

## Green Building Management Toolkit Translating words into action



## Acknowledgements

The Better Buildings Partnership (BBP) brings together a number of the largest commercial and public property owners in London in one collaborative organisation. All members are working together to improve the sustainability of London's existing commercial building stock and accelerate the reduction in CO<sub>2</sub> emissions from these buildings.

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The BBP also wishes to thank the following for their valuable contribution:

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The views expressed in this document are not necessarily those of either the individuals who provided input or of their organisations.

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## Section 1

## Chairman's Statement



Justin Snoxall

Significant improvement in the environmental performance of our existing building stock is critical if we are to reduce the UK's carbon footprint. Emissions from buildings contribute over 40% of the UK's total greenhouse gas emissions and, according to the Intergovernmental Panel on Climate Change, buildings also offer by far the most cost effective opportunity to reduce emissions of all sectors. The Better Buildings Partnership (BBP) Green Lease Toolkit has established a clear framework for collaboration between owners and occupiers in commercial buildings, but this is only a start. The greater challenge is transforming intent into action and results.

The Green Lease Toolkit<sup>1</sup> suggests that collaboration between owners, occupiers and building management on environmental issues can best be achieved through a Green Building Management Group (GBMG). This Green Building Management Toolkit provides guidance on how to establish and develop a GBMG and by doing so effectively manage, monitor and record environmental improvements. In developing this Toolkit, we have sought to produce comprehensive, yet flexible guidance, which allows different buildings and stakeholders to adopt tools which are appropriate for them.

It includes the following:

- Guidance on how to set up a GBMG, with examples of best practice already in place
- A template presentation which can be used in a first meeting to set up a GBMG
- A template agenda for GBMG meetings
- A template Environmental Action Plan to capture actions planned and completed
- A suite of reports which can be used to assess progress and communicate results
- A template Memorandum of Understanding, which sets out how an owner and occupiers intend to address environmental issues in their building.

It is our hope that this Toolkit reaches a wide industry audience and is adopted as a practical, effective tool to help reduce occupancy costs and improve the environmental efficiency of our commercial buildings.

**Justin Snoxall**  
Chairman  
BBP Green Building Management Working Group

## Section 2

## Background



In 2008, **British Land** formed a GBMG with the occupiers and managing agent at its Head Office, York House. In 2010, total building energy use reduced by 1.1 million kWh compared to the previous year, cutting CO<sub>2</sub> emissions by 416 tonnes and saving an estimated £63,000. British Land controlled energy use reduced by 32% and occupier controlled energy use by 9%. The proportion of waste recycled also increased to 70%, from 40%, with 98% diverted from landfill.

### What is a Green Building Management Group?

It is a Group:

- Established to review and improve the environmental and operational performance of a building.
- Focused primarily on minimising the consumption of resources, such as electricity, gas (or other heating fuels) and water, and reducing the generation of waste in a building. The Group can also consider other environmental issues such as sustainable procurement, biodiversity, travel and air quality.
- Which is useful in multi-occupied commercial office buildings where shared services are provided to demised areas.
- Which provides a forum to share ideas and best practice examples.
- Which requires a shared commitment to meet regularly, collect resource consumption data, to set and agree common environmental objectives, to develop an Environmental Action Plan for a building, to undertake improvement actions and to produce an annual statement of results.

### Why form a Green Building Management Group?

There are a number of reasons to consider establishing a GBMG.

- Efficient operational management of a building can minimise occupancy costs.
- Effective collaboration between owner, occupiers and building management can improve working relationships and understanding of shared needs.
- Activities and results arising from the GBMG may contribute to each stakeholder's own environmental, climate change or corporate social responsibility strategies.
- Greater understanding of mutual responsibilities arising from environmental regulation.
- Case studies of environmental achievements can be published to enhance each stakeholder's own corporate reputation.
- Celebrating successes and results can help build collective momentum of improvement of the environmental performance of a building.
- Reporting positive results will help demonstrate achievements to stakeholders, support prioritisation of actions and highlight good performers.

## Section 3

# Running a Green Building Management Group



In 2008, **Hermes Real Estate** established a Sustainability Forum at Chineham Business Park with the aim of reducing the Park's CO<sub>2</sub> footprint. The Sustainability Forum is supported by a number of key occupiers on the Park and is designed to share both best practice news and initiatives relevant to occupiers. The Forum meets four times a year and provides an opportunity to put forward suggestions for policies to be included in the ongoing plan to promote more sustainable patterns of activity. Outputs include a transport action plan for occupiers, with renewable gas shuttle buses, car sharing and cycle scheme, as well as a biodiversity programme.

### Who should attend?

#### Participants

A GBMG's leadership and drive should come from the building management. This will be reinforced if the owner of the building actively supports the Group and participates in meetings or even leads the process to establish priorities and drive results. Even if the owner is unable or unwilling to engage with the Group in person, it is important that the building manager or managing agent can demonstrate clear support from the owner to improve the building's environmental performance. Whilst the building manager or managing agent should lead, it is important that there are clear 'champions' amongst occupiers to support the Group.

A GBMG should be inclusive and to some extent self-selecting (all those who want to participate should be welcomed). The success of the Group is partly determined by the levels of support that can be given by occupiers in the building. There is little point, however, encouraging reluctant occupiers to participate. Those who believe that its objectives are important and are motivated to make a difference will more likely be committed to ensure positive results are achieved. Success breeds success. Once results can be demonstrated, the more sceptical occupiers may recognise its benefits and participate.

A GBMG can still operate effectively without universal support from occupiers in the building. In most cases this initiative will represent additional responsibility for the building manager or managing agent. Whilst much of the process can be embedded in the existing building management, it can be beneficial for the owner to provide specific energy management support, either from the owner or from the managing agent or a sustainability specialist.



## Roles and responsibilities

The following table provides an indication of the roles required to make a GBMG effective. It also recommends the allocation of responsibilities within the Group.

Who	Role	Responsibilities
<b>Owner</b>	Sponsor of GBMG	<ol style="list-style-type: none"> <li>Promote the setting up of a Group in the building; if necessary by meeting first with occupiers individually to get their agreement in principle to participate. A Template Introductory Presentation is provided in Appendix 1 to assist in explaining the benefits of setting up the Group.</li> <li>Chair the first Group meeting to set the scene and get agreement from occupiers on the scope and priorities of the Group. A Template GBMG Agenda is provided in Appendix 2.</li> <li>Encourage occupiers to sign a Memorandum of Understanding (MoU), which will outline how the owner and occupiers of the building will work together to improve its environmental performance. A Template MoU is provided in Appendix 5.</li> <li>Manage and review progress of GBMGs across its portfolio through quarterly review meetings with the building managers and/or managing agents.</li> </ol>
<b>Building Management</b> (Building Manager, Building Engineer or Managing Agent)	GBMG leader (drives the process to ensure momentum is maintained)	<ol style="list-style-type: none"> <li>In the absence of the owner, chair the Group meetings and be responsible for arranging meetings and setting the agenda.</li> <li>Work with occupiers to agree building-wide environmental targets.</li> <li>Take ownership for maintaining the Environmental Action Plan and ensuring results are being achieved. A Template Plan is provided in Appendix 3.</li> <li>Take direct responsibility and demonstrate leadership in driving reductions of energy in:               <ol style="list-style-type: none"> <li>Central HVAC (heating, ventilation and air-conditioning systems) through ongoing optimisation of the plant.</li> <li>Common parts small power and lighting.</li> </ol> </li> <li>Review occupier progress outside Group meetings (existing building management meetings can be used to do this). Where appropriate, provide support to occupiers to help complete actions.</li> </ol>
<b>Building Occupiers</b>	GBMG members	<ol style="list-style-type: none"> <li>Agree and support the scope of activities of the Group. This can be by signing an MoU.</li> <li>Agree common environmental targets for the building.</li> <li>Take responsibility for driving reductions in energy and water consumption and waste generation in their own demise.</li> <li>Attend quarterly Group meetings, with the building management, and share examples of best practice.</li> </ol>
<b>Energy manager</b> (from owner, managing agent or sustainability specialist)	Monitoring and assessing performance. Identifying opportunities for further progress.	<ol style="list-style-type: none"> <li>Attend Group at least annually to present a review and analysis of results and recommend areas of focus for the year ahead.</li> <li>Attend quarterly meeting, with the building management, to review the Environmental Action Plan. Provide ideas on additional energy efficiency initiatives.</li> <li>Produce building performance reports for Group meetings. Template Building Performance Reports are provided in Appendix 4.</li> <li>Lead quarterly assessment of all GBMGs in a portfolio.</li> </ol>



**Hammerson** have found that 'Green Working Parties' at their shopping centres have created an environment for proactive owner-occupier relations. At Brent Cross, the Green Working Party is currently chaired by the Starbucks manager and meets on a monthly basis. Through these meetings, the Green Working Party has been able to assist in setting and achieving both centre and corporate targets, with reductions in electricity and gas amounting to an energy reduction of over 20% from 2006 baseline levels. Recycling rates have also improved from 48% to 54% for the whole centre between 2009-2010. Importantly, the Green Working Party has helped facilitate behavioral change in retailers to improve their own environmental performance as well as facilitate better working relations between all parties.



