

can n trees

crops and looks at how they could be
significant financial savings, to golf clubs

The Renewable Heat Incentive

The Renewable Heat Incentive (RHI) is a new payment scheme announced by the Government in March 2011.

Under the RHI, golf clubs could earn an income of up to 7.6 pence for every kWh of heat produced by renewable methods, including the burning of sustainably sourced wood fuel and miscanthus.

This income is index linked (i.e. will increase with inflation) and is guaranteed for 20 years.

The money payable through the RHI should help to offset the establishment costs of growing energy crops in the first few years of the scheme and making buying wood fuel competitive with fossil fuels in terms of cost.

Biomass under the RHI:

- The RHI is available in England, Scotland and Wales.
- Ofgem will administer the RHI scheme and will deal with applications, accreditation of installations, incentive payments and monitoring compliance.
- Payments vary depending on the size of biomass boilers and are tiered so that the first units of energy generated each year will receive higher payments than subsequent units.

Boilers and installers must be certified under the Microgeneration Certification Scheme (MCS).

- Any business which installed a biomass boiler after July 15, 2009 will be eligible for the RHI. Boilers installed before this date will not be eligible.

Short rotation coppice

The crop

Short rotation coppice (SRC) is an established traditional method of harvesting biomass energy over short timescales.

All broadleaf native tree species will coppice well but willow and poplar have the highest biomass yields.

Willow, poplar, ash, silver birch, and sweet chestnut species are all eligible for grant funding under the Energy Crops Scheme.

Trees in SRC are densely planted at around 15,000 cuttings per hectare and are planted using specialist machinery that cuts the tree rods, inserts them into the soil and firms the soil in one pass. Rods are planted in spring and trees can reach four metres in height in the first year of growth.

New plantings are cut to just above ground level in winter to encourage the growth of multiple stems. Harvesting begins after four years of growth using modified mowers/reapers and harvests can be repeated every three years. Harvested rods need to be dried and chipped to feed into wood chip boilers. The same tree stools can be harvested for 20 – 30 years without any need for replanting.

Herbicide should be applied to the land in the autumn before planting and may need to be applied after each harvest. Organic fertiliser will need to be applied to the soil before planting. Fertiliser is not recommended in the first year of growth but may be required each year to replace nutrients in the soil. Application of fertiliser can be difficult, given the dense planting in the coppice.

Yields

The yield will vary according to the tree species in the coppice but, in general, with good site conditions and management, a golf club might expect 7 – 12 oven dry tonnes (ODT) of wood fuel from a willow coppice per hectare per year. One tonne of SRC fuel produces an average of 18.6 GJ/t, 66 – 78 % of the energy provided by a tonne of coal.

Wildlife benefits

Native tree species such as willow, ash and silver birch will provide the greatest wildlife benefits, particularly for invertebrates.

Bird species such as bullfinch, willow warblers, reed bunting and song thrush have been noted during periods between harvests, while skylark, lapwing, yellow wagtail and snipe have been observed in the open habitat provided by newly planted and harvested coppice.

Local ground flora can develop in buffer zones surrounding coppice and beneath the trees between harvests.

Miscanthus

The crop

Miscanthus giganteus is a perennial grass native to Asia that has been grown for several years in the UK as an energy crop with good success. *Miscanthus* boasts rapid growth, low nutrient and maintenance requirements and high biomass yields and can be directly burned for heat or can be processed to produce ethanol.

Establishing and harvesting a

grass crop, rather than growing woodland coppice, may appeal to many greenkeepers but there are a few crucial differences.

Firstly, *Miscanthus giganteus* is a sterile hybrid and reproduces vegetatively. This means that it cannot be sown from seed and must be established from rhizome fragments, planted either using specialist machinery or using a potato planter.

Secondly, as the Latin name 'giganteus' suggests, miscanthus is a tall grass, reaching three to three-and-a-half metres in height.

It is cut once each year using a forage harvester and can be baled using conventional equipment.

Herbicide treatments are recommended before planting, and after the first year's growth of miscanthus. Following establishment in the second year, the dense canopy of the grasses in summer, and the leaf litter cover in winter, should prevent weed establishment. Nutrient requirements are also low as

relatively high, due to the need to plant as rhizomes but up to 50% of this cost could be recovered through grant funding.

Wildlife benefits

Miscanthus is a non-native grass but is a sterile hybrid which grows slowly through spreading rhizomes and is unlikely to spread far beyond the boundaries of planting.

The grass stands provide a similar habitat to large native grasses such as reed canary grass and common reed and can provide nesting habitat for reed birds such as reed bunting. Native ground flora cannot develop beneath the dense canopy of miscanthus but can establish in surrounding rides and buffer zones.

