## Green Gown Awards 2012

Stage 2 application form

Please read the guidance notes for Stage 2 applicants on the Green Gown Awards website [www.greengownawards.org.uk](http://www.greengownawards.org.uk) before completing. The length for the application is 4-6 pages (maximum), plus this cover page. Any applications submitted exceeding the limit will not be considered. All applications must be submitted in Word format – PDFs will not be accepted.

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| Internal reference number  |  |

**GENERAL INFORMATION**

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| **Organisation** (name written exactly as it should appear in communications) | Edinburgh Napier University |
| **Category being entered** | Carbon Reduction |
| **Contact name** | Jamie Pearson |
| **Position** | Sustainability / Environmental Advisor |
| **Phone No. (desk and mobile)**The judging day is Tuesday 2 October. Please ensure that the number provided is accessible to the judges for any queries on this day. | 0131 455 3747. 07780700525. |
| **Email** | j.pearson@napier.ac.uk |
| **Alternative contact and position** | Grant Ferguson |
| **Alternative Email/****Phone No. (desk and mobile)** | g.ferguson@napier.ac.uk , 0131 455 3742 , 07867 550484 |
| **Institution address** | Room 6.B.29Sighthill CampusSighthill CourtEdinburghEH11 4BN |
| **Only applicable to Colleges and Smaller Institutions category –** please confirm the number of full time equivalent (FTE) students at your institution | N/A |

By filling in this form, I confirm that I have read and understand the ‘Stage 2 Guidance Notes for Participants‘ and understand that submitting this application indicates that I accept the rules of the awards and the Conditions of Entry.

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**PROJECT TITLE**

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| *Edinburgh Napier: Sustained Carbon Reduction* |

**SUMMARY**

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| The Edinburgh Napier Carbon Management Plan was launched in 2009 forming the first carbon and environmental impact strategy at the University. Using a baseline academic financial year of 2006/07 the University set a target of reducing carbon emissions by 25% by the end of 2012/13. Results for the end of the 2011/12 academic financial year show a reduction of 36.6% in carbon emissions associated with gas and 16.2% with electricity. An overall carbon reduction of 24.4% including fuel consumed in owned and leased vehicles, waste and water. The carbon reductions reported are considerable given increasing student numbers and a time when floor-space is 22% higher as the £110m University estates strategy, dedicated to improving the quality of the built and teaching environment, develops and campus rationalisation continues to completion at the end of the 2012/13 academic year.With projections indicating that the 25% target will be reached one year early the revised University Carbon Management Plan will be launched in October 2012 following a robust assessment and review of all project development in partnership with the Carbon Trust. This process has also encapsulated the publication of a Carbon Management Awareness Campaign Plan to tie together structural and behaviour change.  |

**THE INITIATIVE**

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| Carbon reductions at Edinburgh Napier are primarily attributed to a robust investment framework and a comprehensive programme of heating, electricity and structural initiatives developed within the building and services infrastructure of the University.Work to date includes control of electricity and gas consumption using an expanding building management system, installation of combined heat and power facilities on campuses and accommodation sites, installation of voltage optimisation technology, rationalisation of IT cooling and projects noticeable to staff and students such as LED lighting, replacement of hand dryers and control of energy used in vending machines. All work carried out is planned yet intuitive, ensuring that the University contributes to Government carbon reduction targets while meeting the voluntary Universities and Colleges Climate Commitment for Scotland signed by the Principal. Cumulative carbon reduction of 7,402 tonnes CO2e and savings of £1.2m in energy costs have been achieved between 2006/07 and 2011/12.Communication and events for staff, students and visitors with the support of external agencies has helped to increase awareness of individual responsibility surrounding resource efficiency at the University and at home. The Carbon Management Awareness Campaign Plan, assessed the effectiveness of 25 communication modes at the University and 10 key meeting networks such as the Senior Staff Forum and Campus Users Groups available for the efficient and practical dissemination and return of good practice information to encourage all members of all Schools and Departments to play their part.The approach taken has been extremely significant as there has been no quick fix, no one off project but instead demonstrates a logical and staged strategy to using less through improved resource efficiency. To ensure openness and external verification of carbon reduction the University gained the Carbon Trust Standard in 2010 and Carbon Masters Standard in 2012.  |

