

working with the



Royal College of Music  
Carbon Management Plan



# Royal College of Music Carbon Management Programme

Carbon Management Plan (CMP)

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## Foreword from RCM Director

### Director's Carbon Management Statement

The College made considerable improvements to its environmental campaign during 2009, and will continue to benchmark itself against government guidelines and good practice. Over the next few years, the College will follow a detailed action plan with an ultimate target to reduce its carbon emissions long term whilst also developing short-term initiatives that are important in helping to engage students and staff with the environmental issues that directly affect their future. The College recognises its responsibility to minimise the environmental impact of its operations where possible and seeks to improve its performance through implementation of its Carbon Management Plan. In all of our activities, the RCM seeks innovative ways to meet our environmental objectives and to ensure that these values are embedded within our community, our research and our teaching.



PROFESSOR COLIN LAWSON  
Director, Royal College of Music

## Foreword from the Carbon Trust

Cutting carbon emissions as part of the fight against climate change should be a key priority for Higher Education institutions - it's all about getting your own house in order and leading by example. The UK government has identified the university sector as key to delivering carbon reduction across the UK in line with its Kyoto commitments and the Higher Education Carbon Management Programme is designed in response to this. It assists universities in saving money on energy and putting it to good use in other areas, whilst making a positive contribution to the environment by lowering their carbon emissions.

The Royal College of Music started working in partnership with the Carbon Trust in 2010 to take part in this ambitious programme in order to realise vast carbon and cost savings. This Carbon Management Plan commits the Royal College of Music to a target of reducing CO<sub>2</sub> by 25% by 2013-14 and 34% by 2019-20 and underpins potential financial savings to the College of around £124,000 by 2013-14.

There are those that can and those that do. Universities can contribute significantly to reducing CO<sub>2</sub> emissions. The Carbon Trust is very proud to support The Royal College of Music in their on-going implementation of carbon management.



Richard Rugg  
Head of Public Sector, Carbon Trust

## 1.0 Management Summary

The Royal College of Music recognises that climate change is one of the greatest challenges facing society today. Evidence shows that the earth is warming and that human activity is making a significant contribution to this. Higher Education needs to play its part in helping to meet UK /world climate change targets and is uniquely placed to lead the way.

The Climate Change Act 2008 made the UK the first country in the world to have in place a long term framework to cut carbon emissions. Central to this was a legally binding national target to cut green house gas emissions by 34% by 2020 and by 80% by 2050 (against a 1990 base line).

The Government has made it clear the higher education sector must play its part in meeting national carbon reduction targets. The grant letters from the Secretary of State Innovation, Universities and Skills to the Higher Education Funding Council for England (HEFCE) of 18 January 2008 stated that all institutions must have plans in place to reduce carbon emissions and that performance against these plans will be a factor in future capital allocations. In response, HEFCE outlined ambitious sector level targets, which are inline with national targets.

The Carbon Trust and Briar Associates have been working in partnership with key members of the RCM Estates Team to produce a bespoke Carbon Management Plan based on the Higher Education Carbon Management Programme available to larger institutions.

The Royal College of Music is taking this opportunity to make significant strides towards reducing the impact that its activities have on the local and global environment and contributing to local, sector and national commitments to reduce emissions of green house gases. Guidance and support from the Carbon Trust through familiarisation workshops, carbon embedding opportunities identification and the implementation of the Carbon Management Plan and programme will help towards realising the College's targets on carbon reduction.

### **The Royal College of Music Carbon Vision**

The Royal College of Music recognises that its activities have an impact upon the environment at local national and global levels and acknowledges its responsibility to carbon reduction and environmental protection. The College aims, wherever possible to implement effective energy management and operate a purchasing policy that works to sustainability, energy efficiency and recycling through a whole life costing approach. As part of its Environmental and Strategic Policies, the College is committed to act in a responsible manner in relation to carbon emissions and will continuously review and seek to reduce its carbon footprint across all of its operations to meet challenging national targets.

The Royal College of Music CMP is modelled on the HECM programme which is based around a proven five step process leading to emissions reductions that will maximise benefits to the College and its stakeholders. The first four steps have been undertaken systematically by the College over a four month period from January to April 2010. This cumulates in the production of the Carbon Management Plan (CMP) which sets out an organisation wide strategy for managing carbon emissions during the next five years, including an ambitious reduction target

and specific actions enabling this target to be met. The fifth step is for the College to implement the CMP over future months and years. Governance of the programme, as well as strategic ownership of the reduction will be managed by the Estates Department and Environmental Management Group.

### Carbon Reduction Target

The Royal College of Music will reduce its carbon footprint identified in the scope of the Carbon Management Plan by 34% by the end of the 2019/20 academic year, compared with its baseline year of 2005/6.

It should be noted that this plan is a working document. The plan concentrated on the first eight year period from the baseline year 2005/6 to the end of the 2013/14 academic year, The Plan worked towards an identified 25% carbon reduction target. After close monitoring throughout this period the plan will then be reproduced to meet the 34 % required for 2020.

### Carbon Baseline

The baseline data has been sourced using scope 1 and 2 emissions, although some scope 3 data on waste and water was not available to be viewed and reduction planned, others such as travel were minimal in 2009. The project team agreed that scope 3 shall be included in the plan from 2011/12 when a full year's correct data can be used, this target has been met.

The residential and non-residential buildings CO<sub>2</sub> emissions baseline for 2005/6 using scope 1 and 2 is 1257.2 tonnes CO<sub>2</sub>.

## 1.1 Programme Scope Definitions

The programme scope for the creation of the College Emissions Baseline is detailed below in reference to the sources of emissions to be considered: refrigerant and other gases, staff travel and commuting were not available in the 2005/6 Estates data. It is important to raise these areas in the scope, to be recorded for future year's data within the Carbon Management Plan as it is live working document.

- SC1/2 Utilities "direct and purchased" emissions from gas, water, steam, electricity and CHP in all non-residential buildings on all sites.
- SC1/2 Utilities "direct and purchased" emissions from gas, water, steam and electricity in all residential buildings.
- SC3 Waste management and disposal
- SC3 Refrigerant & other gas losses (air con plant).
- SC3 Staff business travel (taxis through to air travel)
- SC3 Staff and student commuting

- SC3 Visitor, contractor or supplier travel
- SC3 Resource consumption other than utilities

## 1.2 The Baseline

The Baseline has been calculated using data from the 2005/6 academic year including emissions sources from gas, electricity, and steam utilities. Whilst retrieving the data, it was found that the EMS 2005/6 electricity data was incomplete and incorrect, therefore an average figure was calculated from 2005/6 - 2008/9 data to gain the 2005/6 electricity consumption figures. Based on the College's emissions baseline, two different consumption scenarios have been projected; The Business As Usual (BAU) scenario predicts the effect on consumption of energy, while the Reduced Emissions Scenario (RES) predicts the effect on cost and carbon emissions of reducing the emissions baseline by the targeted 25% by 2013/14

## 1.3 Value at Stake

The Value at Stake (VAS) is the difference in emissions or costs between the BAU and the RES; that is, the hypothetical potential value that could be obtained by implementing carbon reduction measures in order to reduce baseline emissions by 25% by 2013/14.

### Value at Stake

The total estimated Value at Stake in 2013/14 scope 1 and 2 data in cost is £124,133 and in carbon emissions 388t CO<sub>2</sub>.

The cumulative Value at Stake from 2005/6 to 2013/14 in cost is £522,681 and in carbon emissions 1,804t CO<sub>2</sub>.

To meet these reduction targets a plan of carbon reduction projects were identified through working with Briar Associates. These included.

- the Amaryllis Fleming Concert Hall to adopt a CO<sub>2</sub> control within AHU;
- install TRVs;
- draught proofing;
- BMS, enhance and extend;
- install T5 lighting conversion kits;
- loft insulation;
- secondary glazing;
- in house lighting energy efficient lighting replacement policy;
- Lighting control replacement projects.

The projects detailed above if undertaken within the stated timescales set, provide an annual emissions reduction of 8.8%, this will mean the equivalent of 113.1 CO<sub>2</sub> tonnes per annum.

Other projects including joint supplier chains with neighbouring institutions, improved recycling and waste programmes, construction waste management and ICT department projects such a charging for printing and remote shut down on computer equipment will all help to realise the 25% figure by 2013/14.

### Implementation Costs

The budget figure for implementing the carbon reduction planned/funded projects is £85,394, with savings of £19,222 per annum representing a 7.2% reduction of cost and giving a payback of 4.4 years.

## 2.0 Introduction

The Royal College of Music was founded in 1892 and enjoys a reputation as one of the world's leading conservatories providing specialised music education and performance training.

The College estate consists of Prince Consort Road, the main teaching campus; the halls of residence, College Hall. The Prince Consort Road campus includes seven building and extensions of various ages and condition. Buildings on the Prince Consort Road site include the Blomfield Building (Grade 2\* listed), the Amaryllis Fleming Concert Hall and the Britten Theatre. The College's hall of residence is located at a site in Shepherds Bush and major redevelopment is underway. The Halls will be leased, managed and maintained by a partner...

There are approximately 900 students attracted to the College by its world class teaching and reputation, many travelling from overseas, supported by 400 staff. For thirty Saturdays each year the College conducts a Junior Department open to talented children and their numbers can rise to 500.

Working with the Carbon Trust to produce a Carbon Management Programme, the Royal College of Music will have a clear plan for future carbon reduction of its estates stock. The Plan will be a priority factor in the Estates Strategy and Environmental Policy.

The benefits and objectives for the RCM working with the Carbon Trust to produce the CMP are:

- reduced CO<sub>2</sub> emissions;
- reduced energy costs;
- implementation of a Corporate Strategy regarding the management of CO<sub>2</sub> emissions;
- enhanced corporate reputation with stakeholders, customers, employees and key stakeholders;
- the provision of a carbon management process, development of a carbon baseline for the College and assessing the value at stake in relation to CO<sub>2</sub> emissions

- developing an overall strategy for carbon reduction management, identifying opportunities, and implementing a plan to capture these;
- review of existing processes and or management systems;
- site surveys;
- pilot projects benchmarking;
- energy awareness training;
- other advice on energy efficient best practices and low carbon technologies;
- being a member of the Carbon Trust Carbon Management Network;
- Attending the Carbon Trust Carbon Management Forum.