Significant improvements to the level of accuracy and use of utility information can be realised through sub-metering of buildings. Through sub metering of electricity supplies, **PRUPIM** has been able to collect more accurate data across their portfolio, which in turn has allowed greater analysis of key energy uses within their buildings.

## Green Building Management Group meetings

### Frequency

In the initial phase when a Group is being set up, it is advisable to run these meetings to focus exclusively on environmental issues. In the early stages there will be a lot to discuss and the first meeting is key in setting the rationale for the Group and gaining buy-in. A Template Introductory Presentation is provided in Appendix 1 and a Template GBMG Agenda in Appendix 2. However, once the process has been established, an Environmental Action Plan is in place and there is data to assess performance, the Group will likely be able to operate as a part of the regular building management meeting. By embedding the Group into the existing building management process, its activities should become part of the normal running of the building.

Even if meetings become embedded within the existing building management process, it is still advisable to have at least an annual session which focuses on environmental issues alone. It is at this meeting that an annual review should take place, where results of the environmental initiatives undertaken in the preceding year are considered, case studies shared and the Environmental Action Plan agreed for the year ahead.

### Decision making and costs

The GBMG is not a committee with formal governance, rather it is a forum to share ideas and derive consensus on the environmental operation of the building. It is therefore advisable not to constrain the meetings with formal decision making. It is important that decisions are taken in the same way that they are for all other building management issues. Likewise, those participating in Group meetings should expect to bear their own costs (which should be minimal) of attendance, as they would for any other building management meeting.

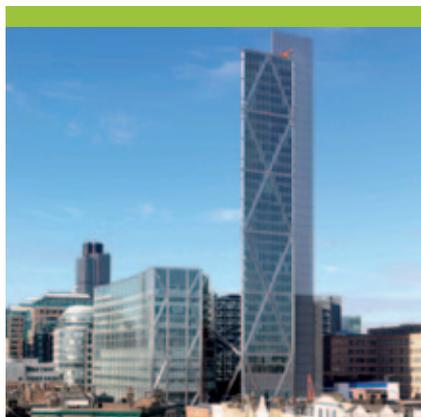
It is also advisable that decisions on costs are made within the existing framework of the service charge. Where initiatives will incur capital costs which may be exceptional to a service charge year, it is clearly important that occupiers give prior consent.

## The importance of measurement

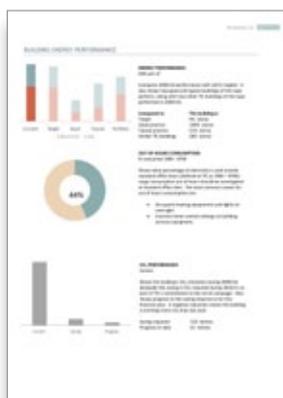
As in any management process, measurement of impacts and outcomes is critical in order to assess where to focus efforts and to understand the results achieved. Establishing a base environmental performance level of the building is advisable; improvement objectives and targets can then be monitored against this base position. This can be done by conducting an initial environmental audit.

### Sub-metering

Utility sub-metering is key in understanding where energy and water is being consumed in a building. If the building does not already have sub-metering installed, then the BBP recommends that installation is one of the first initiatives of the Group. (To understand more about issues relating to energy sub-metering; refer to the BBP Better Metering Toolkit<sup>2</sup> and CIBSE Guidance TM39).



**British Land** is introducing a new metering and energy management system across its London office portfolio, following a successful pilot at York House. Electricity and gas data is uploaded automatically to a central system every 15 minutes, with a remote monitoring service highlighting opportunities for the building engineer and occupiers to optimise energy efficiency and financially quantifying the impact of each action. The average payback across the portfolio is expected to be three years, after which occupiers benefit from savings.



**Transport for London** produces individual building performance reports for each of its building managers. The reports show each building manager how their suite of buildings is performing against their individual targets as well as how their buildings contribute to the overall performance of the TfL Head Office estate. The report helps building managers to prioritise buildings that are underperforming, as well as identify well performing buildings and share best practices with their colleagues.

When installing energy sub-metering, it is helpful if the system can identify energy consumption at least for the following areas in the building:

- Central HVAC (heating, ventilation and air-conditioning systems).
- Each occupier's demise.
- Common parts.

By sub-metering these three key areas, the Group can begin to assign responsibility for reducing energy in the building. Generally the building management will have control of energy for central HVAC and common parts, and each occupier for their own demise. This will typically result in the building management and occupiers each having control over approximately 50% of the energy consumed in the building.

In terms of metering water consumption, the BBP recommends that data loggers are retrofitted to existing main water meters. This will give the Group access to half-hourly water consumption to assess how water is consumed over time and identify periods of excess consumption. Contact your water supplier for more information on how to go about this.

Water sub-meters can also be installed to compare performance between occupiers and identify opportunities to reduce consumption. However, the Group may find that payback periods are too long to justify such installations in isolation – often the best time is during refurbishment. That said, the sub-metering of certain systems (such as cooling towers) may lead to lower water utility bills and make the payback periods more attractive.

## Reporting

Reporting the environmental performance of the building to the GMBG is important as it allows the Group to:

- Assess the environmental impact of the building and compare it to industry/best practice benchmarks.
- Set realistic targets for reductions and efficiencies.
- Monitor progress towards agreed targets.
- Review the effectiveness of measures introduced in the Environmental Action Plan.
- Identify well performing areas and develop best practices.
- Identify and address poorly performing areas.

Reports should be used both to summarise results achieved, at least on an annual basis, and to compare the performance of those participating on a more frequent basis. The BBP recommends that the Group should produce the following reports:

- **Annual environmental building statement** – a report identifying the total building reductions/increases in consumption of electricity, gas and water compared to the previous year. It is also useful to break down the total building performance to show the reductions/increases for building management (central HVAC and common parts) and each occupier (own demise). Waste generation and recycling performance can also be reported and, where possible, broken down by occupier.
- **Quarterly environmental performance assessment** – a report comparing the respective environmental performance of HVAC, common parts and demised areas. Comparisons can be made against other buildings in the owner's or managing agent's portfolio and occupiers can be compared against their neighbours or other similar occupiers.



At Braintree Factory Outlet, **Hermes Real Estate** produces league tables for electricity usage of all the retailers based at the site. Since its introduction the information has become well understood and popular with tenants. The league tables rank the stores by Total kWh used, kWh used per square foot, percentage of kWh saved/increased against the same quarter of the previous year. All three league tables show each retailer's position compared to the same quarter of the previous year. In addition a quarterly energy saving newsletter provides an effective way of communicating to all retailers and on-site staff how Braintree is performing against site targets and what can be done to further improve performance. As a result retailers now approach Braintree management to audit their stores and help identify energy reduction opportunities.



Across their London office portfolio, **Land Securities** are rolling out an engagement programme with their occupiers on environmental issues through an approach based on the BBP MoU. Environmental discussions are incorporated within occupier liaison meetings where the Group works together to produce and agree an Environmental Action Plan. This Plan contains a number of key items which the Group focuses on to help improve the environmental performance of the building.

A range of example template reports and charts, with details of their purpose and data requirements, is provided in Appendix 4. They show a variety of environmental performance indicators that can be assessed for a building and its occupiers and the Group should select those which are most suited to their objectives and data availability.

### Confidentiality

A GBMG will be more effective if occupiers in the building can agree to share all utility and waste data between themselves. The potency of the Group is derived from all stakeholders collaborating, comparing performance and sharing/reporting their successes.

Environmental data is not normally commercially sensitive; however, it is advisable to agree a policy regarding confidentiality when a Group is established.

Occupiers will generally agree to share environmental data if the following principles are adopted:

- Environmental data will be shared and published between the owner and occupiers in the building.
- Internal league tables will be produced solely to assess the environmental performance of participating parties and to encourage further activities to improve the environmental performance of the building.
- No external communication of results or case studies will be undertaken by the owner or any occupier without prior consent from all those who provided the data/information

### Green Leases and Memoranda of Understanding

A green lease is a standard form lease with additional clauses inserted which provide for the management and improvement of the environmental aspects of a building by both owner and occupier. An alternative approach is, however, to negotiate, in conjunction with a standard form lease, a separate Memorandum of Understanding (MoU), setting out an agreement between the owner and occupier how they intend to address such matters.

An MoU is not legally binding on the parties and is intended to provide a more flexible and cost effective arrangement than a green lease. It provides owners, occupiers and their respective advisers with a written agreement as to the level of their environmental ambition and can be updated from time to time without amending the lease. It is also designed in such a way that it can be entered into at any stage of the lease period and remain in place for any chosen length of time, with the intention that this will provide a faster route to change than what might otherwise be possible.

