

A plan for the strategic reduction of carbon emissions at the University of Cambridge

A revised proposal calling for science-based targets and stronger actions to mitigate the impacts of climate change

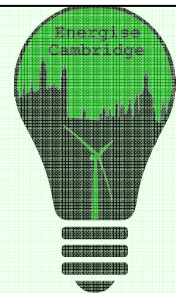


Submitted by Energise Cambridge for the consideration of the Environmental Strategy Committee

September 2012

'Energise Cambridge' is a student society, founded jointly by Cambridge Zero Carbon Society and the Cambridge Hub.

Our campaign focuses on working with the University to significantly reduce its carbon emissions, while engaging students and the community in meaningful and creative climate change action. Our 2012 achievements are described in Appendix 1.



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1. Introduction – the discussions continue

The purpose of this submission is to update Energise Cambridge's recommendations to the University of Cambridge. This follows on from the submission we presented to the Environmental Strategy Committee (ESC) in February 2012 (Haywood et al. 2012). Having been involved in several aspects of environmental management at Cambridge for almost a year, we now have a better understanding of the University's short and long term goals, how the committee makes decisions and the University's overall approach to addressing climate change and carbon abatement requirements. Previously, this information was not publicly available, or even apparent at initial meetings with the University staff. With this additional understanding of the institutional workings of Cambridge, we feel it is necessary to modify our recommendations and requests to be inline with the University's current vision, which we present in Section 3 below.

At the ESC meeting in January 2012, the Chair, Prof Jeremy Sanders, confirmed that our recommendations would be discussed further. We present these revised recommendations as an invitation to reopen discussions at the committee meeting in October. We understand that the ESC is not in a position to make any decisions at the moment given the current revision of the University of Cambridge's Environmental Policy, the targets associated with this policy and the restructuring of the environmental management team. Though, now is the perfect time for the Environmental Strategic Committee to take notice of Energise Cambridge's recommendations and incorporate these into a new overall strategic plan for carbon reduction.

While the University recognises its responsibility for best practice environmental management and climate change mitigation, we wish to reinforce these reasons and remind the University why the students from Energise Cambridge are campaigning for more ambitious carbon reduction action. Climate change is a significant global threat. Strong action across international, national and local scales is needed now to prevent catastrophic economic, social and ecological losses (IPCC 2007). Most importantly, many of these impacts are irreversible and will primarily impact people who have contributed disproportionately to the cause of the problem (UNFCCC 2007).

University of Cambridge is the fourth highest emitter of carbon of all universities in the UK (University of Cambridge Carbon Management Plan 2010-2020). The fact that Cambridge is a research intensive university, and therefore carbon intensive, is not a reason for the institute to push aside the moral responsibility of reducing its absolute carbon emissions. The University is still almost entirely reliant on fossil fuels for its energy needs, and is fully responsible for the resulting carbon emissions produced. As a leading international university, Cambridge should feel morally obliged (over and above legal obligations) to commit to strong, ambitious and immediate action on climate change, through its estates management, research, teaching and outreach. To do so would provide long term financial gain to the university, uphold its prestigious reputation and take advantage of being one of the first institutions to take action.

2. A review of the University of Cambridge's carbon reduction policies and management actions¹

Since February 2012 when Energise Cambridge presented the original submission to the ESC, the University has made some progress towards its carbon reduction target and environmental policies relating to climate change. Positive initiatives include the Energy and Carbon Reduction Project's (ECRP) departmental pilot studies and the Electricity Incentivisation

¹ The aim of this review is not to provide a comprehensive evaluation of the University's climate change policies and mitigation actions. Rather it is an informal assessment of the immediate areas that Energise Cambridge has identified as priority issues to address.

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Scheme. The launch of the new Carbon website has been pivotal in increasing the transparency of the University's actions towards carbon reduction, addressing the fourth recommendation of our original submission (Haywood et al. 2012). Similarly, the University Switch Off, Green Impacts Scheme and the Living Labs Project, which are planned for the new academic year, are aimed at increasing staff and student awareness of energy savings, promoting the University's commitment to environmental issues and achieving real carbon reductions.