## 2.1 Five-step plan

The College has followed the Carbon Trust five step plans to produce a CMP:

### Step 1: Mobilisation

This involves setting up a meeting to present the Carbon Management Programme, inviting people from across the organisation and recruiting a core team.

### Step 2: Set a Baseline

Forecast and target- a base year needs to be set and consumption data collected and analysed so that a carbon footprint can be calculated for the College. A target can then be set and this should be ambitious.

### Step 3: Identify and quantify opportunities

Carbon saving opportunities across the organisation need to be identified and assessed in terms of carbon and saving, capital costs and payback.

### Step 4: Developing business cases

Developing business cases, stakeholder management and communications and setting up carbon management governance.

### Step 5: Implement plan

Carried out by the College once the CMP has been signed off.

Steps one to four have been completed over a four month period from January to April 2010 with the plan being approved and published. The plan will provide clear guidance and targets for managing carbon reduction from 2010-2014. Half yearly progress reports will be produced and on this information the plan will be reproduced at the end of 2014 academic year, for future management during the period of 2014 - 2020.

The College's awareness and investment in environmental and carbon reduction projects has escalated in the past three years. Environmental and low carbon procedures have reached all department operations in some way. The Estates Department and Environmental Management Group have been the driving force in this awareness.

Examples of progress and awareness are:

- Environmental Management Group set up in 2007.
- Installation of a plate heat exchanger for hot water services.
- Production of Display Energy Certificates.
- Establishment of environmental and relevant sub policies available on College web site.
- Establishment of recycling programme.
- Green construction waste removal supplier used.

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- In 2009 new condensing boilers were installed, now being 98% efficient.
- Lighting replacement audits, motion detection lighting installed in corridors and Compulsory energy efficient lamp replacement policy.
- Use of CHP plant providing hot water to the College.
- Environmental Audit Review carried out by Imperial College Environmental Studies students.
- Reports from the Carbon Trust.
- Improved shower facilities for staff/students running or cycling to work.
- RCM Environmental E-newsletter distributed to all staff, students and Council Members.
- Attendee of the 1851 Invest to Save Group.
- New and approved service contractors are required to have Environmental Policies where possible.
- Participation in the People & Planet's HEI Green League.
- 25 new bike racks have been installed.

The Royal College of Music will implement actions identified in the contents of the Carbon Management Plan from the start of 2010 to the end of the 2013/14 academic year.

## 3.0 Carbon Management Strategy

### 3.1 Context and drivers

There are several good reasons for the RCM to implement a Carbon Strategy. The first reason is legislation; already there are more stringent building regulations to stipulate environmental performance as a criterion. Government and sector mandatory measures introduced, such as the Carbon Reduction Commitment and the HEFCE 2010/11 policy statement on carbon reduction target and strategy provide clear instruction to institutions of their carbon reduction responsibilities. Other mandatory and non mandatory legislation includes the energy performance of buildings, such as Displaying Energy Certificates and carrying out the BREEAM Energy and Condition Survey. Drivers are identified in these by the desire within the College to improve on grading and performance in the future together with the influence such reports will have on future capital funding.

Staying ahead of impending legislation often leads to higher public profile and a perception of being a leading institution. As a result, the College will be more cost effective and efficient to implement the necessary actions by avoiding the rush for services as regulations come in to force.

Reputation and communication regarding the College's work in reducing carbon are key drivers and are measured to the wider public audience through the People & Planet's Green League, as well as Energy Certificates displayed in public view within the buildings. The College Environmental Policies and Carbon Reduction Strategies are available on the RCM website and an internal termly environmental e-newsletter updates staff with progress. These processes will be continually benchmarked and improved upon.

The College works with local business and institutions in a number of areas; recently joining local groups such as Invest to save in joint carbon reduction projects. Taking further steps such as joint service contacts with green suppliers, and cutting down on supplier travel with joint deliveries on the same day/time are all small but effective ways in reducing carbon. Meeting regularly with local institution estates departments and discussing lighting, power reduction and environmental projects has proved valuable and will continue to be a priority.

Cost savings are an important driver behind efficiency improvements; directly from reduced resource usage, and indirectly from reduced maintenance. Ambiance and comfort is a driving force, over or under heated rooms create discontent and inefficient working practices.

Having a Carbon Management Plan imbedded within the Estates Strategy and the Environmental Policy help to keep the plan at the forefront of the College's agenda.

The Royal College of Music acknowledges that in the face of mounting global scientific consensus of mans' part in global climate change, there is a moral responsibility to act to reduce carbon.

### 3.2 Vision

The Royal College of Music recognises that its activities have an impact upon the environment at local, national and global levels and acknowledges its responsibility to carbon reduction and environmental protection. The College aims, wherever possible to implement effective energy management and operate a purchasing policy that works towards sustainability, energy efficiency and recycling through a whole life costing approach. As part of its Environmental and Strategic policies, the College is committed to act in a responsible manner in relation to carbon emissions and will continuously review and seek to reduce its carbon footprint across all of its operations to meet challenging national targets.

### 3.3 Strategic Themes

The following themes will cement the RCM's continued focus on carbon reduction, energy efficiency and environmental factors facing the global community.

- **The role of the Carbon Management Plan within the College:** to provide a Carbon Reduction Plan with clear guidance of carbon and emission targets. Integrated to the Environmental and Estates Strategies.
- **Investment and budget planning:** the RCM Estates Department (in line with the CMP) will maintain and improve a cost efficient, energy saving, low carbon regime which will contribute to realising the reduction targets. The College will include when possible, identified CMP opportunities within capital budgets. Budget holder applications will require environmental carbon impact information on their bids.
- **External funding:** the College will if necessary, look to external funding for CMP projects if appropriate.
- **Planning:** to view the plan as a working document and investigate the implication of further measures and necessary investment to enable the College to achieve reductions annually. The CMP and Environmental Policies will be included in any future building or site improvement projects.
- **Stakeholders:** to provide a plan that has continued input and awareness from the relevant stakeholders involved in its production.
- **Benchmarking and assessment:** programme management shall assess key departments and individual progress in the CMP, providing guidance and support to help deliver the target figure. The College will participate in sector league tables as a benchmark exercise to other like sized institutions.
- **Plan and policy review:** robust reporting and monitoring will insure all stakeholders are aware of progress and the key staff guiding the plan are aware of the target goals.

### 3.4 Objectives and Targets

The Royal College of Music will reduce its carbon footprint identified in the scope of the Carbon Management Plan by 34% by the end of the academic 2019/20 academic year, compared with its baseline year of 2005/6 .

It should be noted that this plan is a working document. The plan will concentrate on the first nine year period from the base line year 2005/6 to the end of the 2013/14 academic year, working towards an identified 25% carbon reduction target. After close monitoring throughout this period the plan will then be reproduced to meet the 34% required for 2020.

The baseline data has been sourced using scope one and two emissions, although some scope three data on waste and water is available to be viewed and reduction planned. Others such as travel were minimal. The project team have agreed that scope three shall be included in the plan from 2011/12 when a full year's correct data can be used.

The College CO<sub>2</sub> emissions baseline for 2005/6 total using scope one and two is 1257.2 tonnes CO<sub>2</sub>.

The Baseline has been calculated using data from 2005/6 academic year including emissions sources from gas, electricity and steam utilities.

#### 4.0 Emission and Baseline Projections

**Programme Scope.** The programme scope for the creation of the College Emissions Baseline is detailed below in reference to the sources of emissions to be considered: A Scope3 base line of 2010/11 has been incorporated to the plan for 2010/11 year. This baseline has been chosen as adequate data was available. Going forward Scope 3 will be tracked and recorded in the CMP alongside the existing scope 1/2 baseline data. The first benchmark year showing progress was added in August 2011/12.

##### Scope 1 & 2

1. Utilities “direct and purchased” emissions from gas, water, steam, electricity and CHP in all non-residential buildings on all sites.
2. Utilities “direct and purchased” emissions from gas, water, steam and electricity in all residential buildings

##### 4.1

##### Baseline Year and Projections Scope 1

The College carbon emissions baseline year was calculated using data from 2005/6 and the scope 1 and 2 data listed in the table below. While retrieving the data, it was found that the EMS 2005/6 electricity data was incomplete and incorrect, therefore an average figure was calculated from 2005 /6 to 2008/9 data to gain the 2005/6 electricity consumption figures.

Data	Owner	Sources
Utilities, gas, water, electricity and steam	Estates and Finance Departments	Actual meter readings by service provider and in house maintenance team. Invoices, EMS data.

**Once the baseline figure has been calculated the following actions will be undertaken:**

1. Calculate business as usual (BAU) carbon emissions.
2. Map out influences and drivers.
3. Confirm short-term targets and assess long-term targets.
4. Forecast future emissions following opportunities analysis.

##### Emission Baseline Analysis

The first RCM CMP baseline data was produced using scope 1 and 2 emissions, although some scope 3 data on waste and water was available to be viewed, and reduction planned, others such as travel were minimal. The project team agreed that scope 3 was to be included to the plan from 2011/12 where adequate data could be used. Scope 3 data is now included below using data from 2010/11 This baseline has been chosen as adequate data was available.

Going forward Scope 3 will be tracked and recorded in the CMP alongside the existing scope 1/2 baseline data. The first benchmark year showing progress will be August 2011/12.

**Figure 1: Baseline breakdown Scope 1**

Baseline Year	Gas	Electricity	Steam	Total CO2
2005/6	428T	789T	39,9T	1,25.7T

The College's CO<sub>2</sub> emissions baseline for 2005/6 total using scope one and two is 1257.2 tonnes of CO<sub>2</sub>.

**Baseline Outputs (for Carbon Management Plan)**

**Figure 2: Data for Baseline Year Scope 1**

	Total CO2 Emission (tonnes)	Buildings
Baseline CO2 emissions (tonnes)	1,263	1,257
Baseline Cost (£)	£267,157	£267,157

The Baseline figure is made up of 69% non residential and 31% residential. The 2005/06 Baseline figure for non residential was 867t CO<sub>2</sub>. This compares to a non-residential Baseline figure for 2008/09 of 838t showing a reduction of 29t CO<sub>2</sub>.

2011/12

Carbon emissions have been set against an increase in the college's activities with greater use of the college's facilities.

