

THE BURIAL & CREMATION EDUCATION TRUST

THE CARBON FOOTPRINT IN CREMATORIA

A SELF ASSESSMENT QUESTIONNAIRE

UNDERSTANDING THE CARBON FOOTPRINT

Definition

The term 'carbon footprint' has become universal and there can be few parts of the world where it is not understood. The world of bereavement cannot be immune from its implications and this self assessment questionnaire is the first step to understanding and improving the carbon footprint at a crematorium.

The first issue is to define what a carbon footprint is:

A carbon footprint is defined as:

The total amount of greenhouse gases produced to directly and indirectly support human activities, usually expressed in equivalent tons of carbon dioxide (CO₂).

The full footprint can be considered in three categories which are more fully explained in Appendix 2 on the Carbon Trust at the back of this document. Briefly, they comprise of:

Scope 1. Direct emissions that result from activities the organisation controls

Scope 2. Emissions from the use of electricity

Scope 3. Indirect emissions from products and services

Background Information

The management of crematoria is complex and wide ranging. The issues include the high use of fuel, the management of large areas of land, and the creation of considerable waste. Ultimately, each cremation authority has a responsibility for the amount of gas they burn, for every memorial using stone shipped from India, and for the plastic wrappings left by the visitors. The first requirement is for the staff to gain awareness, and understand the range of issues that influence the carbon footprint, which is the principal purpose of this document. With the increasing participation of UK crematoria, the ICCM Trust will be able to use the self assessment scores to create a Carbon Footprint based on categories 1 and 2 above, and a

baseline comparison to include all three categories. Both scores will highlight good and bad practice and inform future planning.

The BCET does not underestimate the sensitivity of the issues or that actions taken to reduce carbon will have an impact on funerals as well as the bereaved. This arises because bodies may not be cremated same day, the flowers in wreaths may have been flown in from Africa, the memorial from China and the conventional coffin made of manufactured chipboard. These carbon intensive products are the reality of modern funerals. How to respond to these issues is the current challenge to our profession.

Whilst most, if not all other local authority services have reduced their carbon footprint, crematoria have been forced in the opposite direction. The carbon footprint for crematoria worsened dramatically with the introduction of environmentally efficient cremators under the EPA 1990, and mercury abatement will further increase direct fuel use. Reducing the carbon footprint has financial implications, whether by cremation shifts or by introducing the recycling of wreaths. The increased cost, where crematoria operate without council tax subsidy, will be paid directly by the bereaved. It is, therefore, quite legitimate to point out to both the bereaved and funeral directors that where they choose to create the carbon footprint, perhaps with plastic handles on coffins, or plastic wreath frames that cannot be recycled, then they will have a responsibility to alleviate the carbon they have created through increased cremation fees. The fact that they are ignorant of the issues is ultimately no defence! How to get this message across without offence is the challenge.

Sequestration and Photosynthesis

Sequestration and photosynthesis are both natural processes of locking up carbon. In crematoria, large areas of grounds are often managed. The impact of carbon storage (sequestration) in soil is clearly important, yet the research is far from complete. Current research suggests that all soil disturbances e.g. digging and hoeing, causes 'outgassing' whereby oxidization due to carbon mixing with oxygen in the air, releases CO₂. For this reason, mulching is clearly advantageous as it prevents soil disturbance, holds moisture and reduces the temperature of the soil, which also helps to retain carbon. This sequestering of carbon in soil is in the form of humus, which in itself retains water and reduces the opportunity for flooding. Research suggests that increasing soil organic carbon (humus) from 1% to 2% doubles the water holding capacity and the amount of CO₂ sequestered. In contrast, artificial fertilizers reduce humus and are to be avoided, apart from the fact that they also created carbon in their manufacture.

It needs to be understood that increasing the overall mass of vegetation in crematoria grounds is beneficial. The photosynthesis created by all foliage removes harmful CO₂ from the atmosphere. Trees, shrubs and conservation areas have greater foliage to photosynthesise, and greater stem and root mass which locks up carbon, retains moisture and prevents it getting into water courses. Conversely, short grass on lawns is poor at storing carbon because little foliage exists, and root growth is also restricted. In highlighting these facts, the Trust is not suggesting that all intensively mown lawns should be turned into conservation areas. It simply highlights the fact that where intensive lawns exist, these could be counterbalanced with areas that more successfully lock up carbon elsewhere on the site.

The Impact of Suppliers and Manufacturers

Ways need to be considered on how to encourage suppliers and manufacturers to produce low carbon products. The phrase 'thinking globally, acting locally' is valid, and each facility needs to consider whether they can promote any firms or individuals, especially those who are local and supply low carbon products or services. Ultimately, it is important to consider that, with the current technology, no crematorium operation can become carbon neutral, and that there must always be a negative impact. All manufactured products have a carbon impact and reducing or discontinuing their use or finding a better alternative must be the aim.

Carbon Reduction Technology

The use of technology to reduce the carbon footprint can appear financially unsound. For instance, wind turbines, solar panels and photo voltaic panels are expensive to purchase and have a long payback period based on the energy saved. They can also have a negative visual impact. Nonetheless, they do reduce the use of irreplaceable fossil fuels and, perhaps of greater importance, convey the message that the carbon footprint matters. For this reason alone, the use of such technology will score well in this questionnaire. It is also a given that fossil fuel costs will continue to rise in the future and reduce the payback period.