Sustainable woodland management

Many parkland and heathland courses have a significant existing

Miscanthus giganteus, a perennial grass native to Asia that has been grown for several years in the UK as an energy crop with good success, can be directly burned for heat or can be processed to produce ethanol

woodland resource which could be sustainably managed through targeted felling and re-stocking to provide a supplementary fuel source for the golf club.

Using the trees as a fuel source would also give the club an economic incentive to manage their woodlands, improving the health, aesthetics and wildlife value of the woodlands on the course.

Harvesting the woodlands on the golf course would need to be carried out in accordance with a long term woodland management plan to ensure the trees are harvested sustainably: to guarantee that there will be future supply of wood and to minimise the impact of harvesting on the wildlife on the golf course.

Yields

Miscanthus can yield up to 14 ODT annually, which is higher than the average yield from short rotation coppice (max 12 ODT).

However, miscanthus produces relatively less energy per tonne of material 16.2 GJ/t compared with 18.6GJ/t for SRC willow (58 – 68 % of the energy provided by a tonne of coal). Establishment costs are

Only wood sourced in a genuinely sustainable manner will be eligible under the Renewable Heating Incentive.

Woodland management plans can also be submitted to the Forestry Commission to cover all intended felling over the lifetime of the management plan, rather than the club applying for consent for each individual felling operation on a case by case basis.





The early bird gets the worm...

Renewable Heat Incentive payments for new applicants to the scheme will decrease over time to promote early uptake, meaning that golf clubs who apply early will receive higher payments than those who wait.

Any golf club entering into the Renewable Heat Incentive scheme in 2011 will receive the highest payments available under the scheme, guaranteed for the next 20 years.

Establishing energy crops won't work for every club as there may not be enough space available for planting, but each

club could incorporate some element of biomass energy into their heating to take advantage of the Renewable Heating Incentive, either by carefully harvesting current woodland plantings or by buying in sustainably sourced wood from outside the golf course.



INSET ABOVE LEFT: Wall of miscanthus
 INSET ABOVE: Young willow catkins
 MAIN LEFT: Field corner of giant grass
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about the author



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1. 'How to Cascade Goals to Teams and Individuals'

Introduction
The formation of goals that set out what a business is aiming to achieve is a key part of business planning. Teams and individuals throughout the organisation need to be briefed about what the goals are and what they should do to help achieve them. This requires a management process to be in place that cascades top-level goals down through the organisation.

Definition
A goal describes a measurable outcome or result that needs to be achieved.

1. Cascading goals
Cascading goals means breaking down the organisational goals into a series of smaller goals that describe what each unit or department needs to achieve. These goals are then broken down further until each individual in the unit has their own performance goals. In this way, progress throughout the organisation is measurable.

Profit goal - to reduce waste by 10% across the whole site, by December 20XX

- Manufacturing team** - To reduce scrap/reject components off CNC machines by 2%, by June 20XX
- Warehouse team** - To reduce part order deliveries from 22 per month to less than 5, by September 20XX
- Finance team** - To agree 12 key supplier agreements which result in a 7% stock reduction, by October 20XX

In some areas of the organisation, it may be enough to cascade goals down to the team level (e.g. in administration or production teams where they work together more as a team than as individuals). For some it is more appropriate to agree individual goals (see 'How to Develop an Appraisal System', and 'How to Prepare for an Appraisal'). What is important is that you get it right for your organisation.

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Do I comply?

Most in the turf maintenance sector are concerned about compliance with legislation applicable to them and do not wish to run foul of the law. Many believe they are aware of their duties and responsibilities and have taken appropriate action. It is evident, however, that some confusion still exists. Here, David Mears looks at three main areas (Oil and Fuel Storage/Dispensing, Wash Pads and Waste Management) which, borne out of recent web postings, message boards and enquiries, are probably the most topical...

PHOTO: French customers inspecting a ClearWater system at National Trust Stourhead



ABOVE: Refuelling and bunded fuel storage



Oil and Fuel Storage / Dispensing

Many of you will have a diesel tank to refuel machines and you will all store oils. To help you comply with legal requirements; the Control of Pollution (Oil Storage) (England) Regulations 2001 and the Water Environment (Oil Storage) (Scotland) Regulations 2006, the EA has produced PPG2** (see below).

The following interpretation (of the legal document and PPG2) hopefully will prove of help and simplify matters:

The Regulations require anyone who stores more than 200 litres of oil in England (or any quantity in Scotland) to provide more secure containment facilities for tanks, drums, Intermediate Bulk Containers (IBCs) and mobile bowers, to prevent oil escaping into the environment.