Over this time the college opening hours have increased from approximately 3,864 hours to 5300 hours per annum, a 37% increase. The table below illustrates that the emissions for PCR have actually reduced over 15% since the base year. The table also shows that the consumption per college operating hour has substantially reduced (by over 36%) indicating that the facilities are being used more efficiently.

	2005/06			2011/12		
	Consumption kWh	Hours of operation	Consumption per hour kWh/hr.	Consumption kWh	Hours of operation	Consumption per hour kWh/hr.
Electricity	1,450,549	3,864	375.4	1,227,178	5,300	231.5
Gas	1,282,038	3,864	331.8	1,118,301	5,300	211.0

### Scope 1/2 reduction projects and opportunities

2011/12 figures show projects completed from the CMP played a key role in the emissions reduction. RCM Maintenance continued to make good progress in energy efficiency projects.

The College was awarded BREEAM In Use very good in all three areas.  
LED lighting through the library  
LED lighting within the Blomfield Building  
Opportunities have arisen from media publications on the College's reduction work.

### 4.3 Projections scope 1 and 2

Based on the College's emissions baseline, two different consumption scenarios have been projected: The Business As Usual (BAU) scenario predicts the effect on consumption of energy, while the Reduced Emissions Scenario (RES) is based on the targets identified.

The Value at Stake (VAS) is the difference in emissions or costs between the BAU and the RES; that is, the hypothetical potential value that could be obtained by implementing carbon reduction measures in order to reduce baseline emissions by 25% by 2013/14.

#### Carbon Value at Stake Chart

Figure 4: BAU Predictions with increases and reductions

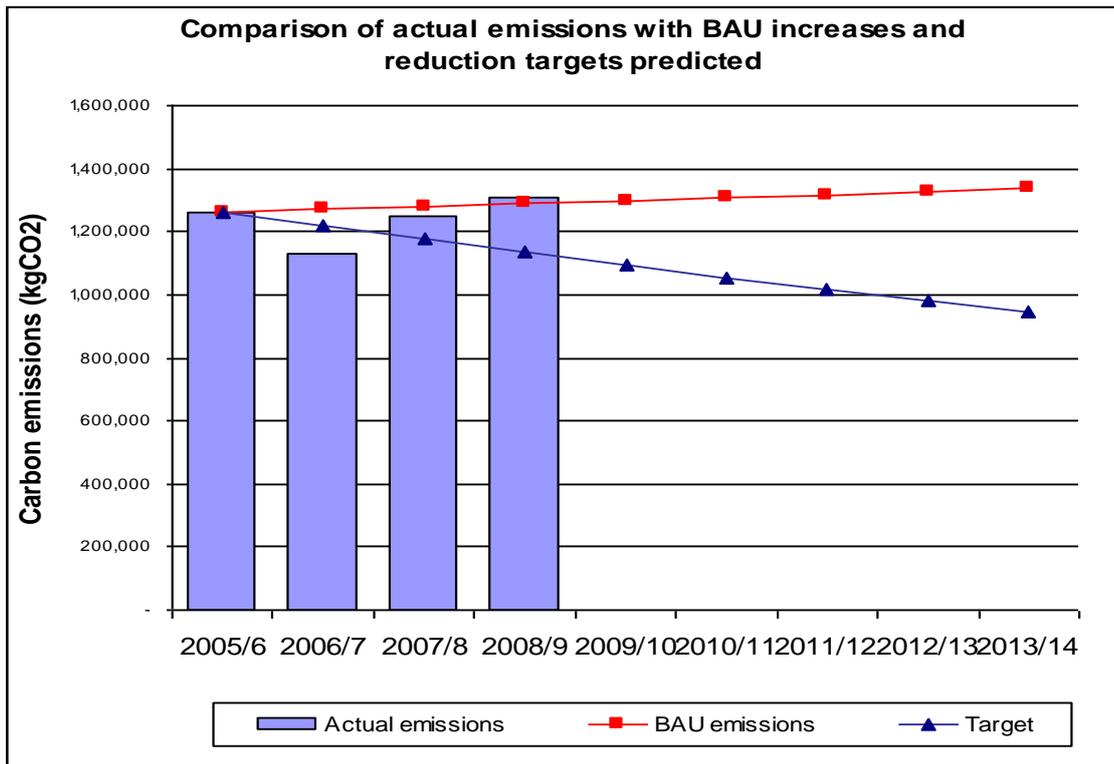
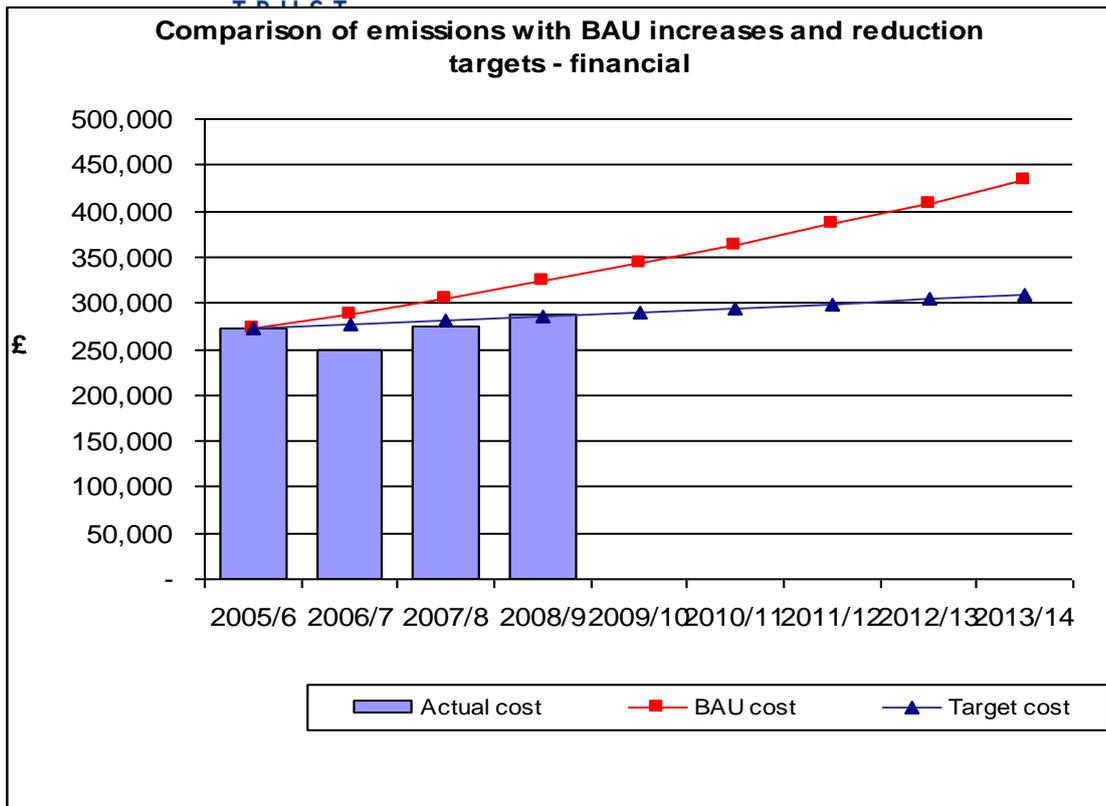


Figure 5: Financial Value at Stake Graph



Value at Stake

The total estimated Value at Stake in 2013/14 scope one and two data in cost is £126,592 and in carbon emissions 388t CO<sub>2</sub>.

The cumulative Value at Stake from 2005/6 – 2013/14 is £522,681 and in carbon emissions 1,804t CO<sub>2</sub>.

2011/12 figures show projects completed from the CMP played a key role in the emissions reduction. RCM Maintenance continued to make good progress in energy efficiency projects.

The College was awarded BREEAM In Use very good in all three areas.



#### 4.4

##### Scope 3 Emissions

The College report our wider carbon footprint which includes scope 3 emissions. This is in line with our objectives detailed in our initial Carbon Management Plan of 2010. Procedures were put in place to collect key scope 3 emissions data.

We have included the following scope 3 emissions;

- Water and sewage
- Waste
- CHP steam import from Imperial College CHP
- Fugitive gases
- Business travel

Staff and Student commuting data has been provided as the 2011/12 base line year and will be benchmarked in 2012/13 and calculated with other scope 3 emissions data already available. The College has calculated commuting data by taking the following sample data:

Student commuting to College was recorded between our only Hall of Residence and our campus.

130 Students commute 3.5 miles between sites.

No cars are used (no car parking is provided)

Students travel by bus, underground or bike

There are fifty bike Racks at College Hall

Staff commuting data to college was recorded from a sample of 450 staff that live in a 10 mile radius of the College.

No parking is available for staff at the College

Staff travel by bus, underground, train or bike.

There are 30 bike racks at the College campus and Boris bikes are available at several locations around the college.

The commuting 2011/12 base line is recorded in table 4.5, but not calculated with other available scope 3 benchmarking data.

The CO<sub>2</sub> emission conversion values have been obtained from Defra/DECC (2010 – 2012).

Note: Fugitive gas emissions, the only potential source for these emissions is leakage from refrigeration and air-conditioning equipment - there has been no recorded recharging of equipment within the maintenance service records.

The College plan to continue to develop the monitoring of scope 3 emissions including resource consumption emissions such as paper and other consumables.

Progress with scope 3 measures

The College has implemented a number of initiatives to reduce scope 3 emissions including the following:

Procurement of 100% green electricity.

Construction waste – 98% of waste from Kensington Square works 2011 projects was recycled.

100% of confidential waste was recycled

Catering waste is now composted in conjunction with Imperial College

- Project and manage the College Travel Plan to all stake holders.
- Project and manage the College Sustainable Purchasing Policy to all stake holders.
- Maintain the estates efficiently replacing and maintaining mechanical stock with energy efficient systems.
- Reduce overseas and UK travel by sending 1 to 2 members of staff to carry out auditions rather than large numbers of auditionees travelling to the College.
- Strive to recycle all possible waste and record progress.
- Promote green travel such as cycling with bike loans schemes and promotion of Boris bikes available.
- Promote and participate in joint service green energy procurement with neighbouring institutions.
  - A binless office system on the ground floor of the Blomfield Building was introduced with recycling stations located on the ground floor corridors and kitchen.
  - A battery recycling system was introduced to College Hall.