Carbon Offsets

Offsetting is often cited as a means of overcoming the carbon created by an activity, most often holiday flights. This approach is often derided by the green lobby, as it offers the rich western society a licence to be profligate with unsustainable fossil fuel. Nonetheless, Centennial Park Cemetery authority in South Australia has already reported (2008) that they may offer 'carbon neutral' funerals to the bereaved through purchased offsetting. In forming an opinion, it should be noted that The Carbon Trust will not include purchased offsets in their calculation of a carbon footprint. In Natural Burial sites and perhaps some crematoria, new tree planting can be a standard feature of the service and as this would not be considered 'purchased' offsets, can be a valid way to reduce the carbon footprint. As it is not anticipated that sufficient trees could be purchased to create a true carbon neutral funeral, offsetting is given only cursory attention in this questionnaire.

The Questionnaire

The questionnaire has been divided into sections and it is inevitable that some crossover will occur. Many of the carbon reduction activities offer incidental benefits to the environment and ecology generally, but these are secondary to the carbon footprint and not considered in the questionnaire.

It is suggested that this self assessment be completed before any actions are taken to reduce your carbon impact, so that the BCET can evaluate the current situation. Subsequently, an annual improvement programme can be formulated. The principal purpose of the questionnaire is to help identify how carbon arises, and how to reduce it. Questions about the provision of electronic organs or limiting memorials to the low carbon Book of Remembrance are simply

audits of provision. It is not a suggestion that such services should be stopped, as there is always a compromise between the range of service and the carbon impacts it creates. The audit highlights the fact that the carbon impact should be assessed before any service is added or changed. Any decrease is valuable, no matter how small. The comparison of one crematorium score with another is a valuable way to highlight good practice. It is not intended that a crematorium footprint could be compared with a cemetery footprint, and there is no value in such a comparison.

This self assessment is created with the knowledge that individual expertise on the various topics will increase over time. The Trust welcomes the issues being challenged and anticipates that research and an increasing awareness will make it necessary to amend the questionnaire.

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1.0 ENERGY IMPACTS

Energy – Insulation

- Reducing the amount of fossil fuel used is important. Approximately 60% of energy is used for space heating, so adequate insulation is vital. If the roof or walls cannot be insulated due to the form of construction or design then the negative score still applies, as the carbon footprint cannot be reduced.
- 1.1 Are the principal loft/roof spaces (offices and chapels) insulated?
- 1.2 Are the wall cavities insulated?
- 1.3 Have all principle single glazed windows been replaced?
- 1.4 Are solar panels used to heat water?
- Solar panels are placed on roofs or in compounds, and transfer the sun's heat into water passing through the panel
- 1.5 Is the electricity supply supplemented using photovoltaic panels?
- Photovoltaic panels are placed on roofs or in compounds, and use the sun to create electricity. Surplus electricity can be sold back to the utilities

Energy – Metering & Controls

- 1.6 Have intelligent or smart meters been utilised at the facility?
- Intelligent or “smart meters” are set to replace older systems to allow customers a clear picture of their energy use profile. By revealing daily or even instantaneous energy use they empower consumers to act to reduce their energy footprint and make savings on their fuel bills
- 1.7 Is electricity saved using passive infra red (PIR) sensors
- Passive infra red sensors detect body movement and switch on lighting only when people are present. They can be used in toilets and on security lighting

Energy – Efficient Lighting

1.8 Is the facility equipped (minimum 90%) with energy saving bulbs?

1.9 If no to q. 16 is at least 50% of bulbs energy saving?

- Energy efficient lighting is important. Both incandescent and halogen bulbs are very poor, and light emitting diodes (LED's), fluorescent and compact fluorescent bulbs (CFL's) very good

Energy Suppliers

1.10 Has the facility switched to a green electricity company?

- A third of all carbon emissions in the UK come from burning fossil fuels to generate electricity. Green electricity companies now exist although it is important to check that they give maximum support to renewable energy generation, ideally creating new sources themselves

Energy – Carbon Offsetting

1.11 Does the facility contribute to any carbon offsetting scheme

- Carbon offsetting is where one carbon 'impacter' offsets their carbon by funding projects that avoid or absorb carbon dioxide elsewhere. Usually based in developing countries, these projects can take various forms, including renewable power, energy efficiency, fuel switching (e.g. from oil to natural gas), or reforestation

2.0 HEATING

Heating Efficiency

2.1 Does the facility operate only condensing boilers?

- A high efficiency condensing boiler works on the principle of recovering waste heat which is normally lost via the flue of a conventional boiler. The most efficient condensing boilers convert more than 90% of their fuel into heat, compared to 78% for conventional types. The older the boiler the less efficient it will be

2.2 If no to Q2.1 are the heating boilers less than 2 years old?

2.3 Is no more than one boiler in operation throughout the facility?

- Larger boilers are more efficient and yet often when facilities are extended, a wasteful separate heating system is sometimes installed rather than an integrated system. Also, where separate offices, chapels, mess facilities and Hall of Remembrance are operated, it is conceivable that up to four boilers could operate on one site

2.4 Are the radiators modern and efficient (fitted within 5 years)?

2.5 Are radiator reflectors fitted to reflect heat back into the room?

- Radiator reflectors can be fitted to the wall behind radiators to minimise heat leaking through the wall