<http://www.betterbuildingspartnership.co.uk/download/bbp-green-lease-toolkit.pdf>

## Section 4

## Critical Success Factors



At Midsummer Place Shopping Centre, Milton Keynes, working with its energy consultants Power Efficiency and managing agents King Sturge, **Legal & General Property** achieved a 13% reduction in electricity costs compared to previous years. This was achieved by simple changes such as switching lights and escalators on later and off earlier as well as rescheduling cleaning services to be carried out in the mornings to take advantage of daylight. An additional bonus was that changes to the cleaning service timings reduced these costs by 19%.

### The importance of leadership

As with any change or new initiative, it is important that there is effective leadership and the Group benefits from support from as many stakeholders as possible.

Where an owner engages in the process and provides leadership, all stakeholders are more likely to participate. The owner can usefully provide support in the early stages by meeting with decision makers in occupier organisations, explaining what the intention of the GBMG is, allaying any concerns, such as costs, payback periods and other commercial issues and seeking their commitment to participate. The owner can also support the Group by monitoring how building management is achieving the agreed objectives.

Leadership from the building management is also important. They must drive the process and lead in the following ways:

- Visibly supporting the Group – demonstrating commitment to improving environmental performance through their actions.
- Being clear in leading the process – being organised in arranging meetings, setting agendas, updating the Environmental Action Plan.
- Encouraging activity in between meetings by supporting occupiers' own actions (where appropriate) and ensuring effective completion of building management actions.
- Communicating results.

Where occupiers champion the process, this can alleviate the burden on the building management which should increase the chances of the Group building momentum and achieving positive results.

### Allocating adequate and appropriate manpower

Before embarking on setting up a GBMG, it is important to assess the existing available building management resources. Are there adequate and appropriate resources and will the existing building management be able to lead and manage the process? To maximise the chances of success for the Group, both these questions should be answered positively. If not, then ways need to be found to resolve the issues. One possible solution is the use of third party specialist support and advice.

### Focusing on tangible results

Building momentum in the GBMG is essential. Stakeholders may become cynical about the benefits of the Group if they do not see positive results. To ensure momentum, the BBP suggests that the Group initially focuses on areas where the best results can be achieved, for example, behavioural changes, improvements in main plant efficiency, lighting/small power and waste initiatives, which can quickly generate, environmental and financial results.



Palestra, Southwark, **Transport for London's** environmental champions have joined together in a formal network with regular meetings and an appointed Chair. The group meets to discuss their experiences of the environmental performance of the building. They liaise formally with the building management to address issues that might otherwise be overlooked as an occupier's view is often different from that of a building or energy manager's.

The Group is more likely to be focused if it can agree annual improvement targets for the building. Stakeholders may find it a useful focus to set a target for their own area, building management setting those for central HVAC and common parts and each occupier setting those for their demise.

It is recommended that the Group develops an Environmental Action Plan for the building. This will help drive the Group to achieve any targets it has agreed. The building management should take responsibility for updating the Plan and include occupiers' own initiatives as well as the building management's. The Plan may at its simplest be a list of actions with responsibilities and a timetable. If, however, projected savings can be estimated for each initiative, this may help stakeholders to focus and engage (a Template Environmental Action Plan is provided in Appendix 3).

### Celebrating success and sharing best practice

Where positive results are achieved, these should be shared and celebrated by communicating them internally and externally (with agreement from the Group). This will help to motivate the Group. It is also worthwhile encouraging occupiers to share best practice/success stories in the meetings to encourage the roll out of initiatives.

### Never give up!

When embarking on setting up a GBMG, it is unlikely that progress will happen at a steady rate. Don't give up! It takes time to set up any new initiative and to bring people with you. Whilst it is ideal to have support from all occupiers in the building, on day one you may only have support from a minority. Even without initial support from occupiers, provided the building management continues to drive improvements, results can be achieved in at least 50% of the building – on the central HVAC and in the common parts – and occupiers may then start to engage in the process.

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## Appendix 1

## Template Introductory Presentation



### Why are we here?

- Improve collaboration on environmental performance
- Understand how we use the building and each others needs & aspirations
- Share ideas and identify ways we can reduce operational costs and the environmental impacts of the building
- Set up a GBMG!



### Why we think it's worthwhile

- Minimise occupancy costs
- Reduce CO<sub>2</sub> emissions, energy, waste and water consumption
- Reduced exposure to current and future environmental regulation
- Supporting CSR commitments
- Improve our working relationship



### Where are we now?

- Review of current sustainability features:
  - Certifications and awards
  - Energy efficient design features
  - Renewable energy
  - Water efficiency design features
  - Green roofs/terraces, landscaping
  - Waste management and provisions



This Appendix provides the owner or building management with a Template Introductory Presentation which can be used to promote the formation of a GBMG in a building. The presentation can be used during the first Group meeting or in meetings with individual occupiers to get their agreement to participate. A copy of the presentation is provided [online](#)<sup>3</sup>.

The owner should set out why they want to establish a GBMG. Generally they will want to reduce the environmental impacts and operational costs of their building and help their occupiers reduce the costs of renting space. The chances of success may be improved by focussing the conversation around cost reduction.

A key aspect of setting up a GBMG should be to understand each other's needs and environmental aspirations for the building and then provide a forum for these to be discussed.

Describe the mutual benefits of setting up a GBMG to help achieve buy in from stakeholders:

- Service charge costs will be reduced by lower energy and water bills and reduced landfill tax.
- Legislation examples may include the CRCEES, potential roll out of Display Energy Certificates.
- Many organisations now report on their environmental impact and this can help support their drive to measure and reduce such impact.
- Building a better relationship and trust with occupiers can have a positive knock on effect when discussing other building issues.

Describe the current sustainability features of the building so occupiers have a better understanding of what currently exists.

- Certification may include BREEAM, LEED, EPC, DEC, SKA.

### Where are we now?

- Current building performance & initiatives
  - Energy
  - Carbon
  - Water
  - Waste
  - Results to date

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It will be beneficial to provide occupiers with information on how the building is currently performing.

Data should be provided at whatever detail is available. Basic annual or quarterly data can be found from utility bills. Greater frequency and more accurate data can be established from metering systems.

Data can also be normalised by performance indicators e.g. kWh per m<sup>2</sup> or litres of water per occupier.

It is beneficial for this data to be compared over time to assess trends in performance.

Details on reporting can be found in Appendix 4.

### How will a GBMG work?

- [Quarterly] meetings
  - Owner, Occupiers & Building Management
- Review current environmental performance
  - Building performance reports - data confidentiality
  - Environmental Action Plan
  - Success of work over last [quarter]
- Discussion on future performance
  - Ideas on new environmental initiatives
  - Updates to Environmental Action Plan

LONDON

Within the presentation it is helpful to discuss the process of running a GBMG. This will be building specific but should include:

- How often the Group should meet.
- Who should attend.
- The type of data you hope to collect and reports you hope to produce to measure/record performance.
- The Environmental Action Plan and how it will work.
- The importance of participation from as many occupiers as possible to share knowledge and ideas for improvement initiatives within the building.

### Roles and responsibilities

- Owner - Sponsor of GBMG
- Building Management - GBMG leader
  - 'Owner' of Environmental Action Plan
  - Responsible for reporting performance and driving improvements to HVAC & common parts
- Occupiers - GBMG Members
  - Agree and support Group activities
  - Attend [quarterly] meetings
  - Responsible for improving performance in own demise

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Clear roles and responsibilities should be discussed and agreed so everyone is comfortable with and understands what is expected of them.

The individual roles of the owner, building manager, managing agent, building engineer and occupiers will differ from building to building, but between them should cover the responsibilities set out in Section 3.

### Establishing an Memorandum of Understanding

- Based on Better Buildings Partnership Green Lease Toolkit
- Flexible framework to establish how we cooperate on environmental issues
- Creates a starting point
- Not legally binding - an agreement to agree!



LONDON

A Memorandum of Understanding (MoU), as set out in Appendix 5, is an effective starting point for owners and occupiers when detailing what environmental aspects of a building they can work on together.

An MoU is not legally binding on the parties and is intended to provide a more flexible and cost effective arrangement than a green lease. It provides owners, occupiers and their respective advisers with a written agreement as to the level of their environmental ambition and can be updated from time to time without amending the lease. It is also designed in such a way that it can be entered into at any stage of the lease period and remain in place for any chosen length of time.

## Appendix 2

Template Green Building Management Group  
Agenda

This section provides the owner or building management with a Template GBMG Agenda which can be used to run meetings.

**A Review of past performance**

I GBMG Reports: Energy, Water, Waste

II Environmental Action Plan

III Environmental initiatives implemented

**B Discussion on future performance**

I New environmental initiatives proposed

II Updates to Environmental Action Plan

**C Case studies presentation/sharing best practice****D Opportunities for publicising achievements**

## Appendix 3

# Template Green Building Management Group Environmental Action Plan

### Introduction

This Appendix provides the owner or building management with a Template Environmental Action Plan which can be used to document the environmental improvement actions and initiatives of the Group. The Template is designed to be used to record the current base level environmental performance of a building and the potential measures to improve environmental performance. It is designed to be flexible and can be adapted to suit any building by adding or removing specific topic areas.