**THE BENEFITS**

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| * Reduction of 36.6% in carbon emissions associated with gas and 16.2% with electricity between 2006/07 and 2011/12. Decrease of 9.62% of fuel used in owned and leased vehicles during the same period. Current recycling rate of around 55%.
* Overall carbon reduction of 24.4% covering energy and gas consumption, fuel consumed in owned and leased vehicles, waste and water. Positive reductions measured in the midst of increasing student numbers and a temporary increase in floor-space by 22% as a consequence of the ongoing £110 University estates strategy. Currently 87,000m2 of floor-space, reducing to 67,000m2 with the closure of our Craighouse campus in 2013. Changes will lead to greater efficiency in space used while positively influencing the student experience by creating purpose built facilities and spaces.
* Being a split campus there will always be intercampus travel but the rationalisation of the University estate leading to one faculty per campus will cut intercampus travel, reducing the 112,000Km of grey fleet claims annually applied for by staff, emitting 22 tonnes CO2e.
* Overall reduction is a benefit to the Government carbon reduction targets and the voluntary commitment made by Edinburgh Napier to the Universities and Colleges Climate Commitment for Scotland .
* Cumulative carbon reduction of 7,402 tonnes CO2e and savings of £1.2m in energy costs between 2006/07 and 2011/12. Examples of projects carried out listed within the ‘Supporting Documentation’ section.
* The University is a member of the CRC Energy Efficiency Scheme. Financial savings made, especially in terms of energy, helps to offset the £75,000 surrendered each year by the University associated with the new CRC Tax.
* Optima monitoring and targeting software is used to manage all energy and utility data allowing for robust and continual assessment. Half hourly meters feed directly into Optima as part of the established Data Management Standard Operating Procedure.
* The University gained the Carbon Trust Standard in 2010. A 19% absolute reduction in emissions were measured relating to electricity and gas consumed and fuel used in the University fleet. Measurement period: 01/08/06 to 31/07/09. 65% qualitative score.
* The University gained the Carbon Masters Standard in March 2012. A 2.9% reduction in emissions (linked to increase in student numbers) was measured relating to electricity and gas consumed and fuel used in the University fleet. Measurement period: 01/08/08 to 31/07/11. 75% qualitative score.
* Gaining both Standards has aided the University in terms of the CRC Energy efficiency scheme early action metric. Both Standards demonstrate external verification and assessment of all qualitative and quantitative aspects of carbon reduction at the University. A 75% qualitative score through the Carbon Masters Scheme proves that significant and rigid governance, management and communication procedures are in place at Edinburgh Napier to reduce the University’s environmental footprint. External verification has increased the significance of achievement as the University can actively promote that all reductions are real, managed, measured and planned.
* The first Edinburgh Napier Carbon Management Plan was launched in March 2009 with a 2006/07 baseline for all statistics. Given that the reduction target was estimated to be reached one year ahead of schedule the University worked with the Carbon Trust to complete a diagnostic report of the Carbon Management Plan to enable the redevelopment of the new Plan encapsulating best practice for onward progression.
* As of November 2011, 37 public sector organisations worked with the Carbon Trust to develop a diagnostic report. The University was placed 2nd best in terms of carbon reduction, governance and management procedures in place. The new Plan has been rewritten and will be launched in November 2012 to take forward the commitment of the University with a target of 35% reduction from the 2006/07 baseline.
* Between August 2012 and August 2015 the cumulative savings available, the value at stake, is estimated at £1m, a significant financial saving to the University.
* The development of the Carbon Management Awareness Campaign Strategy and integration of the Strategy into the 2012 Carbon Management Plan is a key benefit to the University. Staff and student engagement is a vital aspect of carbon reduction. All staff and students, beyond the established Eco Champion network, were invited to attend carbon workshops to aid the development of both Plans. 100 unique and workable ideas were generated, considered and included where possible.
* Staff and students are also engaged through a network of events within the University including Energy Saving Week, Earth Hour and the annual Health Promotion Day (the University holds Gold Healthy Working Lives status). Environmental information is displayed in all meeting rooms, student flats managed by the University with a three-page social corporate responsibility section in the 2009/10 and 2010/11 University Annual Reports. Integrating into the daily life of the University is a clear benefit for reminding all staff and students of their significant importance and role in reducing the carbon and wider environmental footprint of the University.
* In terms of communication, Christmas is a good example. All staff are sent an annual e-mail reminding them to turn off all electrical appliances before departing for the break. Over 2009/10 £19,000 of electricity was consumed over a ten day period. £17,000 over 2010/11. £14,500 over 2011/12 representing a reduction of 15% spend and 20% consumption. All through one festive e-mail. We plan a widespread campaign in 2012/13. The festive e-mail inspired both Dundee and St. Andrews Universities to disseminate similar messages.
* The Estates Management Statistics publicised through the 2012 People & Planet Green League shows carbon emissions per head of 686.09 Kg CO2e. This compares positively to the Scottish average of 1,422.24 Kg CO2e and median of 1,646.95 tonnes CO2e (14 Scottish universities participate annually in Green League). The median change in carbon emissions for universities in Scotland between 2005/06 and 2010/11 was a decrease of 1.09% and an average decrease of 1.49%. Edinburgh Napier reported a decrease of 13.28% (following the parameters of statistics provided through the Estates Management Statistics) during this period, fairing well against both the median and average of all Scottish participants.
* Carbon reduction activities, including the development of governance and management procedures for the development of all environmental work at Edinburgh Napier has allowed the University to confidently join the EcoCampus scheme, developing a campus wide Environmental Management System (EMS), aiming for ISO14001 accreditation by January 2015. The development of an EMS will be a clear benefit to all aspects of the University.
* The core work carried out has also allowed the Students’ Association, Conservation Society and representatives from both academic and professional services schools and departments to form a funding proposal aimed at increasing staff resource within the University community to aid the reduction of personal carbon emissions within the University community. It is estimated that 587.65 tonnes CO2e could be reduced over a two and a half year period by working with a core group of 400 staff and students on personal emissions covering energy, transport, waste and water. Lifetime emissions (encapsulating estimates on lifetime influence of behaviour change activities) would gain a reduction of 3,523.29 tonnes CO2e.