2.6 Are thermostats or controls fitted that ensure the heat is specific to the space requirements?

2.7 Does the facility recover heat from the cremation process?

- Waste heat recovery, known as recycled energy, can be taken from the cremation process. The excess heat is more than can be used in a crematorium complex but the excess, in theory, could be sold to heat adjacent developments. Even where this is not possible, the recovered heat will reduce the carbon footprint at the crematorium

2.8 Is the facility a single, contained building of offices, chapels and crematory, utilising a single boiler?

- Good design is integral to reducing fuel use and the carbon footprint. Energy efficient buildings were not given priority in the past so modern buildings hold an advantage. Keeping buildings compact and not spread over a site is more fuel efficient

2.9 Are chapels designed with an entrance lobby with inner and outer doors to buffer heat loss?

2.10 Are all hot taps restricted to no higher than 48C?

- Energy can be wasted, apart from the danger of scalding

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3.0 WATER SERVICES

3.1 Does the facility harvest rainwater for use in buildings e.g. toilets?

3.2 Does the facility obtain water using its own borehole supply?

3.3 Are water tanks with a ball-cock or other water saving devices used to avoid wasteful taps placed in the grounds?

- People waste water washing memorials; children maliciously leave taps running, and some visitors even wash their car using taps

3.4 Are public signs erected asking people not to waste water?

3.5 Are all taps in toilets low flow type (spray mode or aerated taps)?

- Tap design can reduce water usage by 50%

3.6 Are all toilets low flush design?

- Public toilets are massive users of water, so efficient modern toilets are essential. The water supplied is drinking quality and the filtration necessary has also used energy and created carbon

3.7 Have you avoided the use of bedding plants or are drought tolerant species (Mediterranean planting) used so that no routine grounds watering is necessary?

3.8 Are potted plants kept in water retaining troughs, or are other systems in place to reduce evaporation and save water?

- Crematoria often have high numbers of potted plants in chapels and the Hall of Remembrance. The watering of plants can be wasteful, as well as time consuming

3.9 Is the below ground water supply pipework less than 50 years old?

- Aging water pipework results in leaks and wastage, and as the water is pumped, it creates carbon.

3.10 Are the water meters checked at least once each month to monitor usage and potential leaks?

3.11 Is there a maintenance agreement to ensure water leaks are repaired within 48 hours?

4.0 CONSUMABLES

4.1 Does the facility avoid the use of any conventional batteries (not vehicle batteries)?

- The average person uses 21 batteries each year, each of which takes 50 times more energy to make than it provides. If the mains cannot be used, rechargeable batteries are the best alternative

4.2 Are all toilets rolls provided made of recycled paper?

4.3 Is all office paper waste and other paper recycled?

4.4 In public toilets does the facility provide paper towels made of PCW?

- Hand drying in toilets is a challenge with regard to the carbon footprint. Electric hand driers increase on-site fuel use. Paper towels made of post consumer waste require no energy and surveys prove users prefer them. Cotton dispenser towels involve too much road mileage and washing at high temperatures so have been discounted.
- Post consumer waste (PCW) is paper made out of paper which has been used by the end consumer and then is collected for recycling from various recycling programs. This is the best paper to buy, as it uses and creates demand for paper which would normally end up in the landfill and no trees are cut down for making the paper

4.5 Does the facility use rubbish bags made of recycled plastic?

- Rubbish bags are taken to landfill. Contrary to common belief, biodegradable bags are poor as they potentially create methane when rotting. Bags made of recycled plastic, preferably post consumer plastic waste are best

4.6 Are all office paper and envelopes made of recycled paper?

- It takes twice as much energy to make virgin paper as recycled and one ton of virgin paper consumes 17 trees

5.0 CLEANING PRODUCTS

5.1 Does the facility use 'green' cleaning products?

- All manufactured cleaning materials create carbon, so use concentrated where possible and use sparingly. The green cleaning firm Ecover has built a low carbon factory to reduce their own footprint

5.2 Is all furniture/floor polishing achieved without the use of aerosols?

- Aerosols have to be manufactured, and the spray cans are usually landfilled

5.3 Does the facility avoid blue toilet water deodorisers?

- There is no health need for such products

5.4 Does the facility avoid unnecessary aerosol and continuous wick type air fresheners?

- All manufactured air fresheners create carbon when made and when disposed of, and there appears no reason for their use

5.5 Is washing on site or via laundry specified at no higher than 30C?

- Hot washing can use twice the energy of warm, so it is important to specify lower temperatures

6.0 RECYCLING

6.1 Have no more than 5 trees been felled/removed in the past 12 months?

6.2 If yes to Q6.1 has the felled timber been retained on site?

- The removal of trees can be mitigated if the wood is retained on site, and not landfilled or burnt, which releases the carbon. The timber can be used to retain soil, as path edgings, or as habitat piles

6.3 Does the facility harvest rainwater for grounds use?

- Rainwater harvesting reduces flooding and pumping

6.4 Has the facility created an on-site recycling station(s)?

- The sorting (segregation) of waste by visitors is facilitated if purpose designed waste recycling stations are provided, and all other waste receptacles removed

6.5 Are all aluminium cans e.g. drink cans, recycled?

- It takes 20 times more energy to manufacture a new aluminium can compared to one recycled! Cans, bottles etc. are often placed by visitors in waste bins and this section includes all waste from whatever source on site