#### 4.5

##### **Baseline carbon footprint (including scope 3)**

The baseline carbon footprint incorporating scope 3 emissions is 1,481.2 tCO<sub>2</sub> and is for the financial year 2010/11

The College has made considerable improvements to its environmental campaign over the last five years and will continue to benchmark itself against government guidelines and good practice. The College follows a detailed action plan with an ultimate target to reduce its carbon emissions long term whilst also developing short-term initiatives that are important in helping to engage students and staff with the environmental issues that directly affect their future. The College recognises its responsibility to minimise the environmental impact of its operations where possible and seeks to improve its performance through implementation of its Carbon Management Plan. In all of our activities, the RCM seeks innovative ways to meet our environmental objectives and to ensure that these values are embedded within our community, our research and our teaching.

The Royal College of Music started work with the Carbon Trust in 2010 to take part in the ambitious programme in order to realise carbon and cost savings. The Carbon Management Plan produced, commits the Royal College of Music to a target of reducing CO<sub>2</sub> by 25% by 2013-14 and 34% by 2019-20 and underpins potential financial savings to the College of around £124,000 by 2013-14. In January 2013 the College applied for a HEFCE Revolving Green fund recoverable grant, the application was for £350,000. The funding provides capital for green related projects and refurbishment of Building services and stock. All projects were scrutinised against their carbon savings and payback period by external consultants on HEFCE's behalf. The Colleges carbon project paybacks range from one to five years.

##### **Benchmarking**

Total reductions on scope 1/2 emissions have been met for the PCR main campus.

The Prince Consort Road carbon emissions have been set against an increase in the Colleges activities with greater use of the college's facilities.

Over this time the college opening hours have increased from approximately 3,864 hours to 5300 hours per annum, a 37% increase. The table below illustrates that the consumption for PCR have actually reduced over 14% since the baseline year. The table also shows that the consumption per College operating hour has substantially reduced (by over 37%) indicating that the facilities are being used more efficiently.

	2005/06			2012/13		
	Consumption kWh	Hours of operation	Consumption per hour kWh/hr.	Consumption kWh	Hours of operation	Consumption per hour kWh/hr.
Electricity	1,450,549	3,864	375.4	1,206,122	5,300	227.57
Gas	1,282,038	3,864	331.8	1,167,033	5,300	220.19

### Scope 1/2 reduction projects and opportunities

2012/13 figures show projects completed from the CMP played a key role in the emissions reduction. RCM Maintenance continued to make good progress in energy efficiency projects.

- The College was awarded BREEAM in Use very good in all three areas for a second year running.
- New windows were installed on the rear elevation of the South Building. The new windows have an average U Value of 1,3w/m<sup>2</sup>k, which compared to the single glazed metal casement on the landings, toilets; Durrington and Recital Hall. The new windows are more than 90% more efficient.
- An audit of our utilities companies' scope 1, 2 and 3 costs was carried out making annual savings of over £6,000
- PCR campus achieved a C, DEC rating of 52 in 2011/12, improving from D of 87 in 2009/10. The typical DEC rating for a building of College's age and type would be 100 D. Although Scope1 emissions show a slight increase from 2010/11 (a border line B/C 50 rating) this must take into account the extended hours that increased from c.3,900 hours to 5,300 hours per annum, a 37% increase in 2011/12. Taking this into account in the carbon management plan and report 2011/12 showed that from a baseline year of 2005/6 that scope1 emissions reduced over 15% and consumption per College operating hour reduced by 36% indicating that our facilities are being used more efficiently. Increase in Staff and student numbers. Degree days and changes in emission values must also be taken into account in 2011/12. The DEC certificate for 12/13 is being produced but a C or B rating is predicted on data provides from scope 1 electricity reductions.

### Scope 3 Emissions

The College report our wider carbon footprint which includes scope 3 emissions. This is in line with our objectives detailed in our initial Carbon Management Plan of 2010. Procedures were put in place to collect key scope 3 emissions data.

We have included the following scope 3 emissions;

- Water and sewage
- Waste
- CHP steam import from Imperial College CHP
- Fugitive gases
- Business travel
- Staff and student commuting

The CO<sub>2</sub> emission conversion values have been obtained from Defra/DECC (2010 – 2012).

Note: Fugitive gas emissions, the only potential source for these emissions is leakage from refrigeration and air-conditioning equipment - there has been no recorded recharging of equipment within the maintenance service records. The college has an FGas register and a plan for replacement of the small amount of units still on site.

The College plan has developed the monitoring of scope 3 emissions including the assessment of staff and student commuting, international student travel and resource consumption emissions such as paper and other consumables. A baseline for staff and student travel has been added to the carbon management plan is benchmarked with current scope3 benchmark data in this 2012/13 annual report. Base line data is shown in the table below.

#### Progress with scope 3 measures

The College has implemented a number of initiatives to reduce scope 3 emissions including the following:

- Procurement of 100% green electricity.
- Construction waste – 94% of waste from refurbishment projects was recycled.
- 100% of confidential waste was recycled
- Catering waste is now composted in conjunction with Imperial College
- Project and manage the College Travel Plan to all stake holders.
- Project and manage the College Sustainable Purchasing Policy to all stake holders.
- Maintain the estates efficiently replacing and maintaining mechanical stock with energy efficient systems.
- Reduce overseas and UK travel by sending 1 to 2 members of staff to carry out auditions rather than large numbers of auditionees travelling to the College.
- Strive to recycle all possible waste and record progress. Shredded saved 61 trees in 2012 /13 compared to 41 in 2011/12
- Promote green travel such as cycling with bike loans schemes and promotion of Boris bikes available.
- Promote and participate in joint service green energy procurement with neighbouring institutions.
- A binless office system on the ground floor of the Blomfield Building was introduced with recycling stations located on the ground floor corridors and kitchen.
- A battery recycling system was introduced to College Hall.

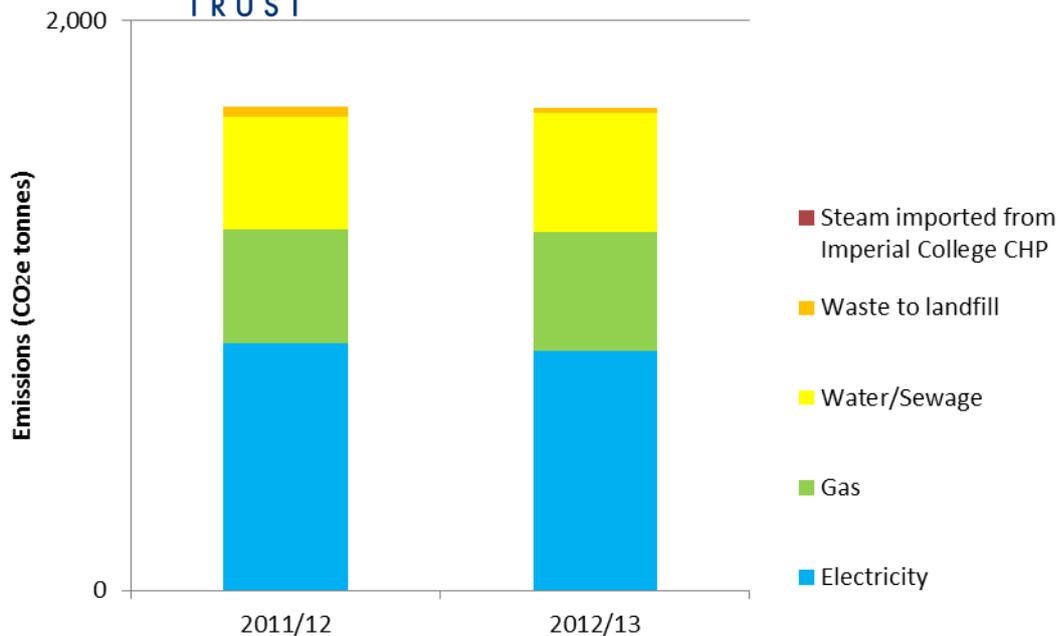
#### Baseline carbon footprint (including scope 3)

The baseline carbon footprint incorporating scope 3 emissions is 1,481.2 tCO<sub>2</sub> and was for the financial year 2010/11

The following table and chart illustrates the composition of the carbon footprint for 2011/12 and 2012/13.

Full staff / student scope three bench mark data is recorded.

Emissions source	2011/12	Percentage 2011/12	2012/13	Percentage 2012/13
Electricity	866.9	66.2%	839.3	65.4%
Gas	398.6	30.4%	419.6	32.7%
Steam imported from Imperial College CHP	0.0	0.0%	0.00	0.0%
Water/Sewage	35.4	2.6%	14.60	1.1%
Waste to landfill	11.20	0.8%	11.20	0.8%
<b>Total scope 1 including scope 3 water /sewage/waste</b>	<b>1312.10</b>		<b>1284.70</b>	
<b>Staff commuting</b>				
Business Travel	44.6	46%	60.10	54%
Car	0	0	0	
Bus	12.10	12%	12.10	11%
Underground	17.20	18%	17.10	15%
Bike	0		0	0%
<b>Student commuting</b>				
Bus	10.55	11%	10.50	9%
Underground	12.05	13%	11.95	11%
Bike	0		0	0%
<b>Total scope 3</b>	<b>96.5</b>		111.75	
<b>GRAND TOTAL</b>	<b>1408.60</b>		<b>1396.45</b>	



**Positive measured progress**

The Majority of emissions relate to scope 1 electricity and gas as the most significant source. Benchmarking against 2011/12 there has been a total 2% reduction in utilities scope 1 to 3 related emissions.