The University’s green credentials have resulted in significant reputation gain to the institution within the local, national and international communities.See ‘Supporting Documentation’ for a list of carbon reduction activities and associated savings. |

**SIGNIFICANCE FOR THE SECTOR**

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| * Example of a holistic, sustained and sustainable approach to reducing carbon emissions in a higher education institution, following a robust project framework encapsulating communication and behaviour change activities for all staff, students and visitors.
* Development of the Edinburgh Napier Carbon Management Plan and carbon reduction measured to date at the University demonstrates the success capabilities of the higher education sector towards national Government targets and overall carbon and environmental footprint reduction through the Universities and Colleges Climate Commitment for Scotland.
* All communication activities including energy, transport, waste and water cover University and home emissions i.e. working with the Bike Station, The City of Edinburgh Council and the Energy Saving Scotland Advice Centre to name but a few.
* Cumulative carbon reduction of 7,402 tonnes CO2e and savings of £1.2m in energy costs between 2006/07 and 2011/12 increasing efficiency in the provision of higher education.
* Highlighting success through external verification through the Carbon Trust Standard and Carbon Masters Standard allowing for transfer of knowledge and experience to others including a recent and successful CRC Energy Efficiency Scheme external audit.
* The Carbon Masters Standard was developed by Carbon Management MSc students from the University of Edinburgh. Edinburgh Napier was one of the first organisations to be awarded the standard. This creates a working link between academic and professional development across the higher education sector.
* The Sustainability Office at Edinburgh Napier are currently collaborating with two other universities in Scotland to employ our energy management expertise on a weekly basis. The Edinburgh Napier Energy & Utilities Manager works directly with the institutions to reduce the environmental impact of their energy consumption.
* An example of continued carbon reduction at a time of campus flux, £110m estates strategy and temporary 22% increase in floor-space.
* Evidence of the Sustainability Office using best practice developed within the University academic and professional services community to work with internal partners and external environmental bodies to encourage staff and students to consider and reduce carbon emissions at home and when travelling from and to home.
* Progressive development of work has lead the University to join the EcoCampus scheme, building on the past environmental performance of the University and governance procedures in place to encapsulate all work within an Environmental Management system aiming to gain ISO14001 accreditation by January 2015. This has obvious significance for the University but also research and knowledge transfer activities within Edinburgh Napier and the sector as ISO14001 is increasingly valued within tender documents for academic work with external organisations and businesses.
* Target of new buildings achieving BREEAM Excellent rating including the recently completed £70M Sighthill Campus.
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**SUPPORTING DOCUMENTATION** *(Quantitative data/cost data/budget analysis.)*