6.6 Are all steel cans (mostly used for food) recycled?

6.7 Is all glass recycled?

6.8 Are all plastic bottles and drinking cups recycled?

- Plastic recycling is variable throughout the UK, but CO2 is reduced by two and a half times compared to making virgin plastic

6.9 Are all Tetra Pak containers recycled?

- The recycling of Tetra Paks has increased dramatically in recent years and 20 billion are now recycled world wide every year

6.10 Is all waste paper generated by visitors recycled?

6.11 Is all waste cardboard recycled?

6.12 Are all waste batteries recycled?

6.13 Are all waste bulbs/fluorescent tubes recycled?

6.14 Are all waste printer cartridges (ink, toner, etc.) recycled?

6.15 Are all waste mobile phones recycled?

- Fifteen million mobile phones are discarded each year, with a high manufacturing carbon impact, in part because they have to use so many hazardous substances. Latest figures indicate that only 5% are recycled, a loss of many precious waste metals. It appears that 75,000 are dropped down the toilet each year!

6.16 Does your facility avoid mobile phone upgrades for at least 3 years?

- On average people upgrade their mobile phone every 18 months

6.17 Has the facility avoided disposing of a computer in the past year?

6.18 Are all waste computers recycled?

6.19 Does the facility recycle plastic pots and trays arising from annual bedding?

6.20 Does the facility recycle plastic pots and trays arising from visitors

- Plastic pots (for plants) were, until recently, impossible to recycle. Some nurseries will now take them and perhaps each facility should require their bedding plant suppliers to take back all plastic pots

6.21 Does the facility sort and compost/recycle on site the soil from pot plants?

- Plants brought by visitors are often in peat or compost, which is heavy waste material especially when wet. The EEC will ultimately seek to have all organic waste segregated/composted

6.22 If no to Q6.21 does the facility sort and compost/recycle via an off site composting facility the soil from pot plants?

6.23 Is all waste cremation metal recycled?

- The recycling of metals following cremation has been promoted by the ICCM and as its reuse avoids the excavation of new ore, and smelting

6.24 Has previously buried waste metal been recycled?

- Many older crematoria retain considerable waste cremation metal in their grounds. The excavation and recycling of this may, at least, be cost neutral and carbon beneficial

6.25 Are the containers used to store cremated remains reused?

- The storage containers used for cremated remains after reduction should not be used once and then discarded

6.26 Are waste cremated remains containers recycled?

- A considerable amount of cremated remains containers become waste after repeated use or are waste after cremated remains have been sent to the facility from away. These comprise of a variety of woods and plastics, perhaps metal such as aluminium or bronze

6.27 Are waste bronze tablets recycled?

- Recycling of waste bronze reduces the smelting impact

6.28 Are waste refractories recycled?

6.29 Are waste stone memorials recycled?

- Waste stone and refractories can be crushed into road aggregates and saves the carbon that arises from quarrying operations. Many other recycling uses have been found e.g. river bank supports

6.30 Are any stone memorials resurfaced and reused?

6.31 Are all worn out thermal probes recycled?

6.32 Is a specific member of staff identified as responsible for recycling all waste?

6.33 Are actions taken to rectify non recyclable packaging, materials, etc. from suppliers

7.0 TRANSPORT AND TRAVEL

7.1 Are all vans or personal cars used by staff on car mileage claims (trucks excluded) in group A or electric, hybrid or operating on LPG?

- Car tax group A emit no more than 100 grams CO₂ per kilometre. Gas guzzlers emit close to 300 grams per kilometre

7.2 If no to Q7.1 are all vans or personal cars used by staff on car mileage claims (trucks excluded) in group B (up to 120 grams per kilometre) or electric, hybrid or operating on LPG?

7.3 Do at least 50% of all staff attend work on foot, using public transport or car sharing?

7.4 Is a Travel Plan freely available to enquirers detailing all local public transport to access the site?

7.5 Is a bus stop, tram stop or station within 500 metres of the entrance?

7.6 Is a safe pedestrian path available from the entrance to the chapels?

- Pedestrians should not have to share roads with vehicles

7.7 Are cycle racks available in the facility for securing bicycles?

7.8 Is seating available every 200 metres from the entrance to the chapel(s) for those using public transport or walking, who may be aged or infirm and need to rest whilst walking?

7.9 Can a full size coach or bus park in the crematorium car park?

8.0 PROMOTING CARBON REDUCTIONS

- Promoting actions to reduce CO2 emissions are now routine in society, but perhaps seen as too sensitive in bereavement and therefore rarely implemented. Crematoria produce much promotional literature and should use this to influence the community

Reducing Vehicle Use

- 8.1 Does literature promote public transport when attending funerals or visiting the crematorium?
- 8.2 Does literature promote car sharing when attending funerals?
- 8.3 Does literature encourage cycling to visit the crematorium?
- 8.4 Does literature encourage walking to visit the crematorium?
- 8.5 Does literature highlight the need for wreaths to be entirely compostable without sorting various components?
 - Wreath frames in wicker with dried or paper flowers are being produced by a small number of florists. Wreath frames in recycled paper are also being made, so in theory the general availability of a fully compostable wreath is feasible
- 8.6 Does the facility highlight in writing to the bereaved the virtue of cash collections at services and the benefits of not landfilling wreath waste?
 - This can be part of a waste minimisation strategy
- 8.7 Does literature or on-site signage ask visitors to recycle all their waste?