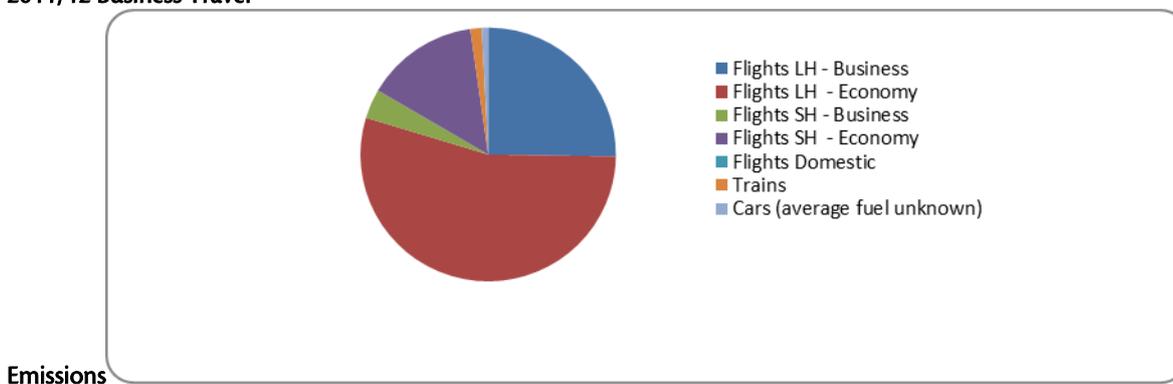
The RCM Carbon Management plan was first published in 2010, at that point Scope 1 and 2 carbon emission levels were confirmed at 1302.90 tonnes CO<sub>2</sub>, with the Plan 2005/6 base line identified at 1257.20

In 2012/13 .Scope 1 and 2 levels are confirmed at 1258.20 tonnes CO<sub>2</sub> .This shows that per hour emissions have decreased from, 0.33t CO<sub>2</sub> per hour to 0.24T CO<sub>2</sub> per hour bench marking against College extended hours.

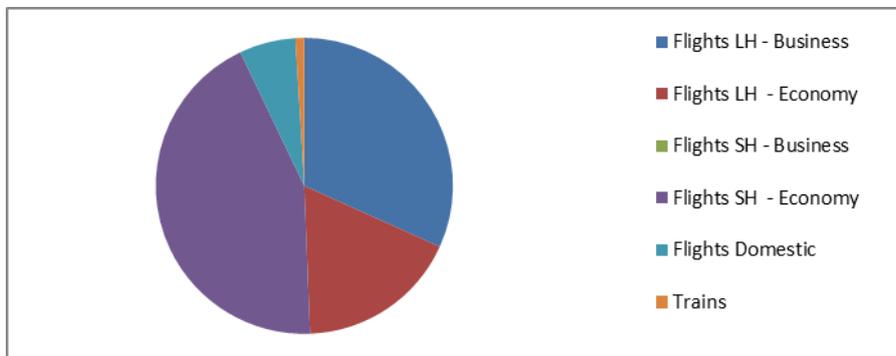
Business Travel

Business travel represents the College’s most significant scope 3 emission. It can be seen from the chart below for two years that air travel has a most significant impact. A rise in emissions in business travel has been identified.

**2011/12 Business Travel**



### 2012/13 Business Travel Emissions



### Staff and student commuting

Positively we have seen a decrease in staff and student commuting emissions; this is due to a rise in stakeholders cycling to and from work. The popularity in this mode of transport has been championed at Environmental Committee with students asking for more bike racks on campus and at halls. The college has listened to these requests and will be increasing bike racks from 30 to 150 in the new halls development. The College is also working on a bike rack sharing scheme with the Royal college of Art and promotes the use of Boris bikes in its enews letter.

### Waste and Recycling

Waste recycling has made great improvements during 2012/13; the College now recycles 85% of its waste, up 5% from 2011/12.. The Estates Team has worked hard to implement a robust recycling system since 2009. The system is now embedded into the College operation.

The College contracted water consultancy firm, Clearwater to undertake an audit of our water usage. The audit included installation of additional water meters, to monitor our water usage in comparison to our Thames Water meters; these auditing techniques were put in place to check for leaks and identify areas for improvement, to prevent water wastage. The Maintenance Team also carried out an in-house study of our water meters over a 3 month period and although water usage was high there does not appear to be any leakage.

Estates Management Statistics 2010/11 showed an increase in water usage and cost. The estates team devised an action plan to reduce water usage, cost and produce more robust monitoring systems .During 2011/12, water saving devices, for example water hippos were placed in toilet cisterns. Water readings continued as normal through the academic year but focused on closed time to monitor usage, thus confirming no leaks were present. PCMG were asked in November 2012 to look at water charging, their report found that no overcharging had occurred. EMS data 2011/12 showed that water usage actions plans realised savings in consumption of 5748m3 and a cost saving of £9,050 when benchmarked against 2010/11. In June 2013, waterless urinals were installed in the student toilets, South Building, water savings are predicted at 100,000l per unit per year. If successful the system will be planned for the Blomfield Building facilities. In 2013 water usage reduced by 100m3 or 1% at PCR.

### Stakeholder progress

The College channelled stake holder awareness of its CMP and emissions reduction through membership of groups such as the Invest to Save Group, and the enews letter, which has been well received and provides staff and students with reductions and opportunities updates in carbon reduction. In May 2013, the Royal College of Music achieved a 2:1 award in the People and Planet Green League and for the fourth year running, the UK's greenest conservatoire. The college were awarded an above average score, 5 of 7 marks for its carbon management plan. In 2014 the College decanted its halls of residence. The College continued its sustainable Low carbon stance and worked charities such as the British Heart Foundation and the Upper Room Charity, all white goods from cookers to fridges to desk lamps were donated, all curtains were donated, all bedding was donated. The halls had a nature pond of over 100 fish, the college worked with the RSPCA transport the fish to a local pond for the enjoyment of the local community. The College is now constructing new halls. Local residence has been involved in consultation and the college are promoting a building that will reach BREEM very good status.

### Future Proofing the Estate

The college has an ambitious estates development plan over the next five years. Carbon and energy management are key drivers in redevelopment planning. The Colleges new halls of residence has a BREEAM assessment of Very Good but with excellent the benchmark to achieve. The pre DEC shows an A rating. All TPO tree will be retained, the project will include rain water harvesting, solar panels and green roofs. Car parking spaces will be reduced by 17 spaces. The proposed energy strategy meets the regulatory CO2 emission limit set by Building Regulations Part L2A 2010 and the more onerous target of a 40% reduction in CO2 emissions over the Part L limit set by the London Plan 2011. The College is refurbishing its old Building stock with a 2million refurbishment of the south building part funded by The Revolving Green Fund.

### CMP Risk Register

Risks that could increase emissions were noted as;

- Water consumption data and cost.
- Higher energy prices would cause difficulties reaching value at stake targets within the CMP.
- To achieve a higher score in PPGL for the CMP would be desirable.
- Higher gas consumption
- Meeting first 25% reduction, in 2013/14

### Conclusion

From the report we can see our carbon reduction targets are producing positive results with future decreases in emissions planned for in estates projects. The real success is that from 2009 carbon management and green accountability have been embedded at all levels within the College. When first planning the carbon management agenda and implementation, embedment and was a high on the risk register for failure, embedment is now a low priority as we strive to meet our last target of 34% reduction by 2019/20.

## 4.6

### Figure 6: Carbon and Cost Figures

	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14
<b>BAU scenario total</b>	1,263,400t	1,272,244t	1,281,149t	1,290,117t	1,299,148t	1,308,242t	1,317,400t	1,326,622t	1,335,908t
<b>RES total</b>	1,263,400t	1,218,775t	1,175,726t	1,134,198t	1,094,136t	1,055,490t	1,018,209t	982,244t	947,550t
<b>Value at stake</b>	-	53,469t	105,423t	155,920t	205,012t	252,752t	299,191t	344,378t	388,358t
<b>Cumulative VAS</b>	-	53,469t	158,892t	314,812t	519,824t	772,576t	1,071,767t	1,416,145t	1,804,503t
<b>BAU scenario total</b>	£272,451	£288,899	£306,340	£324,834	£344,445	£365,239	£387,289	£410,670	£435,462
<b>RES total</b>	£272,451	£276,757	£281,132	£285,576	£290,090	£294,675	£299,333	£304,064	£308,870
<b>Value at stake</b>	£ -	£12,142	£25,208	£39,258	£54,355	£70,564	£87,956	£106,606	£126,592
<b>Cumulative VAS</b>	£ -	£12,142	£37,350	£76,608	£130,963	£201,527	£289,483	£396,089	£522,681

## 5.0 Carbon Management Projects

### 5.1 Existing projects

The College's awareness and investment in environmental and carbon reduction projects has escalated in the past three years. Environmental and low carbon procedures have reached all department operations in some way. The Estates Department and Environmental Management Group have been the driving force in this awareness in 2009/10. The Estates Department will be able to assess predicted savings made, although it is already apparent that the 2008 installation of the plate heat exchanger has made savings.

Existing projects are:

- Installation of a plate heat exchanger for hot water services.
- Production of Display Energy Certificates.
- Establishment of recycling programme.
- Green construction waste removal supplier used.
- In 2009 new condensing boilers were installed being 98% efficient.
- Lighting replacement audits, motion detection lighting installed in corridors and toilets. Compulsory energy efficient lamp replacement policy.
- Use of CHP plant providing hot water to the College.
- Environmental Audit Review carried out by Imperial College Environmental Studies students.
- Reports from the Carbon Trust.
- Improved shower facilities for staff/students running or cycling to work
- 25 new bike racks have been installed.
- Refurbishment of the South Building
- Construction of a new halls of residence to BREEAM standards
- Accredited To ISO 14001

### 5.2 Future projects and savings

To meet identified reduction targets, the Carbon Trust have carried out an energy condition and efficiency audit of the College's building stock. The report highlighted projects that would realise the carbon and financial saving needed to be met. Stakeholder participation to identify and recommend opportunities took place within the College. Staff split into groups to discuss ideas and those ideas were then rated for the effectiveness and priority. The College Estates and Maintenance Department have an environmental, low carbon Planned Preventative Maintenance Programme and are making on-going improvements and savings on a monthly basis.