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| **Campus Wide*** Electricity and gas accounts for around 87% of carbon emissions at the University. Strategy covers all areas of carbon reduction but energy consumption is especially significant.
* The ring fenced energy investment Salix finance is utilised for projects with a pay-back of less than five years. £250,000 fund provided by Salix with £62,500 provided by the University. Core capital works budget also available for other core works and communication activities.
* Building Management System. Cost £150,000 to date. Carbon reduction achieved through day-to-day utilisation of the BMS is included in overall reduction statistics provided. Both tools are extremely important as they allow the University to operate efficiently, with daily and weekly manipulation of the system to reduce wastage, especially during heating season.
* Both the BMS and Optima software is used to efficiently control and manage energy consumption on all campuses and identify unusual consumption to identify supply issues.
* Data held on Optima also allows for robust investigation of evening and weekend base-loads and to study the possible impact of longer campus hours and flexible working for instance. For example, the University is closed from Christmas Eve to the third working day of January. With a change to the postgraduate year in 2012/13 it is proposed that the University should open between Christmas and New Year to provide study space. Over the week, using data held on Optima, it is estimated that this would cost £27,000 gas, electricity and water and emit an additional100 tonnes of carbon from the University.
* Replacement of 550 staff computers with energy efficient ultra slim desktop models reducing energy consumption from 110w to 24w per base unit. Collective savings of 47.3kW annually.
* Community electric car charging points in place at three of our main campuses.
* Due to local planning constraints the University cannot invest in on-site biomass or wind generation. A current investigation is being carried out on all sites to evaluate the further use of local photovoltaic arrays. The current 160m2 array at one campus is linking to academic study.
* Control of vending machines. Estimated savings of 25.2 tCO2, 46200kwh/annum.
* Progress of all carbon reduction activities is reported quarterly to the Estates Committee of Court and annually to the Principal’s Executive Group via the carbon key performance indicator and on-line monthly through the Property & Facilities energy key performance indicator balanced score card.
* Currently investigating the use of Trend management software to provide even greater analysis of qualitative information and public display of energy consumption at the University.
* Figure 1 and table 1: carbon reduction and utility consumption between 2006/07 and 2011/12.

**Figure 1: Carbon Reduction Index****Table 1: Electricity, Gas, Gas Oil and Water Consumption**

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| **Year** | **Electricity kWh** | **Gas kWh** | **Gas Oil kWh** | **Water m3** |
| 06/07 | 8,983,527 | 17,535,979 | 429,218 | 55,668 |
| 07/08 | 9,055,200 | 14,539,088 | 74,083 | 56,025 |
| 08/09 | 7,916,392 | 12,161,776 | 0 | 66,321 |
| 09/10 | 8,002,473 | 11,177,468 | 0 | 63,430 |
| 10/11 | 8,102,723 | 14,124,890 | 0 | 61,956 |
| 11/12 | 7,529,219 | 11,525,789 | 0 | 49,036 |