The Grounds

- 8.8 Does literature or on-site signage request that visitors do not bring non recyclable items e.g. plastic flowers?
- 8.9 Does literature explain your low carbon approach to grounds management (reduced mowing, composting, tree planting, mulching, etc.) and the influence this has on standards?

Promoting Fuel Efficiency

- 8.10 Does literature promote the reduced carbon footprint benefits of holding over in order to use fewer cremators?

- Maintaining the cremation 'same day' principle creates expectations that it is acceptable to pre-heat and use a cremator for perhaps just one cremation without concern for the carbon footprint

8.11 Does the facility highlight in literature the carbon impact of embalming?

- Embalming uses chemicals with carbon impact from their manufacture and may generate the need for increased abatement. Some funeral directors embalm up to 95% of the bodies, whereas others do not use the process at all

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9.0 OFFICE

- 9.1 Is all photocopying on both sides of the paper?
- 9.2 Are letters and reports printed both sides of the paper?
- 9.3 Is a specific member of staff responsible for monitoring the total photocopying carried out each month?
- 9.4 Is a specific member of staff responsible for stock control?
- 9.5 Is the use of paper cups avoided?
- 9.6 Is a policy in place to switch off all lights whenever possible?
- 9.7 Is all office (and chapel) heating restricted to 20C maximum?

10.11 Is there a specific on-site location for composting general garden waste such as grass cuttings, leaves, edgings, prunings, old plants and brash?

10.12 If no to Q10.11 is all general garden waste sent to a purpose designed composting facility?

10.13 If yes to Q10.11 is the composting facility in the local area (within 10 miles)?

10.14 If no to Q10.11 can you confirm that no general garden waste, including that generated by contractors, is sent to landfill?

- The most detrimental disposal scheme is landfill

Water

10.15 Does all surface water drain into soakaways, ditches or on-site pools rather than sewers or public highways

- Site drainage can contribute to flooding and this often forces the water utility to expend energy costs for pumping

10.16 Is all horticultural watering with recycled water?

10.17 Does the facility avoid watering by - hosepipes?
- sprinklers (far more waste)?

Mowing Regimes

10.18 How much grass is mown at above 20 cuts per year?

- Mowing is a recurring process creating carbon emissions from the fossil fuel used. Mown grass is poor in that carbon sequestration is grossly reduced when compared to unmown grass, shrubberies, etc. Intensive lawn graves often require a weekly cut, around 30 p.a. and are poor in this regard. All strimmed areas are assumed at over 20 cuts per year and should be included

10.19 Has the facility specifically reduced mowing by designating areas as conservation zones or similar?

10.20 If yes to Q 10.19, how much mowing is under low maintenance regimes?

- Proposals for a 'green' crematorium based in a natural setting with little mowing were formulated some years ago but never actioned

10.21 If conservation zones are maintained, score one point for every 0.25 hectares

- Conservation areas are low energy input due to limited mowing, and as old grass and shrubs lock up more carbon, the wilder, the better!

Chemicals

10.22 Does the facility/contractor prohibit all manufactured horticultural herbicides and pesticides (for controlling weeds and plant pests) and chemical slug products in the grounds?

10.23 If no to Q10.25 does the facility/contractor only use herbicides for weed control on paths, roads and edges in the grounds?

Seating

10.24 Does the facility prohibit garden seats made of exotic wood shipped across the world e.g. teak, iroko, etc?

10.25 Are seats sourced (10% or more) in recycled plastic?

- It is essential that all businesses source products that increase the market for recycled materials

10.26 Are seats sourced (10% or more) in local sustainable wood?

- The UK is the third largest importer of unsustainable wood

Vehicles

10.27 Does the authority/contractor avoid the use of conventional vehicles using petrol or diesel engines for grounds work?

10.28 If yes to Q10.31: - are petrol/diesel micro vehicles used?
- are electric or LPG vehicles used?
- is all grounds work done using manual handcarts?

10.29 Is the grounds work completed in-house?

10.30 If no to Q10.33, is the contractor required to monitor and report fuel use or otherwise meet any CO2 requirements in the specification?

- Contracting out theoretically offsets CO2 emissions to a supplier, but it is still important to ensure that they consider their own footprint

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11.0 ELECTRICAL (EXCLUDING CREMATORS)

- This is an audit of electrical equipment in use and is not intended to question the need for the equipment and/or its value to the service provided

Chapels

- 11.1 Can you confirm that there are no electronic organs on the site?
- 11.2 Can you confirm that there are no electronic music system(s) inc. CD's, tapes or records on the site?
- 11.3 Are the chapel microphones/monitors switched off when out of use?
- All electrical equipment contributes to the carbon footprint, so the less in use the better. Once purchased, keeping it switched off must be the aim!
- 11.4 Are the organ/music system/speakers switched off when not in use?

Computers

- 11.5 Are all computers and associated equipment switched off out of hours and not left in stand-by mode?