### Scope

It is recommended that the Environmental Action Plan covers a 12 month period. In the initial phase when a GBMG is being set up it may be revised several times and it may be useful to include revision details on the Plan.

The Template covers the following topics and provides example measures for environmental improvement for each of them:

- Energy – Electricity
- Energy – Gas
- Waste
- Water

The example measures are not designed to be a substitute for building specific commercial or technical advice. When considering whether to include them, or other measures, in the Environmental Action Plan the BBP suggests that owners/occupiers discuss proposed measures with building managers/engineers and with specialists such as lighting engineers.

The costs of implementing example measures will be building specific and therefore no recommendations have been made. It is for the Group to decide how the costs of implementing such measures will be borne, or how any savings associated with improvements will be allocated.

The Template covers the following:

- Sections 1- 5:** Description of GBMG members and the building
- Section 6:** Summary of base environmental performance
- Section 7:** Summary of proposed initiatives
- Section 8:** Detailed action plan

## Completing the Environmental Action Plan

The Environmental Action Plan may, at its simplest, be a list of actions. In this case it is envisaged that the sections of the Template to be completed are Sections 1 to 5 and the parts of Section 8 highlighted in green.

If projected savings can be estimated for each initiative it is envisaged that the remaining sections (those highlighted in blue) of the Template should be completed.

As the GBMG matures it is envisaged that this Template may be replaced with a more sophisticated tool, for example using spreadsheets to automate calculations such as carbon dioxide emission savings. Examples of tools available online include the following:

- [Carbon Trust CO<sub>2</sub> Footprint Calculator](#)<sup>4</sup>
- [Salix calculator](#)<sup>5</sup>
- [Defra calculator](#)<sup>6</sup>

The Environmental Action Plan should include an appropriate blend of behavioural, management and low/high cost investment initiatives. It is important to demonstrate cost and emission savings early on in order to maintain the momentum of the Group; no and low cost initiatives may initially be a priority, but should be considered in the context that higher investment opportunities may reap greater savings with an acceptable payback period.

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4 <http://www.carbontrust.co.uk/cut-carbon-reduce-costs/calculate/footprint-calculator/Pages/footprinting-tools.aspx>

5 [http://www.salixfinance.co.uk/england\\_clients.html](http://www.salixfinance.co.uk/england_clients.html)

6 <http://www.defra.gov.uk/environment/business/reporting/conversion-factors.htm>

## Environmental Action Plan

1. Building address:
  
2. For the period:  
*[ date from ] – [ date to ]*  
*[this can be updated if the Plan is reissued]*
  
3. Plan owner:  
*[Building manager name]*  
*[Building management organisation]*
  
4. Group members:  
 Owner: *[organisation]*  
 Occupier: *[organisation]*  
 Occupier: *[organisation]*  
 Building manager: *[organisation]*

5. Building description				
Building age and type				
Floor area (Net lettable area)				
Development/refurbishment dates				
6. Current environmental performance (Suggestions in italics)				
Topic	Current performance	Target	Notes	
Electricity	<i>Annual kWh total kWh per m<sup>2</sup></i>	% reduction or total kWh	<i>EPC/DEC rating, performance against a benchmark(s), use patterns</i>	
Gas	<i>Annual kWh total kWh per m<sup>2</sup></i>	% reduction or total kWh	<i>EPC/DEC rating, performance against a benchmark(s), use patterns</i>	
Waste	<i>Tonnes per year landfill/recycled/incinerated</i>	% reduction or % recycled	<i>Performance against a benchmark(s), use patterns, recycling rates</i>	
Water	<i>m<sup>3</sup> per person</i>	% reduction or total m <sup>3</sup>	<i>Performance against a benchmark(s), use pattern</i>	
7. Action Plan summary (Suggestions in italics)				
Topic	Action plan initiatives	Summary Savings	Costs (£)	Simple payback (years)
Electricity	1. 2.	Total projected kWh electricity savings		
Gas	3. 4.	Total projected kWh gas savings		
Waste	5. 6.	Total tonnes		
Water	7. 8.	Total m <sup>3</sup>		

8. Action Plan									
Electricity action plan									
Initiative	Responsibility	Timescale	Comments	Status	Costs (£)	Projected kWh saving (current FY)	% of total saved (current FY)	Simple payback (years)	
1	Implement a "lights off" policy.								
2	Raise staff awareness to switch off PCs, printers, lights.								
3	Review main air handling plant with occupiers with a view to reduce run times.								
4	Review lighting lux levels.								
5	Install "night watchman" (or similar) IT software.								
6	Ensure all passive infra-red (PIR) time delays are set to appropriate levels e.g. 20 mins								
7	Install low energy lamps in common areas, e.g. basement and corridors.								
8	Investigate sub-metering options.								
9									
Electricity total					£	kWh	%		

Gas action plan									
Initiative	Responsibility	Timescale	Comments	Status	Costs (£)	Projected kWh saving (current FY)	% of total saved (current FY)	Simple payback (years)	
1	Review boiler plant timings with occupiers with a view to reduce run times.								
2	Check boiler load and insulation of boiler shell, pipe-work and fittings to maximise operational efficiency.								
3	Ensure calorifiers and water heaters are well maintained; review heat loss associated with distribution and consider ways to reduce hot water wastage.								
4	Check boiler operation outside normal occupied hours, 'set-back' (programmable) thermostats and frost protection operation.								
5	Investigate of sub-metering options.								
6									
7									
8									
Gas total					£	kWh	%		

Waste action plan									
Initiative	Responsibility	Timescale	Comments	Status	Costs (£)	Projected kg saving (current FY)	% of total saved (current FY)	Simple payback	
1	Improve accuracy of waste figures by purchasing weighing scales and arrange for cleaning contractor to weigh individual waste streams.								
2	Eliminate use of hand towels in toilets. This will reduce the amount of waste produced and achieve a cost saving under the cleaning budget.								
3	Train cleaning team on what waste goes into which compactor.								
4	Set all printers to duplex printing as standard.								
5	Purchase a waste compactor to improve waste management.								
6									
7									
8									
Waste total					£	kg	%		

Water action plan										
Initiative	Responsibility	Timescale	Comments	Status	£ (capital or other)	Projected m <sup>3</sup> savings (current FY)	% of total saved (current FY)	Payback		
1	Install Sani Sleeves (or similar) in urinals.									
2	Investigate feasibility of installing aerating shower heads.									
3	Investigate sub-metering on water for the building as a whole.									
4	Investigate the feasibility of rainwater harvesting.									
5										
6										
7										
8										
9										
10										
11										
Water total					£	m <sup>3</sup>	%			

## Appendix 4

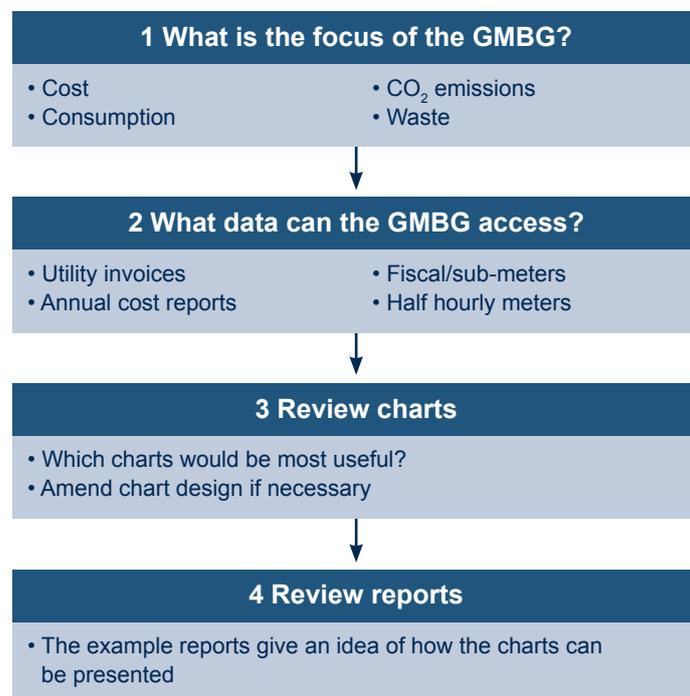
# Template Green Building Management Reports

### Introduction

As explained in Section 3, it is important to report the environmental performance of the building to the Green Building Management Group so that the Group can:

- Assess the environmental impact of the building and compare it to industry/best practice benchmarks.
- Set realistic targets for reductions and efficiencies.
- Monitor progress towards agreed targets.
- Review the effectiveness of measures introduced in the Environmental Action Plan.
- Identify well performing areas and share best practices.
- Identify and address poorly performing areas.

This appendix provides examples of how utility invoices and meter data can be used to demonstrate how a building is performing. Specimen charts, along with their purpose and data requirements, illustrate a variety of environmental performance indicators that can be used. Some are simple, some are more complex – the Group should decide which are most suited to both their priorities and to the available metering and/or billing information. To use this appendix most effectively, the Group should consider the following:



### How to adapt charts for a GMBG

Data presentation is a very subjective area and many people find some styles more accessible and informative than others. Often the main purpose of a chart is trend analysis, i.e. how that data has changed over time/against comparable data sets etc. In these cases, detail on the chart (e.g. values) is not required – if exact values need to be analysed they may be better presented in a table.

