost-saving to management and staff. Use plain English in all communications and make comparisons with environmental savings and best practice in the home to help communicate important messages to management and staff.
- Encourage feedback and suggestions relating to improving the environmental performance of the riding establishment.

What are the benefits of Environmental Awareness?

A system that promotes environmental awareness can achieve the following benefits:

- Greater involvement from staff and visitors on environmental issues and practices
- Increased morale and commitment to improving environmental performance
- Promotion of a greener more environmentally aware organisation
- Increased communication among all staff

FURTHER INFORMATION

The following publications and websites were used in the preparation of this guidance document:

- The Composting Association UK, (2004),
  Information Sheet No. 24, On-Farm Composting.

- Department of Agriculture, Fisheries and Food,
  Explanatory Handbook For Good Agricultural Practice Regulations, January 2008.

- Wisbaum, S., (2002),
  The Horse Owner's Guide to Composting, prepared for the Otter Creek Natural Resources Conservation District, January 2002.

- Equine Science Centre, Rutgers University, (2006),
  Factsheet 537, Horse Manure Management:
  Bedding Use. www.esc.rutgers.edu

- Equine Science Centre, Rutgers University,
  Factsheet 036, Horse and Manure.
  www. www.esc.rutgers.edu

- Sustainable Energy Authority of Ireland,
  A Guide to Energy Efficient and Cost Effective Lighting.
  www.seai.ie

- Environmental Protection Agency,
  Waste and Water audit tools, tips and case studies.
  www.greenbusiness.ie

- Teagasc,
  Building Stables for Horses, Series No.1.

Websites

- www.esb.ie Electricity Supply Board
- www.epa.ie Environmental Protection Agency
- www.seai.ie Sustainable Energy Authority of Ireland
- www.cre.ie Compost Association of Ireland
- www.envirocentre.ie Enterprise Ireland
- www.greenbusiness.ie Green Business Initiative, Environmental Protection Agency
- www.teagasc.ie Teagasc
- www.agriculture.gov.ie Department of Agriculture, Fisheries and Food
- www.carbontrust.co.uk The Carbon Trust

APPENDIX 1: RIDING ESTABLISHMENT – GENERIC WASTE MANAGEMENT AUDIT TOOL

Area Audited:				
Water Type	**Source**	**Qty/Year**	**Composition**	**Clasification**
Enter the type of waste here	Explain where the waste is generated	Where possible quantify the waste	Determine is the waste is liquid, solid or sludge	Using the safety data sheet (SDS) or other source of information determine if the waste is hazardous, inert or compostable
Sample Audit Findings				
Waste Oil	Servicing farm tractor	400 litres (2 x 200 litre drums)	Liquid	Hazardous
Manure Waste	Stables and arenas	Not known	Solid	Non-hazardous
Conducted By:				

Storage Conditions	**Waste Contractor**	**Comments & Recommendations**
Give details of the storage location including the type of container(s), surrounding areas	State the waste contractor used to collect the waste and the locations where the waste is taken to. State whether or not you have copies of the applicable licenses or permits from the waste contractor	List any comments you have or actions you want completed. Remember to include these in the environmental management plan. Always ask yourself - how can I reduce or liminate this waste?
The drums are stored close to the surface drain, there is evidence of oil spillage around the drums and this could run into the drain	None	**Actions** 1. Source licensed waste contractor to take waste oil 2. Improve storage, move away from the surface drain, check drums are not leaking 3. Place drums in a bunded area 4. Investigate possibility of contracting our servicing
Stored in compost pile	None required	**Actions** 1. Record volume of waste added to compost heap each week

APPENDIX 2: ENERGY TRACKER FORM

Location of the meter:					
Mth/Year	**Electricity**		**Main Gas**		**Oil**
	Units	**Cost (€)**	**Units**	**Cost (€)**	**Units**
Total for previous 12 months					
Month 1					
Month 2					
Month 3					
Month 4					
Month 5					
Month 6					

Month 7					
Month 8					
Month 9					
Month 10					
Month 11					
Month 12					
Total for 12 months					

Period:						
Oil	LPG		Motor Fuel		Water	
Units	Cost (€)	Units	Cost (€)	Units	Cost (€)	Units

APPENDIX 3: SAMPLE ENVIRONMENTAL POLICY

Environmental Policy for our riding establishment

Our Riding Establishment was established in: (Date)

To provide the following activities: (List activities)

We are committed to providing a safe environment for staff and visitors, to protecting the natural environment and to minimising the wasteful use of natural resources. We recognise that our activities have an impact on the environment and are committed to reducing these impacts. We are committed to:

- Fulfilling all legal and regulatory environmental requirements;
- The prevention of pollution by managing activities in an environmentally responsible manner;
- Setting environmental objectives and implementing an environmental management plan that ensures continual improvement in environmental management;
- Promoting efficient energy management and utilisation;
- Monitoring water usage and encouraging water conservation;
- Managing waste and developing recycling initiatives;
- Communicating this policy and relevant environmental procedures to staff, and visitors.

Signed:_____

Date: _____

APPENDIX 4: SAMPLE ENVIRONMENTAL MANAGEMENT PLAN TEMPLATE

MP01	**Energy Efficiency**			
Objective: Reduce energy consumption by 5% by improving energy efficiency				
Ref.	**Action**	**Resp.**	**Due Date**	**Comments**