Appliances

- 11.6 Can you confirm that there are no domestic cookers on site?
- 11.7 If no to Q11.6 can you confirm that no more than one domestic cooker is in use on site?
- 11.8 Is a microwave used instead of a domestic cooker?
- 11.9 Are all electric kettles eco type, which enables smaller quantities of water to be boiled?
- 11.10 Are all portable electric/gas/oil heaters prohibited from use?
- Portable heaters are inefficient as well as unsafe
- 11.11 Can you confirm that there are no domestic fridges in use on site?
- 11.12 If no to Q11.11 are the fridges A rated?
- 11.13 Can you confirm that there are no water chillers on the site?

11.14 Can you confirm that there are no food and/or drink dispenser cabinets on the site?

Miscellaneous

11.15 Can you confirm that there is no air conditioning on the site?

11.16 Can you confirm that there are no CCTV cameras on the site?

11.17 Can you confirm that there are no electric water pumps on the site?

11.18 If no to Q11.19 are the pumps switched off outside working hours?

11.19 Can you confirm that electric body fridges are not used on the site?

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13.0 FLOORING

- 13.1 Are the chapel floors
- a) in local stone or FSC approved timber?
 - b) In linoleum or cork?
 - c) In recyclable carpet tiles?
 - d) in laminates from recycled wastewood?
 - e) wool carpet?
 - f) imported virgin stone or timber?
 - g) Synthetic carpet/laminates/other?

- 13.2 Are the office/reception floors:

- a) in local stone or FSC approved timber
- b) In linoleum or cork?
- c) In recyclable carpet tiles?
- d) in laminates from recycled wastewood?
- e) wool carpet?
- f) imported virgin stone or timber?
- g) Synthetic carpet/laminates/other

- Carpet making is an intensive process with a high carbon footprint. Waste carpet creates 2% of all landfill. Recently introduced carpet tiles are the first carpet that can be recycled. Linoleum and cork are natural products and long lasting

14.0 CREMATION PROCESS

- The greatest impact on the carbon footprint is the fuel used for actual cremations. Research at Centennial Park, South Australia found that each cremation (of 3 000 p.a.) created 160 kgs of CO₂ equivalent, compared to just 39 kgs per burial. Natural Burial will reduce this latter figure even further.
- Due to the absence of comparative data, no attempt to rank the various cremator models has been undertaken. The need for operational data that allows for meaningful comparison is well overdue. In truth such data will probably be of less value than simply changing the ways the cremators are used, which is within the control of management. Current pilot operations at crematoria are proving that using a single cremator for up to 12 hours may save up to 30% of gas compared to using a cremator for a few hours each day. Ultimately, maximum efficiency is attained by use over 24 hours and for 7 days per week, as occurs in Europe. Where daily cremation numbers are too low to reach any real level of efficiency then it is essential to abandon the principle of 'same day' cremation. The ICCM Guiding Principles allow for cremation within 24, 48 and 72 hours to enable the ability to 'hold over' bodies. This gives the operational flexibility to increase the number of cremations in fewer cremators thereby improving cremator efficiency and reducing the carbon footprint. As a cremator depreciates at £50,000 per year, and costs £10,000 to maintain per year, this saving supports the extra staffing necessary to extend cremator operational hours.

Cremator Efficiency Rating

The most accurate way of measuring cremator efficiency is by calculating the average amount of energy being used per cremation. However, most crematoria currently do not have the ability to record the amount of gas being used specifically for cremation, and even less are able to record the amount of electricity being used. Consequently, until the specific measuring of cremator energy consumption becomes more general (which should be a future aim as another driver to improving cremator efficiency) then for the purposes of this questionnaire another method of measuring cremator efficiency has been devised.

It has been assessed that most cremators installed in the UK, regardless of manufacturer, should be able to comfortably achieve 7 cremations every 12 hours. For the purposes of relating this to an efficiency rating it is assumed then that a cremator achieving this is 100% efficient. The numbers of cremations carried out each day for each cremator used are recorded on the 'Record of Cremations Per Cremator Form'. A sample form is included with this questionnaire for a crematorium with 3 cremators. At the end of each week the numbers of cremations for each cremator are added up and the efficiency rating for the week for each cremator is calculated by using the 'Cremator Efficiency Rating Table'. The average efficiency rating for the week is calculated by adding up the efficiency ratings of each cremator for the week and dividing this figure by the number of cremators used. Finally this average efficiency rating for the week is transferred to the appropriate week No. on the 'Cremators Annual Efficiency Form' (sample form also included with this questionnaire) which is then used week by week to calculate the average efficiency rating for the year. The average efficiency

rating for week 52 (or 53 when appropriate) at the end of the year is the figure used to calculate the score to be submitted in the annual return of the questionnaire.

14.1 Cremator Efficiency Scoring

Annual cremator efficiency rating

- 14%
- 15 – 28%
- 29 – 42%
- 43 – 56%
- 57 – 70%
- 71 – 84%
- 85 – 98%
- 99 – 100%

14.2 Do service specifications promise that cremations will be carried out:

- Same day
- Within 24 hours
- Within 48 hours
- Within 72 hours

- Same day cremation suggests that carbon emissions are not a priority at the facility

14.3 Is each cremator fitted with a gas supply meter?

- To monitor cremator efficiency it is essential to have individual supply meters in order to isolate consumption, standby time etc.