The following examples are exactly that – ideas to get the Group started rather than a requirement. Find out what works for the members of the Group and adapt your charts to suit.

## Simple report example

## Example office: Annual review

### Site details

Type: Standard Office

Open Hours: 0800 – 1900; Mon – Fri

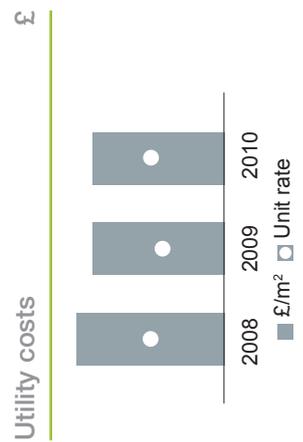
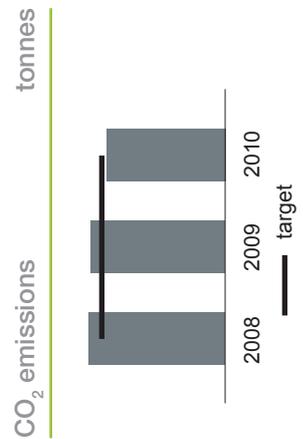
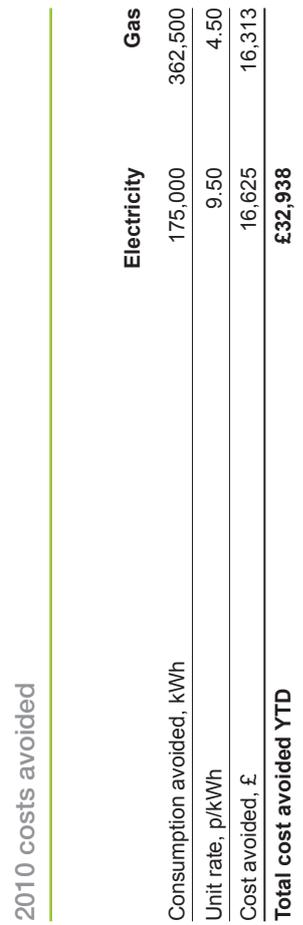
Floor area: 12,500 m<sup>2</sup> (NLA)

Managed by: A.Smith

### Commentary

- Electricity consumption has fallen due to occupier behaviour changes and the installation of new energy efficient lamps.
- Gas consumption has fallen significantly due to resetting start up and down times of boilers and recalibrating temperature set points.
- Water consumption is increasing and understanding the reason will be a priority.
- Waste has reduced overall, with an increase in recycling rates and a reduction in waste going to both incineration and landfill.

### 2010 Performance



Utility costs per m<sup>2</sup> have remained the same as previous year due to efficiency savings despite an increase in electricity costs of 11%.

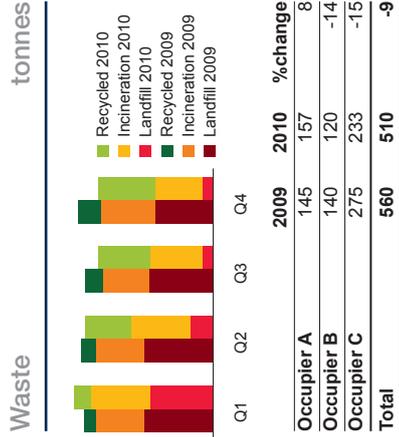
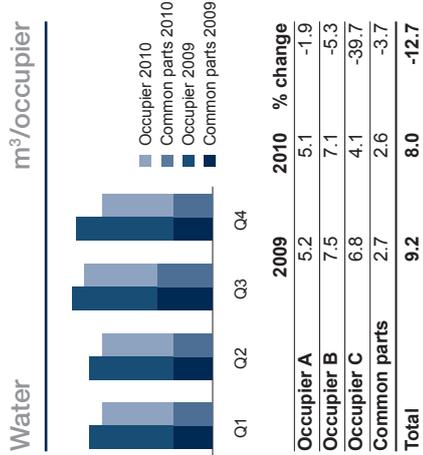
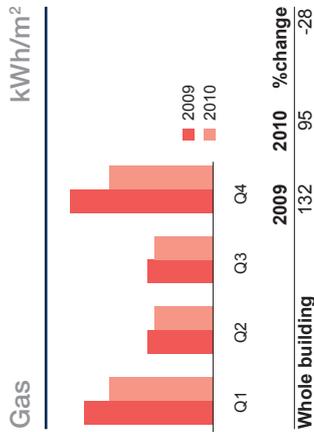
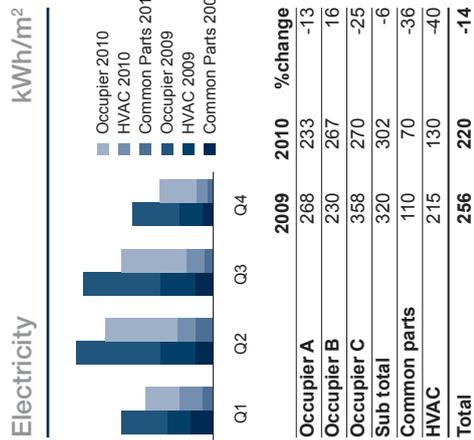
Site details

Type: Multi-occupied Office  
 Managed by: A.Smith  
 Open Hours: 0700 – 2000; Mon – Fri  
 Occupancy: 6,000  
 Floor area: 55,000 m<sup>2</sup> (NLA)  
 Number of floors: 12

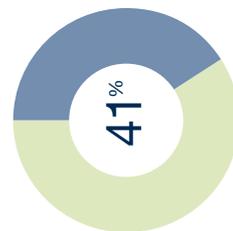
- Year of construction: 1973  
 Last Refurbishment: 2005  
 Catering facilities: No  
 Server rooms: No  
 Control rooms: No
- Electricity and gas consumption have significantly reduced over the last year. Occupier B's consumption has increased from last year. There was an unusual amount of gas consumed in July which building management will investigate.
  - Water consumption continues to drop following the installation of various water saving measures and the installation of rain water harvesting facilities.
  - Waste has reduced overall with a significant reduction in the amount of waste sent to landfill and an increase in waste recycled.
  - There is still a high proportion of electricity consumption outside of standard office hours. This is partly due to evening operations of Occupier C but assessments indicate it should not be this high.

Commentary

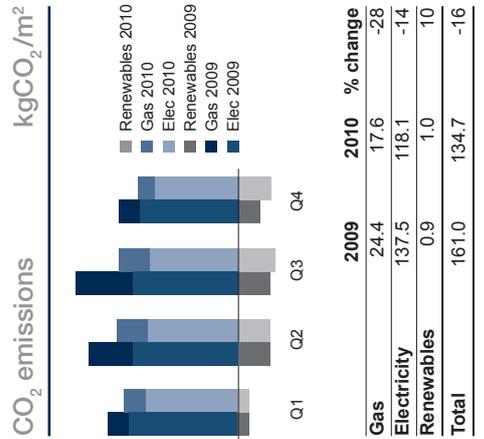
Whole building performance



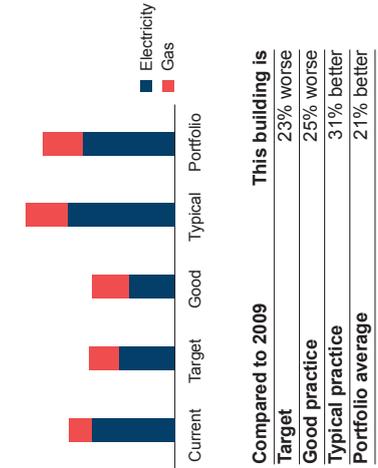
Out of hours consumption



% Consumed 20:00 – 07:00  
 Shows what percentage of electricity is used outside of standard office hours



CO<sub>2</sub> emissions against target



2010 costs avoided

	Consumption avoided	Unit rate	Cost avoided £
Electricity (kWh)	1,980,000	9.5 p/kWh	188,100
Gas (kWh)	2,035,000	4.5 p/kWh	91,575
Renewables (kWh)	99,000	9.5 p/kWh	9,405
Water (m <sup>3</sup> )	7,200	1.7 £/m <sup>3</sup>	12,240
Waste Landfill (tonnes)	40	56 £/tonne	2,240
Waste Incineration (tonnes)	10	68 £/tonne	680
<b>Total cost avoided YTD</b>			<b>£304,240</b>

## Simple Charts

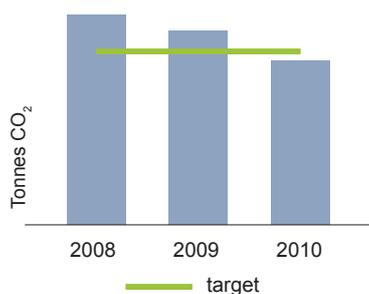
### Absolute (total amount)

#### Electricity, gas, water, CO<sub>2</sub> emissions, cost, waste

Presents how the total amount consumed (or generated for waste) at the building varies with time.