All oils are covered; petrol, diesel, mineral oil, heating oil, vegetable and plant oil (waste oil is covered under the Scottish regulations and by a separate act in England and Wales).

All oil containers (drums, tanks, barrels, etc.) should be situated within a secondary containment system (bund) which is strong enough and will not leak or burst under normal use. This secondary

containment must be capable of holding a minimum of 110% of the capacity of the stored container or 25% of their aggregate storage capacity, whichever is greater.

The base and walls must be impermeable to oil and water and must not be penetrated by any valve, pipe or other opening which is used for draining the system.

In simple terms, the best solutions for compliance are: Install an OFTEC approved bunded (plastic or steel) diesel tank with integral pump and hose and place all of your oils on sump pallets. Petrol can be stored in a SiteSafe or a transit box that holds 4 x 20 litre jerry cans. The transit box is also legal for placing on the back of an open trailer or pick up to collect petrol.

Collecting in your own car in a closed boot is not permitted. You can only carry 2 x 5 litre petrol cans in a car. In answer to a number of enquiries, yes, a properly bunded diesel tank can be placed inside the 'sheds' unless your insurers have any special requirements. It is as well to site this away from the rest area where food is consumed.

Best practice is to ensure whatever tank is used, that it is top fill – top offtake. This prevents any chance of pollution as would be possible if a bottom offtake tank were used. The practice of a tank

raised up on blocks and using a gravity hose is definitely frowned upon. Consider the pollution possibility; knock the gate valve off and the whole contents flow out!

The use of single skin tanks is gradually being phased out with many manufacturers reducing or stopping production.

A number of companies selling these tanks previously have now de-listed them and so their days are numbered. We know of a growing number of instances too where tanker drivers have refused (and rightly so) to deliver fuel to non-compliant or dangerous tanks.

A document from DEFRA which gives guidance may be worth looking at:

www.defra.gov.uk/environment/quality/water/waterquality/oil-store/documents/oil_store.pdf

It may also be worth noting that, as the Scottish regulations are more encompassing, it is anticipated that the England and Wales regulations will be updated to a similar level.

Wash Pads

So much has been written on this topic over recent years and yet still there are a number of establishments that are ignoring the demands of legislation, cleaning machinery and equipment with



wash-off water going to ground. This is illegal. You need to comply with the new Groundwater (England and Wales) Regulations 2009 which came into force on 30th October 2009. Conformance with the EU Water Framework Directive is also applicable.

The Regulations, which are law, are very clear and state that you cannot discharge hazardous substances into the ground. Among those listed as hazardous in the regulations are: persistent hydrocarbons (that's oil, grease, petrol, diesel etc.) and persistent and bioaccumulable organic toxic substances. So, washing down machines with these substances on them, means that you are breaking the law. To claim ignorance of this is no defence.

The EA is paying particular attention now to water resources offences (see Civil Sanctions notes later)* and the installation of a fully compliant wash-off facility with a dedicated washpad surrounded by a low curb should be a priority.

The ideal solution, of course, is to include a water recycling system that, unlike discharge systems, will save many thousands of litres of water. A recycling system is future-proof too. If you choose an officially approved system, on the Water

Technology List (WTL), you will have the added advantage of being able to make tax savings under the Enhanced Capital Allowance scheme (ECA).

Ask your accountant to check this out. A word of caution when considering a wash-pad solution; do thoroughly research what is being offered and make an informed decision.

Not all so called 'systems' are proper biological recycling systems but glorified separators which discharge. Discharge from separators / discharge systems must go to the foul sewer and cannot go to ground. If you have access to foul, then you can install a separator (subject to your sewage company's approval) but do consider the regular pump-out costs, water wasted and that it may not be 'future-proof'.

Reed beds have been mentioned as a possible washpad solution too. These are fine for sewage waste but have severe limitations when handling hydrocarbons (oil, grease, fuel etc.)

Waste Management

As a producer of hazardous waste (and you almost certainly will be: waste oils and fuels, solvents (e.g. aerosols), fluorescent tubes, gas bottles, TV's and monitors,

The EA is paying particular attention now to water resources offences, and the installation of a fully compliant wash-off facility with a dedicated washpad surrounded by a low curb should be a priority

batteries, etc.), you should be registered as such with the Environment Agency (EA) to ensure compliance with The Hazardous Waste (England and Wales) Regulations 2005 and The Waste Electrical and Electronic Equipment (WEEE) Regulations. If what you produce is less than 500kg, you do not need to be registered.

However two barrels of waste oil alone will bring you up to this level! Registration must be made each year and you are provided with a premises code.

You can do this directly with the EA or your waste management company can do this for you as part of their service.