14.4 Is a specific member of staff given responsibility for monitoring cremator performance and gas usage?

- The programming of cremations in order to minimize start-ups and pre-heating and fit in cremations where remains are urgently needed, is a complex yet extremely important task

14.5 Is a specific member of staff given such responsibility?

15.0 CASKETS & COFFINS

Cremated Remains Caskets

- 15.1 Are cremated remains containers provided for the transit of cremated remains to a third party inclusive in the cremation fee?
- 15.2 If yes to Q15.1 are all containers offered made of recycled materials?
- The facility has the opportunity to ensure that only containers using recycled materials are used, and promote such use
- 15.3 Are cremated remains containers sold to the bereaved or funeral directors for storage, strewing, burial or other purpose?
- 15.4 If yes to Q15.3 are all containers made of recyclable materials?
- 15.5 If no to Q15.4 - is exotic timber avoided?
- is the timber sourced from FSC approved UK timber?
- Exotic, heavy woods such as teak, iroko and mahogany have to be shipped across the world. Containers are ideally made of recyclable materials
- 15.6 Is information issued on the packaging and container about disposal?
- It is essential to consider the carbon footprint for others. Where cremated remains are sent to a third party disposal information on the packaging and container should be enclosed. The container suppliers should identify the necessary waste process where the container is not to be interred, or retained

16.0 WREATHS & TRIBUTES

- The carbon impact of wreaths and flowers at crematoria is considerable, especially the transport & associated costs of disposing of the wreath bulk. Long term, it can be assumed that the landfill fees for such mixed waste containing undefined plastics will continue to rise. Research by South West Middlesex crematorium shows they generate 140 tonnes of mixed waste each year, and contractor costs to remove this, amounts to £10,000 each year, with £3,360 going to Landfill Tax (at £24.00 per tonne). The organic waste in wreaths, if composted, could create valuable mulch for beds. To do this without manually breaking down the wreaths requires biodegradable frames, without metal pins, wires, and all plastics

16.1 Is the long term aim of the authority to recycle all wreaths?

- To circle yes to this question a committee or other formal report should have been produced and accepted outlining such a proposal. A 'no' response suggests that landfilling waste is to continue

16.2 If no to Q16.1 are there any proposals to reduce the volume of the waste by separating out either the organic waste or the plastics?

16.3 If the plastics have been separated, has a scheme to use the oasis been identified, perhaps in compost or recycled through the waste stream?

16.4 Does the facility keep all wreaths dry in order to reduce weight?

- Each facility should be aware of the tonnage and/or the precise number of wreaths/floral tributes handled each year

17.0 CATERING

17.1 Does the facility provide on-site catering?

17.2 If yes to Q17.1 is the food provided, locally produced?

- Funeral catering is routine after funeral services and often involves large numbers of cars moving from the crematorium to a catering location.

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19.0 CARBONLESS MUSIC

19.1 Is an on-line music system offered?

- On-line music potentially avoids all those road miles traveled by funeral directors and family taking CD's and other music to the crematorium, and the need for an organist

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20.0 CARBON INITIATIVES

20.1 Does your facility transfer to, or carry out, cremations for another facility?

- The present process for cremation, as with many other processes, could be improved but not without significant change. The carbon impact of each cremation could be dramatically reduced by using a centralized crematory (no chapels) working to maximum capacity and with the cremations sent from satellite crematoria without any cremators on site

20.2 Are services routinely booked in the chapel(s) after 5pm?

- Most crematorium chapels are used from mid morning to 4.30pm each day yet heated for perhaps 24 hours. Extending the period of use potentially reduces the need for a second chapel

20.3 Is the facility and/or chapels used for other functions out of hours?

- The carbon load is diminished if the crematorium is used for other activities which otherwise create a carbon impact at another location

20.4 Does the facility offer any additional funeral components within the site?

- The 'one stop shop' principle is highly relevant to the carbon footprint if it reduces travel and centralizes energy use and management in one location. A crematorium that includes other funeral components within the same site such as an on-site public mortuary, Registrars, Coroners Officers, flower shop, catering and perhaps even a funeral director could be seen as ideal in this respect

20.5 Has a carbon budget been set for the facility?

- A carbon budget is a set amount of carbon that can be emitted by an activity over a given amount of time

21.0 OTHER INITIATIVES?

- This questionnaire cannot include everything within such a complex subject. If it is felt that the facility has reduced the carbon footprint by any means not highlighted above, please enclose details for consideration and possible scoring

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22.0 IMPACT ASSESSMENTS

22.1 Other than this self assessment, has an external Carbon Impact Assessment been completed in order to create a baseline to measure progress?

- The Carbon Trust Standard launched in April 2008 is an ideal external assessment

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APPENDIX 1

UNDERSTANDING THE WASTE STREAM

The definition of waste stream is:

The total flow of solid waste from homes, businesses, institutions and manufacturing plants that is recycled, burned, or disposed of in landfills

The term 'waste disposal' is often used to explain this process, but the use of the term 'waste management' is preferred for our objective of reducing the carbon footprint. It implies that waste is defined, the source identified and attempts made to minimize the amount of waste entering the stream. The next stage is to compost or recycle the maximum amount with the least amount of segregation. Failure is measured by the waste sent to landfill and incineration.