**Figure 7: Planned / Funded Projects**

A progress column has been included in this table for 2012

Ref	Project	Lead	Cost			Annual Saving		Pay back	% of Target	Year	2011/12
			Cap'l	Rev'	Res'ce	Fin	tCO <sub>2</sub>				progress
1	BMS PCR site	MN/PR	£33,781			£6,221	33.9	5.43	9%	2010/11	complete
2	Lighting t5 and upgrades	MN/PR	£38,490			£6,427	45.2	5.99	12%	2010/11	complete
3	Heating TRVS and replacement upgrades	MN/PR	£6,004			£1,700	7.2	3.53	1.91%	2010/11	complete
4	Loft insulation to PCR site	MN/PR	£5,600			£1,150	4.8	4.86	1.27%	2010/11	complete
5	Draught proofing	MN/PR	£4,300			£1,508	6.4	2.85	1.70%	2010/11	on-going

6	CO <sub>2</sub> control in Concert Hall	MN/PR	£6,000			£2,216	15.6	2.71	4.14%	2010/11	complete
7	Total	MN/PR	£85,394			£19,222	113.1	4.44	30%	2010/11	TBC

**Figure 8: Near term and future projects**

A progress column has been included in this table for 2012

Ref	Project	Lead	Cost Cap	Rev	Res'c	Annual Saving Fin	Annual Saving carbon	Pay back	% of target	Year	2012 Update
1	Insulate pipe work	MN/PR		£5,600		£4,347	18.5	1.29	4.92%	2011/12	On-going
2	Lighting upgrades phase 2 Concert Hall	MN/PR		£5,000		£1,100	19.0	4.54	5%	2012/13	On-going
3	Lighting upgrades phase 3	MN/PR		£2,500		£1,013	18.2	2.46	4.84%	2012/13	On-going
4	Staff energy awareness	MN/PR		£5,000		£6,684	40.7	0.75	10.82%	2011/12	On-going
5	Sub metering project	MN/PR			£20,000	£11,141	67.8	1.80	18%	2012/13	On-going
6	AHU Air Filters	MN/PR		£2,144		£4,158	17.7	0.5	4.70%	2011/12	complete
7	Secondary glazing additions	MN	£20,000			£4,524	19.2	4.4	5.10%	2012/13	complete
	Total	MN	£20,000	£20,244	£20,000	£32,967	201.10	2	53%		TBC

The College's planned and near term projects data shown in the charts above identifies a reduction in CO<sub>2</sub> emissions of 314.20t, 81% of the VAS 388t. This equates to 94% of the 25% 2013/14 target to be reached by 2013.

Future projects stated below also highlight further possible reductions that will enable us to reach the target of 34% by 2020.

- Replacement of AHU systems to efficient substitute (to be investigated).
- Involvement from the Carbon Trust in a consultant capacity on low carbon buildings, regarding any new build or total refurbishment of buildings as stated in the Estates Strategy.
- Possible installation of power converter to PCR site.
- Partnerships with local institutions with regard to installation of ground source heat pumps projects.
- ICT energy saving projects.
- Additions to BMS such as floor and room zone control.
- Cavity wall insulation where possible.
- Renovation and refurbishment of the 1965 building which is inefficient.

In addition to these projects, continued stakeholder awareness regimes of turning off lights and computers, reporting through committees and the Environmental Management Group, as well the environmental e-newsletter will keep the target figures realistic and on track. Monitoring systems will be audited such as waste data and energy and reported on.

## 6.0 Implementation Plan: Finance

The budget figure for implementing the carbon reduction planned/approved projects is £85,394, with savings of £19,222 per annum representing a 7.2% reduction of cost and giving a payback of 4.4 years.

### 6.1 Assumptions Used

The assumptions used and calculated upon are sourced from utilities and EMS data from 2005/6 to 2008/9. The Baseline has been calculated using data from the 2005/6 academic year including emissions sources from gas, electricity, and steam utilities. Whilst retrieving the data, it was found that the EMS 2005/6 electricity data was incomplete and incorrect, therefore an average figure was calculated from 2005/6 - 2008/9 data to gain the 2005/6 electricity consumption figures. In-house revenue opportunities and savings have been calculated from the information provided by the Imperial College Environmental Review and from the maintenance PPM. All costs are quoted at 2009 prices and subject to inflation. The annual savings are summarised below.

**Figure 9: Benefits / savings – quantified**

	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14
Annual CO2 saving	155T	205,T	252,T	299,T	344,T	388,T
Annual cost saving	£39,258	£54,355	£70,564	£87,956	£106,606	£126,592
% of target achieved	49%	65%	80%	95%	109%	123%

Our target of 25% of our Baseline (314.30t) could be achieved by 2012/13.

- Un-quantified benefits will include:
- Improved utilities consumption data shown in HEFCE Estates Management Statistics.
- Improved standings in benchmarking exercises such as in People & Planet Green League and Universities That Count Environment Index.
- Improved potential success for application in Capital Investment Framework.
- Improved comfort and environmental conditions.
- Reduction in maintenance
- Extended plant and equipment life.

### 6.2 Funding Sources

The College has been successful in applying for Salix funding, but on this occasion chose to use other sources as the preferred option. However, the College would consider this route if required in the future. The College has chosen to carry out planned project works within its Estate’s capital and revenue budgets to reach the required target of 25% emissions reduction by 2013/4. The CMP and Environmental Policy identify with the 2009-2017 Estates Strategy and the condition survey. Future projects will be planned within their academic year capital or revenue bid.

After the identified 4.4 year payback period from planned projects for 2010/11, the College would intend to use these savings for future environmental projects leading to the 2020 emissions reduction target of 34%.

**Figure 10: Financial costs and sources of funding**

	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14
Total annual capital cost	£20,000 Plate Heat exchanger	£135,000 Boiler Project	£85,394		£20,000 £20,000 Resourced	£0
Total annual revenue cost		£10,000	0	£12,744	£7,500 tbc	£2,500 tbc
Total costs	£20,000	£145,000	£85,394	£12,744	£47,500	£2,500

## 7.0 Actions to Embed Carbon Management

The following systems are already in place within the College as part of it’s commitment to embedding a low carbon culture.

### Boiler Replacement

Over the summer 2009, the existing College boilers were replaced. The new boilers are rated condensing boilers which are 98% efficient. These boilers should increase efficiency by at least 15% when compared to the old boiler plant which should result in considerable environmental, financial, and carbon emissions savings. The new boilers will be the back bone of any new heating system improvements that the College plans for the future.

### Measurable Energy Usages

As part of the Estates Department Planned Preventative Maintenance Programme, monthly meter readings are now being recorded for gas, electricity and water services used. This will allow the College to accurately monitor usages and plan where reductions can be made in the short and long term. The College’s hot water supply is produced by an offsite combined heat and power plant at Imperial College. The College is investigating a joint CHP and sub metering projects with neighbouring institutions, including the Royal Albert Hall and the Royal College of Art, as part of the Invest to Save Group.

### **IPR Lighting Installed**

Motion detection lighting devices have been installed in toilet facilities within the Britten Theatre. This will allow energy savings as the lights will now turn off automatically after a set period of time from the last motion detection caused by a user. Installation is currently ongoing throughout corridors in the building. The Inner and

Outer Hall now has energy saving lighting, this initiative will also be rolled out in practice and teaching rooms over the next few months.

### **Turn Off Lights Stickers**

Notices have been added to most light switches as a reminder to users of the building to turn off lights when they are leaving a room or area. This initiative will help to reduce carbon emissions and to also encourage staff and students to adopt this practice in environments outside the College. The College Facilities Officers patrol the College during building close-down and at that point ensure that all room lights are switched off.

### **Travel Plan including Carbon Footprint Travel Measurement and Offsetting**

As part of the College's commitment to raising environmental issues with employees and students, a Green Travel Plan has been issued. This sets out the College's initiatives and plans to help cut carbon emissions through the use of sustainable transport such as walking, cycling and public transport.

Schemes such as staff measuring their carbon footprint at work and at home are planned, as well as suggestions for staff and students when considering international travel. The available resources for staff and students to reduce air travel will be investigated and offsetting carbon emissions is a possible short term method that the College will assess for viability.

Student and staff surveys will be undertaken on a regular basis to identify what modes of transport are used to travel to the College's various locations in order to assess what initiatives can be introduced to cut carbon emissions created by such travel. This information will be added to the CMP for scope three information in 2011/12.

### **New Printer Strategy**

The ICT Department has commissioned several external audits of the current printer and photocopier provisions throughout the College. Following recommendations from these audits, the department plans to introduce new multi-functional printer/photocopier/scanner devices that eliminate the need for individual function machines, therefore saving space and energy requirements. These new devices will also make double sided printing a default setting, reducing energy and paper usage. The increased provisions for scanning throughout the building are also hoped to moderate the paper usage.

In 2010, the College is re-tendering its printing contracts and environmental criteria will be included in the tender. This will include: carbon footprint, ink usage, recyclable materials and disposal of existing and new print stock. The College embeds projecting these and other carbon reduction achievements to the wider stakeholder and public audience. Through policies on the College web site and updates available to staff, students and the public in the form of the E-news.

Most importantly carbon and environmental strategy have been recognised and included with the newly published Estates Strategy 2009-2017. This demonstrates the commitment from management to embed a carbon reduction culture and achieve targets set.

## 7.1 Carbon vision, policy and strategy

The Royal College of Music recognises that its activities have an impact upon the environment at local, national and global levels and acknowledges its responsibility to carbon reduction and environmental protection. The College aims, wherever possible to implement effective energy management and operate a purchasing policy that works towards sustainability, energy efficiency and recycling through a whole life costing approach. As part of its Environmental and Strategic policies, the College is committed to act in a responsible manner in relation to carbon emissions and will continuously review and seek to reduce its carbon footprint across all of its operations to meet challenging national targets.

The Royal College of Music will reduce its carbon footprint identified in the scope of the Carbon Management Plan by 34% by the end of the academic 2019/20 academic year, compared with its baseline year of 2005/6 .

It should be noted that this plan is a working document. The plan has concentrated on the first nine year period from the base line year 2005/6 to the end of the 2013/14 academic year, working towards an identified 25% carbon reduction target. After close monitoring throughout this period the plan will then be reproduced to meet the 34% required for 2020.

The baseline data has been sourced using scope one and two emissions, although some scope three data on waste and water is available to be viewed and reduction planned. Others such as travel were minimal. The Project Team have agreed that scope three shall be included in the plan from 2011/12 ,a full year's correct data can now be used.

The College CO<sub>2</sub> emissions baseline for 2005/6 total using scope one and two is 1257.2 tonnes CO<sub>2</sub>. The Baseline has been calculated using data from 2005/6 academic year including emissions sources from gas, electricity and steam utilities. The College Environmental Policy states "The College recognises its responsibility to minimise the environmental impact of its operations where possible and seek to improve its performance through implementation of its policy".