Data required: Meter readings/utility invoices  
DEFRA CO<sub>2</sub> conversion factors (for CO<sub>2</sub>)  
Waste generated (weights or volumes)

Data interval: Annually, quarterly or monthly



### Normalised (amount per sq metre of floor area or per occupant)

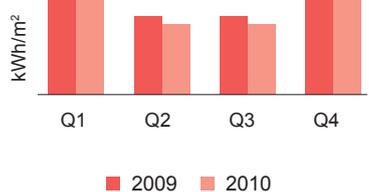
#### Electricity, gas, water, CO<sub>2</sub> emissions, cost, waste

Presents total electricity/fuel consumption, CO<sub>2</sub> emissions, waste arising or utility cost per m<sup>2</sup> (net lettable area); or water consumption in m<sup>3</sup> per occupier for the whole building.

Use to review performance trend across periods. When presenting quarterly (or other interval) data compare against previous years.

Data required: Floor area (net lettable area)  
Occupancy  
Meter readings/utility invoices  
DEFRA CO<sub>2</sub> conversion factors (for CO<sub>2</sub>)  
Waste generated (weights or volumes)

Data interval: Annually, quarterly or monthly



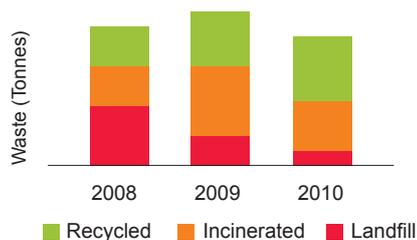
This period 35kWh/m<sup>2</sup>  
Last period 42 kWh/m<sup>2</sup>  
Change 17% reduction

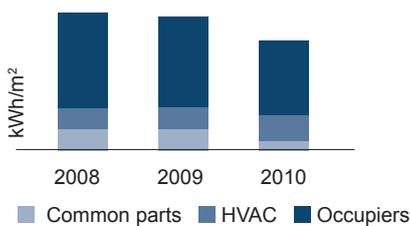
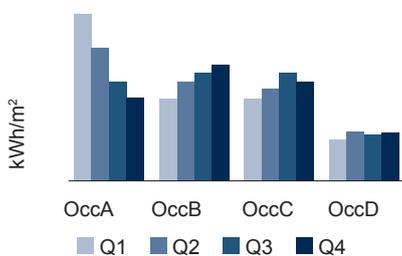
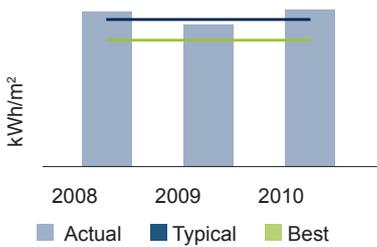
### Waste & recycling

Use to monitor what proportion of the building's waste arising is recycled.

Data required: Waste generated (weight or volume)  
Recycled materials (weight or volume)  
Waste sent for incineration (weight or volume)  
Waste sent to landfill (weight or volume)

Data interval: Annually, quarterly or monthly





## More Detailed Charts

### Normalised against benchmark

#### Electricity, gas, water, CO<sub>2</sub> emissions, cost, waste

As per 'Normalised' in the section above with the addition of good practice and typical practice benchmarks.

Used to assess how the building is performing compared to industry accepted figures and prioritise actions.

Data required: Floor area (net lettable area)  
 Meter readings/utility invoices  
 DEFRA CO<sub>2</sub> conversion factors (for CO<sub>2</sub>)  
 Waste generated (weight or volume)  
 Benchmark figures

Data interval: Annually, quarterly or monthly

### Normalised by occupier

#### Electricity, gas, water, CO<sub>2</sub> emissions, cost

Demonstrates occupants' performance over time and compared to other occupants. Sub-metering of each occupier's demise is required. Used to identify occupiers making improvement and share their best practices.

Data required: Floor area (net lettable area)  
 Meter readings/utility invoices  
 DEFRA CO<sub>2</sub> conversion factors (for CO<sub>2</sub>)  
 Waste generated (weight or volume)

Data interval: Annually, quarterly or monthly

### Occupier consumption (normalised)

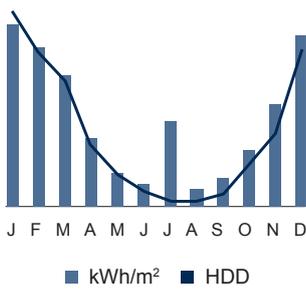
#### Electricity, gas, water, CO<sub>2</sub> emissions, cost

Compares the performance of occupiers with common parts and central plant equipment, and shows how each contributes to the building total. Sub-metering of each occupier's demise is required.

Used to understand the split between owner and occupier controlled consumption.

Data required: Floor area (net lettable area)  
 Meter reading/utility invoices

Data interval: Annually, quarterly or monthly



## Heating efficiency

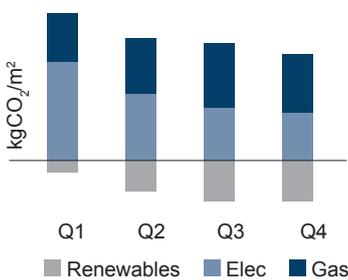
### Gas

Shows normalised heating fuel consumption against Heating Degree Days (HDD). Greater HDD values means the month was colder – therefore would expect more gas use.

Use to identify if the building’s heating controls are appropriate given weather conditions. Look for months where the gas consumption is much higher than the degree day line.

Data required: Floor area (net lettable area)  
 Heating fuel usage  
 Heating Degree Days<sup>7</sup>

Data interval: Monthly



### CO<sub>2</sub> emissions by source (Normalised)

Shows detail on where the building’s CO<sub>2</sub> emissions come from and the effect of any renewables on the building’s CO<sub>2</sub> footprint.

Data required: Floor area (net lettable area)  
 Utility Invoices  
 Renewable generation data

Data interval: Annually, quarterly or monthly

<sup>7</sup> <http://www.vesma.com/ddd/regular.htm> provides free monthly heating degree day data

## More Detailed Analysis

Automatic metering and targeting (aM&T) software is essential to undertake any performance management beyond the examples given above. Such software allows for a more detailed analysis and more effective management of a building's environmental performance.

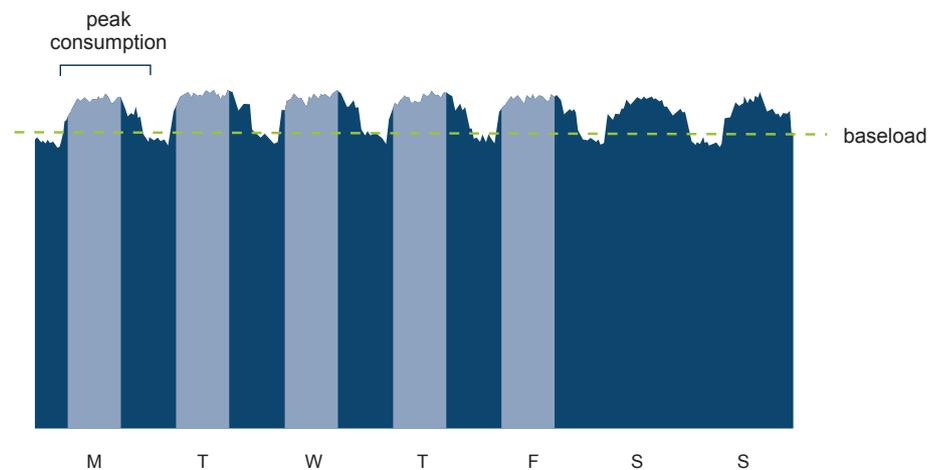
More information is available from the [Carbon Trust](#)<sup>8</sup>.

### Justifying elements of the Environmental Action Plan

The examples below show how advanced metering and reporting can be used to highlight areas of potential savings. These charts can be very useful in justifying elements of an Environmental Action Plan to the Group, as well as proving how measures that have been installed are reducing costs and consumption.

### Half Hourly Analysis

This shows how a building's demand (for energy or water) varies throughout the day and night. The weekly plot for a poorly controlled building might look like this:

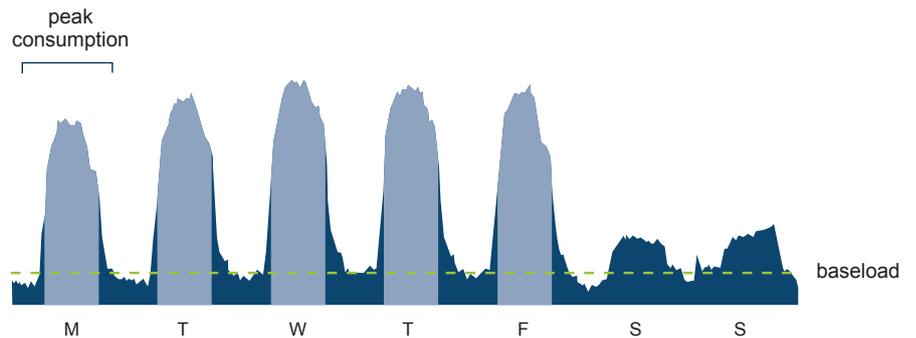


- consumption during occupied hours.
- consumption during unoccupied hours.