**Merchiston Campus*** Quattroseal insulation on 1,081 windows. Cost £50,616.92, saving 166.7 tCO2/annum, payback in 1.6 years
* Campus inverter drivers. Cost £26,519, annual saving of 40.3 tCO2, payback in 3.3 years
* Heating upgrades from single pipe systems to enable closer control.
* Voltage optimisation equipment. Cost £75,300, saving 95 tCO2/annum, payback in 4.6 years
* Flat roof insulation 2130m2 increasing U value by 30%, payback in 4 years
* LED lighting and lighting controls. Cost £30,000, saving of 28.2 tCO2/annum. Pay in 5.3 years
* Assessment of installing a CHP on the campus following success at Sighthill.

**Sighthill Campus –** BREEAM Excellent* Chillers assessed in terms of actual daily load requirement. Smaller chilling unit and pumps were procured and used to localise need and allow the larger campus wide chillers to be switch-off. Cost £46,500. Payback period 1.8 years. 138.8 tCO2 reduction.
* Combined Heat and Power (CHP) plant. Currently produces 30% of electricity used. Heat generated is utilised by the heating and hot water systems on the campus. With combined 70% efficiency the CHP reducing carbon emissions by 485 tonnes annually.
* Air Handling Units recirculation. Cost £67,100, annual savings of 85 tCO2.
* Revolving doors replacing auto doors to eradicate major air ingress to atrium space.

**Craiglockhart and Craighouse Campuses*** Closure of Craighouse Campus during the 2012/13 academic year will lead to estimated annual carbon reduction of 1,000 tonnes..
* Hand-dryer upgrade at Craiglockhart. Cost £10,200, annual savings of 27.5 tCO2.
* Introduction of recirculation to small lecture theatre. Cost £5000, annual savings of 6.5 tCO2

**Transport*** Carbon associated with the staff and student daily and term-time commute was calculated at 11,691 tonnes CO2 and included within the 2009 Carbon Management Plan. The calculation has highlighted the importance of encouraging staff and students to consider the mode of transport used, especially when commute emissions are higher than the University footprint.
* Travel survey run during March and April 2011. The information gathered, incorporating post code analysis available within the University will be used to update the estimate of commute emissions to be included in the updated Carbon Management Plan.
* A travel focus week was held to launch the survey. This include support for all staff and students, whatever mode of transport used including bike maintenance and fuel reduction driving simulator sessions with the Energy Saving Trust.
* Fuel used in owned and leased vehicles has increased over the past year but did show a significant reduction of 29.09% between 2009/10 and 2010/11 with the reduction in fleet from eight to five vehicles. 18,201.74 L Diesel and 1,029.58 L Unleaded used in 2011/12.
* Existing procurement practices result in poor quantification of most business travel. We are currently working with the Carbon Trust to rectify this and implement robust procedures. Data collected will be placed on Optima to allow analysis of data for reporting.

**Waste and Recycling*** Recycling rate reported through 2010/11 Estates Management Statistics was 50.65%. Compared favourably with the Scottish university average of 49.82% and median of 47.86% (reported in 2012 Green League report). We are waiting for final returns from our waste contractors before publishing our 2011/12 recycling rate but we are confident that it will be higher, monthly rates are currently around 55%, with 630 tonnes generated annually.
* Assessment and audit of all waste bins across all campuses currently on-going. Only some office spaces remaining. The result of the study will be maps showing the location of every bin on every campus. This allows for an in-depth assessment of bin locations for optimum collection of recyclable materials. Strategy for no individual room bins now, centralised recycling facilities. We also plan to develop a new educational campaign including clearer information stickers affixed to all bins by November 2012.
* We have introduced food waste collections within the catering area of our Merchiston Campus. Collections of food will filter through to all campuses throughout 2012/13.

**Water*** Management of water on all campuses using Business Stream to aid the swift detection of water leaks. Entry of water consumption data on to Optima also allows for assessment and control of water usage.
* Toilet refurbishments include water sensors, waterless urinals and dual-flush toilets.

All documents referred to in this application are available at [www.napier.ac.uk/environment](http://www.napier.ac.uk/environment)  |