The Chair of the Environmental Management Group shall be responsible for ensuring compliance with all environmental legislative requirements. All staff and students will be encouraged to the implementation of this policy. The Carbon Reduction Plan is a significant force in realising aims within the environmental strategy. The policy guide states the College aims to:

- implement effective energy management;
- operate a purchasing policy that works towards sustainability, energy efficiency and recycling through a whole life costing approach;
- engage with the higher education sector and local community to promote environmental best practice;
- review the policy regularly to ensure compliance with environmental legislation and to set future objectives and targets;
- to monitor the implementation of this policy and report annually to the Council members.

## 7.2 Five Year Implementation Plan

By 2014, the College will:

- Include environmental targets within all estates projects.
- Introduce a Building Management System in key areas of Prince Consort Road campus.
- Insulate all accessible heating
- Install a new efficient boiler system at the Prince Consort Road campus.

- Increase recycling rates by 20% compared to 2009 levels

### 7.3 Works Programme

The Project Team will meet key times during the programme to assess progress and focus on achieving milestones and deliverables.

**Figure 11: List of milestones, events, deliverables and individuals responsible**

Milestone /event /deliverable	Individual responsible for delivery	Date/time scale
Mobilisation meeting	PS/PL, Briar Associates Environmental Working Group	11 February 2010
Project Plan completed agreed by Project Sponsor	PL PS	25 February 2010
Project Plan submitted to Briar Associates and the Carbon Trust	PL S.H.E Manager	26 February 2010
Baseline targets and value at stake analysis	PL S.H.E Manager	12 March 2010
Project Team meeting	PL Project Team	15 March 2010
Opportunities workshop	PL Project Team	23 March 2010
Identification and quantification of opportunities	PL /PS	6 April 2010
Draft CMP to Project Team (to include implementation plan, possible financing, actions to imbed carbon management, governance)	PL Project Team	23 April 2010
PS to present Council with CMP	PS	30 April 2010
Project Team meeting	PL Project Team	5 May 2010
Carbon Trust Higher Education Carbon Management Conference	PL SHE Manager	20 May 2010
CMP progress reports to Project Team through the Environmental Management Group	PL	
Term reports on CMP covered in E-newsletter, CMP included in annual environmental report on web	PL Assistant to DF&E	Termly, annually

### 7.4 Responsibility

The College Carbon Management Plan Project Group will be responsible for the successful implication of the plan. Within the group the Project Leader will advise the group and Project Sponsor of the operational progress of the plan. From step five onwards, the Project Sponsor will guide individual and group decisions on identified opportunities to realise targets. Planned project works will be set within the Estates Department where possible and carried out in-house.

The College Estates Team has an embedded low carbon energy saving structure in place, but are motivated to improve on this annually.

Monitoring, recording and efficiencies are cultures present in the Maintenance and Facilities Departments. The H.S.E Manager will be including an environmental awareness induction within the health and safety section of inductions for new staff.

The Project Leader will oversee all operations; it will be the Project Leader's responsibility to update the CMP as needed. ICT have a member within the Project Team they will relay relevant projects taking place to the project team. The Project Sponsor will report to Directorate termly and to Council quarterly on progress.

The CMP and Environmental Policies will embed an awareness and personal responsibility to all users of the College but will focus on core stakeholders such as staff and students. Further Project Team management information is detailed in Section 8.3.

## 7.5 Communication and Training

Communication of the CMP and the College Environmental Policies will be publicised through the environmental e-newsletter, College website, opportunities workshops, committees, working groups, networking with neighbouring institutions and sector league tables such as the People & Planet's Green League.

In the past the College channelled stake holder awareness of its CMP and emissions reduction through membership of groups such as the Invest to Save Group, and the enews letter, which has been well received and provides staff and students with reductions and opportunities updates in carbon reduction.

2011/12 has been our most successful yet in communicating our cause to the wider audience, thanks to in-house maintenance projects and working in partnership with suppliers such as Toshiba. Publications such as FM World, Lux magazine and Edie net have featured articles on the Colleges emission reduction work, reaching over 100,000 external stakeholders. The college has successfully be accredited with ISO 14001 Certification

## 7.6 Finance, Investment and Procurement

### Procurement Targets

The Royal College of Music has long been a member of London Universities Purchasing Consortium (LUPC). Since August 2009 the RCM has improved procurement arrangements and in 2011/12, 20% of non-pay spend was through collaborative arrangements (2% in 2009). The College aims to improve its scope 3 procurement emissions by 10% in the next 5 years. In 2013/14. The college was successful in the Government Revolving Green Fund application. The funding of £350,000 is being used on the refurbishment of the South Building, an inefficient 1960's building. Water saving devices, such a sensor taps, flush and waterless urinals has been installed. New double glazing to the facade has improved heat loss and energy bills, efficient AHU systems have been installed. Electrically PIR control and LED lighting throughout are planned. The College LUPC frame work contractor is proceeding with the works which will push the college past the 20% collaborative spend.

The College has taken the option to carry out planned project works within its Estate's capital and revenue budgets to assist in reaching the total mid term required target of 25% emissions reduction by 2013/4. The CMP and Environmental Policy identifies with the 2009-2017 Estates Strategy and condition survey. Future projects will be planned within their academic year capital or revenue bid. After the identified 4.4 year payback period from planned projects for 2010/11, the College would intend to use these savings for future environmental projects leading to the 2020 emissions reduction target of 34%.

The College operates a purchasing policy that works towards sustainability, energy efficiency and recycling through a whole life costing approach. Detailed financial planning and data can be found in section five.

The College seeks to procure suppliers services and goods from regional sources only. When procuring suppliers transportation methods and supply chain links are instrumental in determining supplier partners. With priority given where possible to locally based suppliers. The College strives to use and source 100% recycled/sustainable products where possible. All RCM suppliers are expected to use this methodology.

Some examples of the College's requirements for its suppliers are:

- Cleaning
- Use only environmental friendly branded cleaning products.
- Supply only recycled toilet tissue.
- Confirm supplier of staff uniforms and consider using fair trade suppliers.
  
- Catering
- Procure from local wholesalers where possible.
- Supply and be fair trade accredited
- Confirm supplier of staff uniforms and consider using fair trade suppliers.
- 
  
- Building Contractors
- Use only environmental friendly and fully recyclable products.
- Desirable and to hold ISO 14001
- All product data should be provided with environmental performance
- Provide waste management and recycling plan with data showing amount recycled and carbon savings
- Highlight and source opportunities within project work for enhanced carbon reduction
  
- **Business travel**
- Business travel is our most significant scope 3 emission and a reduction in carbon emissions on long haul business travel was achieved in 2011/12. The Royal College of Music appointed Ian Allan Travel Company in 2011, through a tender process using an LUPC framework. Staff members travel in accordance with the College's Travel and Expenses Policy, which outlines guidelines based on environmental awareness and cost-efficiency. Wherever possible, meetings are conducted via video-conferencing, to minimise air travel. The College monitors business travel to ensure it adheres to the College's publically available Transport policy ([here](#)).

The College Sustainable Purchasing Policy 2009 provides guidance for all stakeholders in the reduction of scope 1, 2 and 3 emissions and correct procedure when purchasing with suppliers.

## Sustainable Purchasing Policy

### Introduction

The Royal College of Music recognises and is committed to carrying out its procurement function incorporating the principles of sustainable purchasing.

Purchasing decisions have a major socio-economic and environmental implication both locally and globally, now and for generations to come. The College aims to ensure that its activities meet the diverse needs of staff, students, the economy and society both now and in the future.

**It will achieve this through:-**

1. The assessment of environmental and corporate risks to the organisation with a commitment to continually improve sustainable performance related to the supply chain
2. Complying with all relevant environmental legislation
3. Educating suppliers concerning the College sustainable objectives, which include preventing pollution, minimising waste, preserving natural resources and promoting resource efficiency by eliminating, reducing, reusing and recycling
4. Working with key suppliers to bring about changes and thereby spread sustainability improvements through the supply chain

**This will include:-**

1. Setting targets for the reduction of products containing hazardous substances
2. Favouring products with recycled content or that are biodegradable
3. Reducing CO<sub>2</sub> emissions arising from the transport of materials
4. Buying products using recognised labelling schemes such as FSC or EU Eco Label
5. Encourage suppliers to achieve environmental credentials such as environmental management systems for ISO14001 or EMAS
6. Training and awareness of staff of the College policy and promoting best practice for sustainable purchasing

The College Policy will include the whole life costs of any goods and services to be purchased

**This will include as a minimum:-**

1. Manufacture, delivery, installation, operating costs including energy, water usage and maintenance

End of life costs including decommissioning and disposal

2. Addressing barriers to entry so that local suppliers are encouraged to bid for appropriate work
3. Consideration of other corporate social responsibility issues such as race relations, disability, sex and religion
4. Ensuring that suppliers' environmental credentials are, as far as legally practicable, considered in the supplier's appraisal process

The College will ensure that where appropriate, environmental criteria are used in the award of contracts. We will work in partnership with other Colleges and Universities, The Purchasing Consortium and Environment Groups to improve sustainable purchasing exploring opportunities for reuse and recycling of materials as appropriate. The College will also ensure that appropriate consideration is given to the costs and benefits of environmentally preferable products and services alternatives.