Notice the following:

- The **baseload** is very high, indicating plant equipment is left on overnight.
- **Peak consumption** extends to outside occupied hours and at the weekend, indicating equipment is left on after occupiers leave.

The weekly plot for a well controlled building might look like this:



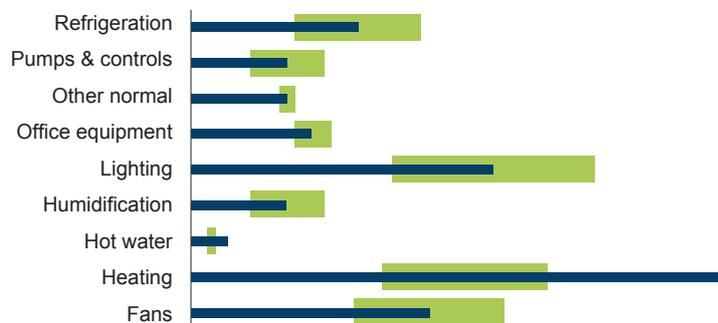
- consumption during occupied hours.
- consumption during unoccupied hours.

Notice the following:

- The **baseload** is low compared to the peak consumption, indicating plant equipment is not running overnight.
- **Peak consumption** only occurs during occupied hours, indicating that equipment is well controlled and optimised for occupancy hours.

### Sub-systems analysis

aM&T software can also be used to analyse how a building's sub-systems (e.g. heating, lighting, HVAC etc.) are performing compared to industry benchmarks. The graph below shows actual performance (the dark bar) and the acceptable range (the green bar), taken from industry benchmarks.



Notice:

- Hot water and Heating performance are both performing worse than industry benchmarks.
- Other subsystems are performing within benchmark ranges.

## Data Sources

The following data is available to members of the public free of charge:

### **DEFRA<sup>9</sup> conversion factors**

Converts kWh into kg CO<sub>2</sub> for a variety of fuels and processes.

### **Heating Degree Days**

Illustrates how much heating is required in a month. A variety of sources are available, [vesma.com](http://vesma.com)<sup>10</sup> provides free monthly data.

## Benchmarking

Benchmarking is the process of comparing a building's performance to industry recognised standards. It is used to determine whether or not the performance of a building is 'good' or 'bad' when compared to similar buildings.

A variety of benchmarks are available to compare buildings against industry recognised good and typical practices. The following documents will be useful if the Group is considering benchmarking:

Better Buildings Partnership – [Sustainability Benchmarking Toolkit for Commercial Buildings](#)<sup>11</sup>

BRECSU – [Energy Consumption Guide 19](#)<sup>12</sup> (ECON19)

CIBSE Guide F – [Energy Efficiency in Buildings](#)<sup>13</sup>

CIBSE TM22 – [Energy Assessment and Reporting Methodology](#)<sup>14</sup>

CIBSE TM39 – [Building Energy Metering](#)<sup>15</sup>

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9 <http://www.defra.gov.uk/environment/business/reporting/conversion-factors.htm>

10 <http://www.vesma.com/ddd/regular.htm>

11 <http://www.betterbuildingspartnership.co.uk/working-groups/sustainability-benchmarks/sustainability-benchmarking-toolkit/>

12 <http://www.cibse.org/pdfs/ECG019.pdf>

13 <http://www.cibse.org/index.cfm?go=publications.view&item=6>

14 <http://www.cibse.org/index.cfm?go=publications.view&item=43>

15 <http://www.cibse.org/index.cfm?go=publications.view&item=347>

## Appendix 5 Template Memorandum of Understanding

This Appendix provides both owners and occupiers with a Template Form Memorandum of Understanding (MoU). It is designed to be flexible in that owners and occupiers can select clauses appropriate for a specific building. The MoU can be entered into by the parties at any stage of the lease. For more information on the use of an MoU, see the [BBP Green Lease Toolkit](#)<sup>16</sup>.

---

### DATE

**PARTIES** [ ] of [ ] (the Landlord)  
[ ] of [ ] (the Tenant)

---

### PREMISES

### BUILDING

**LEASE** dated [ ] between [ ] and [ ]

---

## 1 MEMORANDUM OF UNDERSTANDING (“MoU”)

- 1.1 The Landlord currently owns the Building and the Tenant currently occupies the Premises under the Lease.
- 1.2 The Parties agree to work together collaboratively to improve the environmental performance of the Building and the Premises.
- 1.3 The Parties agree to consider and where appropriate implement the measures set out below and in Schedule 1.
- 1.4 The Landlord will encourage any other occupiers in the Building to enter an MoU in the same terms as this MoU in order to improve the overall environmental performance of the Building.
- 1.5 This MoU is not legally binding (save where expressly stated to be so). However, the Parties agree to work together in good faith (but without legal obligation) for a period of [twelve] months from the date of this MoU to implement the aims and objectives which are set out below.

## 2 DATA SHARING

- 2.1 The Parties agree to share with each other all data and relevant information they have in relation to the Building and the Premises (in as much detail as is available to them) in respect of:
  - Electricity consumption
  - Gas consumption
  - Other fuel consumption
  - Water consumption
  - Waste generation, management and recycling
  - Maintenance of plant and equipment used in connection with the above
- 2.2 Such data and relevant information will be provided [annually] as a minimum in a form or methodology which the Parties agree upon as being appropriate for the purpose.

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<sup>16</sup> <http://www.betterbuildingspartnership.co.uk/download/bbp-green-lease-toolkit.pdf>

- 2.3 All such information will be provided in a form which produces meaningful and useful data.
- 2.4 An industry accepted methodology, agreed by the Parties, will be used to ensure consistency of data (e.g. LES-TER, IPD Environment Code, Upstream benchmarks etc).

### 3 BUILDING MANAGEMENT COMMITTEE

- 3.1 The Parties will set up a Building Management Committee which will meet [annually] [quarterly] [on an ad hoc basis].
- 3.2 The Building Management Committee will comprise representatives of the Landlord, the Tenant, any managing agent employed by the Landlord or Tenant and other persons involved from time to time in the operation or management of the Building and the Premises as the Parties deem appropriate.
- 3.3 The Building Management Committee will:
- (a) review;
    - the data and other information shared by the Parties under paragraph 2;
    - the environmental performance of the Building generally;
    - any changes to the Building, the Premises or its operation which may affect the environmental performance of the Building or the Premises in the future;
    - any forthcoming changes in law or practice which may be relevant to the environmental performance of the Building and the Premises.
  - (b) seek to agree an environmental management plan for the [Building]/[Premises] or [review the Landlord's environmental management plan for the Building] and agree upon annual targets for:
    - the reduction of energy consumption, carbon emissions, water use and waste at the Building and the Premises;
    - the increase, where possible, in the use of plant and equipment based on renewable technologies, renewable energy, recycling of waste, recycled water and captured rainwater for the Building and the Premises;
    - other measures which it is practical to adopt in order to improve the environmental performance of the Building and the Premises.
  - (c) produce an annual statement<sup>17</sup>, which:
    - (i) contains a summary of the energy and water use and the waste generated by the Building and the Premises;
    - (ii) sets out the targets agreed pursuant to (b) above;
    - (iii) sets out progress towards achieving the targets agreed for previous years and identifies any other achievements (e.g. reductions in fossil fuel consumption).
- 3.4 The Parties will provide each other with the names of the person(s) within their organisations and in any managing agents' organisations who should be contacted on issues relating to the environmental performance of the Building or the Premises.

### 4 BUILDING MANAGEMENT SYSTEM

- 4.1 Where the Landlord controls the hours of operation of any heating, lighting or air conditioning services to the Building and/or the Premises, the Tenant will provide to the Landlord details of its hours of occupancy of the Premises and its requirements for heating, lighting and air conditioning services for the Premises and will keep the Landlord informed of any changes in such requirements.

---

<sup>17</sup> Note the Carbon Reduction Commitment Regulations (which are not yet in force) contain reporting requirements and this report should have regard to the timetable for CRC reporting.

4.2 Where a Building Management System exists for the Building, the Landlord will:

- (a) where appropriate, explain to the Tenant how the system works;
- (b) ensure that, wherever practicable, the settings of the system are adjusted and regularly reviewed with a view to minimising unnecessary provision of heating, lighting or air conditioning services to the Building and the Premises and to reflect the information provided by the Tenant under paragraph 4.1 above.

## 5 REINSTATEMENT OF TENANT'S ALTERATIONS

The Landlord will give reasonable consideration to:

- (i) waiving any entitlement it may have to require reinstatement of alterations carried out by the Tenant; and
- (ii) not including reinstatement requirements on the grant of any Licence for Alterations where such alterations improve the environmental performance of the Building and/or the Premises and the Landlord considers that it will not need to remove or reinstate such alterations at the end of the Lease.