The waste stream in crematoria highlighted in this questionnaire is:

1. Crematory Waste
 - used refractories
 - used thermal probes
 - packaging
 - old caskets/polytainers
2. Cremation Waste
 - metal recovered from individual cremations
3. Grieving Waste
 - Christmas wreaths including wire, plastic frames, moss/grass frames, cellophane, ribbons, oasis and organic material
 - floral tributes from Hall of Remembrance/memorials/grounds
 - pot plants from same including peat, composts, plastic pots, etc.
4. Funeral Wreaths
 - wreaths left at funerals including wire, plastic frames, moss/grass frames, cellophane, ribbons, oasis and organic material
5. Grounds Waste
 - grass clippings, leaves, brash, cut timber, waste soil, old plants, prunings, edgings, sweepings, general litter picked up and from bins including empty bottles, tins, plastic, tetra-paks, paper etc.
6. Office Waste
 - paper, packaging, light bulbs, plastic cups, batteries, mobile phones, computers, etc.
7. Memorials
 - stone memorials, bronze, etc.

APPENDIX 2

THE CARBON TRUST

The following text in italics is taken from Carbon Trust documents and the bullet points indicate how the questionnaire meets their requirements, and which sections apply.

The full footprint of an organisation encompasses a wide range of emissions sources from direct use of fuels to indirect impacts such as employee travel or emissions from other organisations up and down the supply chain. When calculating an organisation's footprint it is important to try and quantify as full a range of emissions sources as possible in order to provide a complete picture of the organisation's impact. In order to produce a reliable footprint, it is important to follow a structured process and to classify all the possible sources of emissions thoroughly.

- The self-assessment questionnaire quantifies the full range of emission sources, and these are classified under various sections

A common classification is to group and report on emissions by the level of control which an organisation has over them. On this basis, greenhouse gas emissions can be classified into three main types:

Scope 1. Direct emissions that result from activities the organisation controls

Most commonly, direct emissions will result from combustion of fuels which produce CO2 emissions.

- See sections 1.00 Energy Impacts, 2.00 Heating, 7.0 Transport & Travel, 10.00 Grounds Operations, 14.00 Cremation Process, 19.00 Carbonless Music and 20.00 Carbon Initiatives

Scope 2. Emissions from the use of electricity

Workplaces generally use electricity for lighting and equipment. Electricity generation comes from a range of sources, including nuclear and renewables. However, in the UK around 75% is produced through the combustion of fossil fuels. Although the organisation is not directly in control of the emissions, by purchasing the electricity it is indirectly responsible for the release of CO2.

- See sections 1.00 Energy Impacts, 2.00 Heating, 9.00 Office, 10.00 Grounds Operations, 11.00 Electrical and 20.00 Carbon Initiatives

Scope 3. Indirect emissions from products and services

Each product or service that is purchased by an organisation is responsible for emissions. So the way the organisation uses products and services affects its carbon footprint. For example, a company that manufactures a product is indirectly responsible for the carbon that is emitted in the preparation and transport of the raw materials.

- Our product is a 'funeral' and we are indirectly responsible for coffin materials, flowers and plastics in wreaths, stone in memorials, etc.

Downstream emissions from the use and disposal of products can also be indirectly attributed to the organisation.

- The disposal of cremated remains containers, old refractories and all waste fits into this category. See sections 3.00 Water Services, 4.00 Consumables, 5.00 Cleaning Products, 6.00 Recycling, 7.00 Transport & Travel, 8.00 Promoting Carbon Reductions, 9.00 Office, 10.00 Grounds Operations, 12.00 Decorating, 13.00 Flooring, 15.00 Caskets & Coffins, 16.00 Wreaths & Floral Tributes, 17.00 Catering, 18.00 Memorials, 19.00 Carbonless Music and 20.00 Carbon Initiatives

It is clear, therefore, that producing a full footprint covering all three types of emissions can be quite a complex task.

- The questionnaire is the first document on the carbon impact specific to the funeral industry

A further complexity in understanding published footprints is that they are rarely comparable for the following reasons:

- *Despite emerging international standards not all organisations follow the same approach to calculating their footprint or classify their emissions in the same way*
- *Some footprints are expressed on a time period basis, such as the footprints of an individual or company which are typically measured annually. Others are expressed on a unit basis, such as per event or product purchased*
- *Carbon footprints are typically calculated to include all greenhouse gases and are expressed in tonnes of CO₂ equivalent (tCO₂e). However, others calculate the footprint to include CO₂ only and express the footprint in tCO₂ (tonnes of CO₂).*

The reasons for needing a carbon footprint will determine which approach is the most appropriate. In some cases it may be possible to do a basic footprint – in others a much more rigorous process will be required.

- Completion of the questionnaire will create a carbon footprint benchmark in tonnes of CO₂ and a full carbon footprint baseline score.

REFERENCES

The Carbon Trust, 8th Floor, 3, Clements Inn, London WC2A 2AZ
Offers free advice on saving energy, renewable energy and low carbon issues.
Telephone 0800 085 2005. Separate offices in Wales and Scotland.

The New Green Consumer Guide by Julia Hailes, printed by Simon & Schuster UK Ltd,
2007 ISBN – 13: 978-0-7432-9530-7

Information on the carbon footprint is available on the internet based on searches using topics such as 'assessing the carbon footprint', 'carbon sequestration', etc.

Internet searches on the 'carbon cycle' will find numerous diagrams to explain this, and how it is related to global warming

A personal carbon footprint can be obtained using the WWF Footprint Calculator, see footprint.wwf.org.uk