Consignment notes must be produced to move hazardous waste and anyone carrying hazardous waste must be registered as a waste carrier.

This effectively means that you cannot transport such waste yourself.

MAIN ABOVE LEFT:
A typical cost effective ClearWater washpad water recycling system

MAIN ABOVE RIGHT:
Not really the best of washpads with polluted water going straight to ground

INSET ABOVE LEFT:
Powerful wash-off from the new ClearWater system at NT Cliveden

INSET ABOVE RIGHT:
This was a washpad!

Audit trails have to be established too so that, if you are inspected, you can produce the necessary documents to prove use, storage and disposal of product.

The best option is to entrust your waste management to a reputable company licensed to carry waste and that will produce consignment notes and suitable containers for your waste.

Remember that you cannot mix waste now and that is why it is important to have separate containers to maintain separate waste streams.

If you care for the environment, you are probably interested in recycling and may wish to know what your waste management company actually does with the waste collected from you; why not ask them?

My own company, for example, operates a licensed waste transfer station and has invested in plant and equipment to enable recycling of around 90% of the waste we collect via our own transport.

Typical are the many thousands of plastic containers which are processed in a huge machine that produces small plastic chips.

These then go to be moulded into useful rot-proof items such as fence posts, seating, sleepers, etc., very often seen back at golf courses and leisure and amenity sites; recycling at its best!

Remember, that along with compliance with legislation you also have a duty of care to ensure that your waste is properly disposed of.

Environment Agency (EA) Civil Sanctions.

The Environment Agency recently introduced new enforcement powers. The Environmental Civil Sanctions (England) Order 2010 came into force on 6th April 2010 and allows the environmental regulator to impose civil sanctions on a business committing certain environmental offences, as an alternative to prosecution and criminal penalties of fines and imprisonment.

Under the regulations, the three areas covered in this article are included: Hazardous Waste (England and Wales) Regulations 2005, Control of Pollution (Oil Storage) (England) Regulations 2001, Water Resources (Environmental Impact Assessment) (England and Wales) Regulations 2003.

The civil sanctions include:

Compliance notice: A requirement to take specified steps within a stated period to secure that an



ABOVE: Waste collection by Highspeed Group Ltd

“Initially we expect to use Civil sanctions mainly in the water resources and packaging waste sectors for offences committed in England after 6 April 2010 and in Wales after 15 July 2010”

The EA

offence does not continue or happen again.

Restoration notice: A requirement to take specified steps within a stated period to secure that the position is, so far as possible, restored to what it would have been if no offence had been committed.

Enforcement undertaking: These enable a person, whom a regulator reasonably suspects of having committed an offence, to give an undertaking to a regulator to take one or more corrective actions set out in the undertaking.

Fixed monetary penalty (FMP): A requirement to pay a monetary penalty of a fixed amount.

Variable monetary penalty (VMP): A requirement to pay a monetary penalty of an amount determined by the regulator reflecting the circumstances of the offence.

Third party undertaking: These enable a person who has received a regulator's notice of intent to impose a variable monetary penalty, for example, to give a commitment to take action to benefit a third party affected by the non-compliance.

Stop notice: A requirement for a person to stop carrying on an activity described in the notice until it has taken steps to come back into compliance

For a very detailed 64 page explanation, follow this link to DEFRA:

www.defra.gov.uk/environment/policy/enforcement/pdf/defra-wag-guidance.pdf

Or visit:
www.environment-agency.gov.uk/business/regulation/116844.aspx

You will see that various civil sanctions can be applied for offences relating to oil and fuel storage / dispensing, washpads and waste management.

Don't think it won't happen to you, actions are already being taken by the EA and they are on record as stating; “Initially we expect to use Civil sanctions mainly in the water resources and packaging waste sectors for offences committed in England after 6 April 2010 and in Wales after 15 July 2010.” VMP's (Variable Monetary Penalties) can be as much as £250,000; enough said!

The EA issues PPG's (Pollution Prevention Guidelines) and these are a most useful resource. It is advisable, if you haven't already done so, to go online, print off the ones that are relevant to you and retain them on file. I'd suggest the following in relation to the topics covered in this article: ** PPG 2 (Above Ground Oil Storage Tank), PPG 8 (Safe Storage and Disposal of Used Oil) and PPG 26 (Storage and Handling of Drums and Intermediate Bulk Containers).

David Mears is Joint Managing Director of Highspeed Group Ltd, which operates waste management services throughout mainland UK, produces the ClearWater washpad water recycling system and supplies separators, sewage plant and banded oil and fuel tanks. Tel: 0845 600 3572 www.highspeed.co.uk www.clearwatertv.co.uk



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