## 6 CO-OPERATION ON SCHEDULE 1 MEASURES

- 6.1 The Parties will work together to consider and seek to implement, if appropriate, the measures against which a tick has been placed, set out in Schedule 1.
- 6.2 The Parties will co-operate with each other in complying with the requirements of any Carbon Reduction Commitment scheme to which either of them may be subject and which affects the Building and/or the Premises.

## 7 MANAGING AGENTS

The Parties will require their respective managing agents, if appointed, to implement the principles and objectives set out in this MoU.

## 8 NEW OWNERS AND OCCUPIERS

- 8.1 This MoU is personal to the Parties and will apply only for so long as the Landlord owns the Building and the Tenant occupies the Premises.
- 8.2 If the Landlord disposes of its interest in the Building, the Landlord will encourage the new owner to enter into a similar MoU with the Tenant and with other occupiers of the Building.
- 8.3 If the Tenant disposes of its interest in the Premises or sublets them, the Tenant will encourage any new occupier of the Premises to enter into a similar MoU with the Landlord.

## 9 RENEWAL OF THIS MEMORANDUM OF UNDERSTANDING

At the end of the period of [twelve] months (referred to in paragraph 1.5), the Parties will review the progress which has been made in improving the environmental performance of the Building and the Premises, and where appropriate, the Parties will renew this MoU for a further period of [twelve] months or such other period as is agreed between them at the time.

## 10 GENERAL

- 10.1 It is acknowledged that this MoU is not supplemental or collateral to the lease and is not to be taken into account when construing the provisions of the Lease and that the provisions of the Lease shall prevail over anything in this MoU.
- 10.2 Each Party agrees that information provided to the other pursuant to paragraph 2 of this MoU shall be used only for the purposes of implementing this MoU and for no other purpose whatsoever and that they shall keep all such information confidential and will not disclose it to any other person (save their agents, consultants or contractors who need to have such information for the purposes of this MoU) other than if required to do so by law or with the written consent of the other Party.
- 10.3 The Parties agree that this paragraph 10 is legally binding and will last for a period of six years from the date of this MoU. This paragraph 10 is governed by English law.

## SCHEDULE 1

### 1 ENERGY

- 1.1 Separate metering facilities for individual utilities for the Premises and the common parts and for other occupiers and special uses.
- 1.2 Where appropriate, the use of smart or automatic metering technology in the Building and/or the Premises.
- 1.3 Where appropriate and available at acceptable rates, the purchase of energy from renewable sources.
- 1.4 On the Landlord's part to give reasonable consideration to requests by the Tenant for the installation in or upon the Building or the Premises of plant and equipment based on renewable technologies (including roof mounted equipment) provided such installations do not adversely (in the opinion of the Landlord) affect the value or appearance of the Building.
- 1.5 Where appropriate participate in local and/or communal schemes for energy generation or provision.

### 2 WASTE

- 2.1 On the Landlord's part, to develop and agree with the Tenant and other occupiers of the Building a waste strategy for the Building including, where practicable, the sharing of recycling and other waste facilities by the occupiers and joint waste strategies with neighbouring buildings.
- 2.2 Appropriate recycling arrangements for printer cartridges, fluorescent bulbs, batteries and similar items.
- 2.3 The adoption of sustainable procurement codes (e.g. purchase of environmentally friendly office consumables and the adoption of "take back" and "re-use" schemes with suppliers for products and packaging).

- 2.4 On refurbishment and fit-out, require contractors to make adequate waste segregation and recycling provisions and to re-use redundant materials wherever practicable.
- 2.5 All electrical equipment in the Building or the Premises which is to be disposed of will be disposed of by the equipment owner in accordance with the WEEE Regulations 2006.

### 3 WATER

- 3.1 The installation of high efficiency plumbing fixtures and control technologies in the Building and the Premises.
- 3.2 A regular programme of leak inspections at the Building and the Premises.
- 3.3 Where possible, the use of treated and recycled water, captured rain water and grey water, where potable water is not a necessity.
- 3.4 The use of relevant water saving control systems.

### 4 ENERGY AUDIT

The appointment [by the Landlord] of a suitably qualified person to undertake an audit or assessment of the environmental performance of the Building and the Premises and to advise upon a strategy for implementing the aims and objectives set out in this MoU.

### 5 ALTERATIONS AND REPLACEMENT

- 5.1 The reasonable consideration of sustainable sourcing, the use of energy efficient and sustainable products and materials, recycling and the environmental performance and impact of all replacement of plant and equipment and of all alterations.
- 5.2 When replacing plant and equipment, the use of energy efficient plant and equipment and reasonable consideration of reductions in energy use and for improvements in energy rating (including any rating contained within an EPC or DEC).
- 5.3 Avoiding alterations which have an adverse impact on the energy performance of the Building or the Premises.
- 5.4 On the Tenant's part the provision to the Landlord of sufficient information in relation to the environmental impact of proposed alterations, on the making of any application for the Landlord's consent to such alterations.
- 5.5 The Parties to give reasonable consideration to alterations that reduce the need for air conditioning and other energy consumption.
- 5.6 Agreeing a target BREEAM rating prior to either party carrying out alterations for which a BREEAM rating would be available.

## 6 TRANSPORT

- 6.1 The provision of space for bicycle storage, shower and changing facilities for cyclists.
- 6.2 The provision of spaces for small cars, mopeds or motorbikes.
- 6.3 The establishment of shuttle links where practicable to any local transportation hubs.
- 6.4 Agreement of a 'Green Travel Plan'.

## 7 CLEANING

- 7.1 Requiring cleaning contractors to comply with any waste strategy or any energy or water reduction strategy agreed by the Parties and to maximise the use of natural solvent free and hydrocarbon free cleaning products.
- 7.2 Specifying appropriate cleaning and maintenance procedures for specialist "green" plant, equipment, fixtures or fittings.
- 7.3 Programming cleaning times to minimise the use of lighting, heating and air-conditioning resources.
- 7.4 Providing awareness raising and training to cleaners.

## 8 SHARING INITIATIVES

- 8.1 Without breaching the confidentiality of information as required by paragraph 10.2, the Parties will be free to share with others their targets and achievements under this MoU.
- 8.2 On the Landlord's part, to provide or arrange for workshops for the Tenant and other occupiers on their sustainability initiatives to demonstrate how reductions and savings to energy, water and waste consumption can be made.
- 8.3 The provision of training and education and the communication of achievements to employees.

## 9 SERVICE CHARGE

- 9.1 On the Landlord's part, where practicable, the separate identification of the cost of sustainability/environmental initiatives within the service charge account.
- 9.2 On the Landlord's part, the consideration of service charge adjustments to reflect the use of energy and water by individual occupiers.

## 10 TENANT HANDBOOK

- On the Landlord's part, the provision to the Tenant of a handbook or information pack which includes energy and environmental management information about the Building (including any EPC/DEC ratings and recommendation reports, reduction targets, energy metering and monitoring data, an environmental policy and water performance data and waste strategy data).

## Glossary

**Building Manager:** the person in charge of the day to day running of the building. This is most likely to be an individual appointed by the owner or a nominee of the managing agent.

**Building Engineer:** the engineer (whether an employee of the owner, managing agent or an external contractor) who has the greatest day to day knowledge of the plant and systems in the building, how these work, and what improvements might be feasible.

**Building Management:** all or any of the building manager, the building engineer and the managing agent, depending on which exist for the particular building.

**Common Parts:** areas within a building which are shared with other occupiers and under the control of the owner. These include entrance areas, corridors, lifts and staircases.

**Demise:** the area within the building which is under the occupiers control.

**Environmental Action Plan (or Plan):** a plan which documents the environmental improvement actions and initiatives of the Group and the persons responsible for carrying out these actions. This may be a standalone document (along the lines of Appendix 3) or in part be incorporated into a wider Environmental Management System already in place for the building (such as ISO14001 or EMAS).

**GBMG (or Group):** A Green Building Management Group as described on page 3

**HVAC:** Heating, ventilation and/or air conditioning plant in the building. This is normally centrally provided and managed by the building management for all occupied areas.

**Managing Agent:** an individual or firm who works for or represents the property owner in managing the operation of the property, including leasing, rent collection, provision of utilities, maintenance and repair etc.

**Memorandum of Understanding (or MoU):** a not-legally binding document which outlines how owners, building management and occupiers within a given building will cooperate on environmental issues and work together to reduce the buildings environmental impact. This is viewed as a more flexible and cost-effective option to a green lease.

**Normalised data:** normalisation is the process taken to standardise an approach to measurement. This is required to take account of the dynamic nature of the commercial property market. Normalised data is produced using a specific indicator to measure performance (often dividing one metric by another) e.g. CO<sub>2</sub> emissions per m<sup>2</sup>.

**Stakeholder:** any or all of the following parties with an interest in the building or its management:

- The owner
- The occupiers
- The managing agent
- The building manager
- The building engineer

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