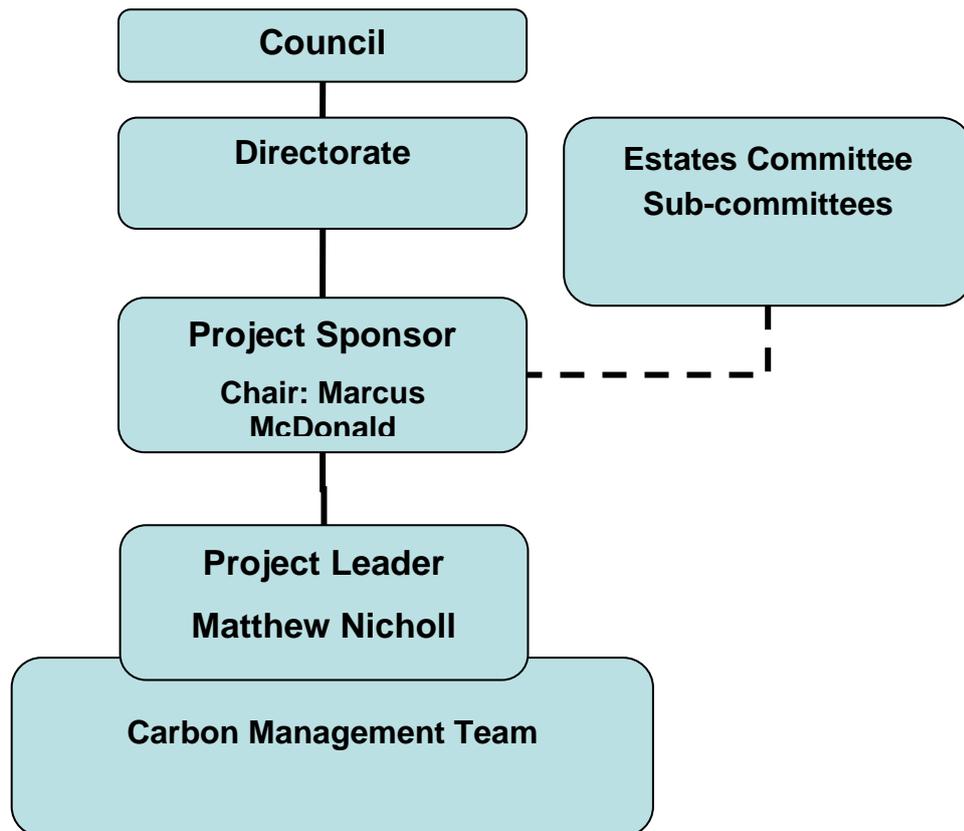
**College Policy covers sustainability issues as part of its purchasing procedures which will apply in the following areas:-**

1. Procurement of goods and services
2. Contractors working on RCM sites
3. Design of new buildings and renovation works
4. Maintenance of buildings and estates
5. Landscape management and cleaning

## **8.0 Programme Management of the CM Programme**

### **8.1 The Programme Board: Strategic ownership and oversight**

The Royal College of Music recognises the need for strategic governance of this project. The CMP is included within the Estates Strategy and will be monitored and reported on at board level by the Project Sponsor.



## 8.2 The Carbon Management Project Team

The HECMP is a College wide project and requires wide ranging involvement of academic staff, support staff and student representatives. The College Environmental Management Group fulfils this requirement and will form the team with identified stakeholders, for example, Council members, student reps and friends to the College. The College intends to open this group to other intuitions such as the Royal College of Art representatives. The team will monitor the Estates Department and College progress in the carbon reduction programme.

### 8.3 The Project Team

Role	Name and position in HEI	Contact details
Project Sponsor	Marcus McDonald Director of Finance and Estates	020 7591 4317 mmcdonald@rcm.ac.uk
Project Leader	Matthew Nicholl Head of Estates Manager	020 7591 4763 mnicholl@rcm.ac.uk
Team Members	Andrew McCarley Safety, Health and Environmental Manager	020 7491 4754 amccarley@rcm.ac.uk
	Sarah Hanratty Assistant to Director of Finance and Estates	020 7591 4317 shanratty@rcm.ac.uk
	Ingrid Pearson Deputy Head of Graduate School	020 7591 4364 ipearson@rcm.ac.uk
	Mark Soole Head of ICT	020 7591 4792 nwatkins@rcm.ac.uk
	Jemma Morris Head OF Catering Operations, ICC	
	SA Environmental officer TBC	tbarton@rcm.ac.uk
	SA Entertainment Officer TBC	eburgess@rcm.ac.uk
	Sir Anthony Clever =external member	
	Sean Gibson Briar Associates	01384 397788 seang@briarassociates.co.uk
	Phillip Smith Carbon Trust	
	Eugene SA president	sapresedent@rcm.ac.uk
	Paul Russell Maintenance Engineer	020 7591 4850 prussell@rcm.ac.uk
	Fiona Bell Press and Marketing Manager	jfosbrook@rcm.ac.uk
	Tania Mooring Registry Administrator	tmooring@rcm.ac.uk
	Mike Alexander Environmental and Safety Manager R.C.A.	TBC
	Gary Purkiss Strategic Accountant	gpurkess@rcm.ac.uk

### 8.4 Succession planning for keys roles

The Project Leader will be covered by the Safety, Health & Environmental Manager and the Maintenance Engineer if he is unable to undertake this role at any time. The Project Leader will cover the Project Sponsor if a member of Directorate cannot.

## 8.5 On-going Stakeholder Management

The term stakeholder is used for parties either internal or external to the College who will work on, be affected or influence the plan's success. The key below identifies key stakeholders, their influence, responsibility and means of communication

Stakeholder	Influence	Their interest	Means of communication	Responsibility
College Council	High	Strategic support.	Committees report	Project Sponsor, Project Team
Finance and General Purposes Committee	High	Budgets and funding. Strategic plan and goals.	Committee report	Project Sponsor
Estates Committee	High	Future capital related works and funding. The Estates Strategic Plan. Facilities procurement.	Termly report	Project Leader
Admin Managers, Value for Money, Learning Resources Committee	High	Some on the Project Team. Relay relevant info to dept. Proactive involvement in plan, carbon reduction may allow money saved being channelled to departments.	Relevant committee report	Project Leader
Estates/Facilities Departments	High	Estates Strategy. Running costs and maintenance energy management capital projects. New builds and refurb. Recycling procedures.	Departmental communications	Project Leader and S.H.E Manager through regular dept meetings. Project Leader to relay, weekly, progress to Project Sponsor
CMP Project Team	High	Key team responsible for the implementation and successes of the Plan.	Team communication and agreement on the Plan. Implementation projected through team members to stakeholders	Project Sponsor Project Leader CMP Project Team.
Students	High	Environmental awareness. College expectations of students. Impression of College commitment to carbon reduction and green issues to present and future students.	Student Association representative on project team. News letter updates Student bar and notice boards	Project Team with the SA Rep relaying news and feedback to and from student body.
Funding Bodies	High	HEFCE and Government targets on Carbon reduction. Capital funding provision to be assessed on the College performance in this area.	HEFCE and Govt organisations. Project Sponsor DF&E	College Council F&GPC Project Sponsor.
Staff	High	Efficient, comfortable, working environment. Money saved on energy and carbon may be channelled back into depts and capital funding. Travel.	Department Managers within the Project Team. E news Environmental web page	CMP Project Team.
Community, friends and public	High	Public perception of the College and College image. Travel. Media and press perception.	Environmental Policy on College website. Regular updates and environmental auditing reports Green League and other relevant league tables	The CMP Project Team through the communications and marketing departments
Suppliers and contractors	High	Suppliers' contractors should be committed to the College CMP. Suppliers should have environmental and carbon plans for College viewing. Suppliers vetted as may be damaging if College uses suppliers criticised for a poor environ/carbon track record.	College Finance and Estates Departments.  Supplier contractor/rep	Relevant College Department

## 8.6 Annual Progress Review

The Carbon Management Plan will be reviewed monthly on an operational basis within the Estates Department, termly at Estates Committees and the Environmental Management Group and during six monthly Project Team meetings. The Working Group and Project Team will monitor progress against the implementation of the plan and identify cost and target results. Reviews and progress reports will be an important tool in communicating and embedding capital and revenue projects and their success. It is expected that new opportunities will arise from project and review meetings.

Reporting to senior management will be undertaken termly in the Estates Committee; the Project Sponsor and Leader will report to the committee. The Chair of the Estates Committee is a College Council member and CMP Project Team member. He or the Project Sponsor will report on the CMP, cost savings, HECFE and internal targets to College Council at each quarterly meeting. All CMP reports will be available or stakeholder information on the environmental page of the College web site and this will be updated quarterly. A brief update progress report will be sent out termly by the College E-news.

The Royal College of Music working with the Carbon Trust will implement its Carbon Management Plan continues meet its target of 34 % emissions reduction by 2019/20. The Carbon Trust will be included in circulation of the CMP Annual reports.

## 8.7 Definition of Projects

<b>Project Ref</b>	Building Management system Lighting upgrades Heating TRVS Loft insulation Draught proofing CO2 control in Concert Hall
<b>Owner</b>	Matthew Nicholl, Building Manager - Capital projects Paul Russell, Maintenance Engineer - Revenue projects
<b>Department</b>	Estates
<b>Description</b>	Install BMS to PCR site to link all stand alone systems and provide head end Lighting upgrades to all building at PCR Site to be rolled out in three stages Install trvs to radiators at PCR Site Draught proofing to PCR site and College Hall concentrating on casement windows and secondary glazing CO2 control Concert Hall (AHU Filters) Loft insulation to the Parry and the tower rooms at PCR
<b>Benefits</b>	See planned and funded project chart for CO2, cost savings and payback
<b>Funding</b>	See planned and funded chart for project costs and funding resource
<b>Resource</b>	Projects will include a number of people from in house estates staff to consultants and contractors
<b>Ensuring success</b>	Project management control planning, College Council and Directorate approval
<b>Measuring success</b>	Performance will be measured by data from the new BMS and the energy measuring system in place at the College, estates management statistics will also be monitored.
<b>Timing</b>	Projects stated are waiting approval to start summer 2010 in a staged process through to summer 2011/complete

## 9.0 Carbon Management Matrix: Embedding

Score

Carbon Policy, vision and strategy	1	2	3	4	5	6	7	8	9	1
Case for benefits and action	1	2	3	4	5	6	7	8	9	2
Stakeholder management communications	1	2	3	4	5	6	7	8	9	1
Carbon footprint monitoring and reporting	1	2	3	4	5	6	7	8	9	4
Roles and responsibility	1	2	3	4	5	6	7	8	9	3
Student engagement	1	2	3	4	5	6	7	8	9	5
Curriculum Development- climate change	1	2	3	4	5	6	7	8	9	4
Carbon reduction measures	1	2	3	4	5	6	7	8	9	2
Measure your success	1	2	3	4	5	6	7	8	9	3
Risk and issue	1	2	3	4	5	6	7	8	9	3

**Total : 30**

Summary of Scores

10-30	Carbon management is embedded to a high degree
31-60	Carbon management Embedded to a good level but more could be done.
61-90	Urgent action needed to embedded carbon management

*The embedding total reduced from 38 in 2010/11 to 29 in 2012/13 this shows over all carbon management has continued to improve. In 2013/14 the CMP matrix has improved to 28 with 1S014001 embedded into policy, vision and strategy with Curriculum development in need for improvement. Carbon reduction measures have reduced due to the investment of the Revolving Green Fund.*