However, sections of the carbon reduction policy and management strategy need vast improvements to ensure that the University's response to climate change is at the very least adequate and inline with recommendations based on science to make a significant contribution to the global problem (UK Commission on Climate Change, 2008). Firstly, the actions taken by the University to reduce their carbon emissions appear to be implemented haphazardly and in an opportunistic manner. Members of the ECRP or ESC have yet to provide us with evidence that they are on track to reach the 34% carbon reduction target by 2020 (with 1990 as the baseline year). Nor is there evidence that the allocated budget for carbon reduction projects is adequate to reach this goal. While the ECRP are focusing their efforts on energy intensive departments, it appears the committee has not quantified (or even estimated) the projected carbon reductions resulting from each of the planned energy efficiency projects. In addition, there is no strategic plan for the next decade on how the University will address their increasing energy demands, while fulfilling their carbon reduction commitments. It is essential to quantify the outcomes and costs of all possible carbon reduction strategies before we can prioritise the actions based on their return on investment. Clearly, the calculations have not been done to ensure the efforts of the ECRP and ESC will not fall short of the target by 2020.

Secondly, the set carbon reduction target is not sufficient to significantly reduce carbon emissions to avoid the run-away environmental impacts of climate change and associated human and economic costs. The University's 34% reduction target of 1990 emissions by 2020 adheres with HEFCE's requirements for higher education institutes (HEFCE, 2010). However, stronger action is required if we are to avoid devastating climate change that is predicted by climate scientists. The lack of ambitious targets is also noted in the 2012 score given to the University of Cambridge by the People and Planet Green League table (People and Planet 2012). The guiding principles of a good target require that the target is based on evidence and science rather than policy, cost and feasibility (Svancara et al. 2005, Haywood et al. 2012).

3. Energise Cambridge's recommendations

3.1 Develop and implement a strategic plan for carbon emission reduction

The University's opportunistic approach of dealing with carbon reduction will potentially lead to inefficient and insufficient contributions to the carbon target. Thorough planning and accounting will not only lead to improved efficiency and clear short term goals, but will also increase the probability of achieving the defined target and objectives. The University currently does not have a quantified plan for how they will reach their target, nor how much it will cost, and a strategic plan would be very useful for Cambridge to think clearly about the task ahead.

The development and implementation of a strategic plan would be a considerable improvement on how the University currently addresses carbon reduction actions. For example it would outline the actions required to achieve the specified carbon reductions in the next eight years. It would also provide a detailed account of the associated costs and uncertainty surrounding these proposed actions and make them more transparent to University members. These actions and costs would be identified with a cost-effectiveness analysis (see third recommendation below), which would also quantify the minimum cost required to achieve the set targets through the implementation of the most efficient and effective carbon reduction strategies.

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A comparison between the predicted costs and existing funds is vital to determine whether the current budget allocated for carbon reduction activities is sufficient to achieve the targets. In the likely case that the budget is not enough to achieve the targets, the cost-effectiveness analysis and the following strategic plan would support decision makers in their move from 'cost-neutral' to 'cost-effective' management strategies (the second recommendation from our original report). On a logistical note, additional staff may be needed to develop and implement this plan, as it seems that current capacity of staff is already stretched.

The strategic plan should take a holistic approach to sustainability and carbon reduction by incorporating the estates management, research, learning and outreach sections of the university. We also see the value of the University working in partnership with the Cambridge City and Cambridgeshire County Councils on ambitious projects, such as the central district heating scheme and Cambridge Retrofit, incorporating these into the strategic plan. These initiatives rely on economies of scale and the University's involvement would be vital for their success. We encourage the University to support these local community actions. Finally, a strategic plan would help to define an overall long term vision for environmental management at the University and would encourage staff and students to work together towards this sustainable, low carbon future.

3.2 Commit to a strong and ambitious carbon intensity target

The University's carbon reduction targets should be based on scientific evidence. Energise Cambridge suggests that the University should commit to a pathway towards a carbon intensity of 100g CO₂(e)/kWh of energy used by 2030, as set in the UK Committee on Climate Change's 2008 report on building a low-carbon economy. This should be set in addition to the existing target of 34% reduction of emissions from 1990 levels by 2020. The carbon intensity target would adhere to the guiding principles we outlined in our original report (Haywood et al. 2012), in that it is based on science, rather than budget, politics, feasibility or legislative requirements, it would be time bound and it would represent an equitable contribution to climate stabilisation.

3.3 Conduct a cost-effectiveness analysis to inform the strategic plan

In our original report, we suggested conducting a cost-effectiveness analysis across renewable energy alternatives at the University. However, we now see it essential for Cambridge to complete this analysis across the board for all carbon abatement strategies, expanding the original recommendation to include refurbishment, energy efficiency, behaviour change, and to also include Scope 2 and 3 emissions rather than specifically for electricity. This is more inline with the goals of the ESC and the ECRP because it encompasses all aspects of carbon reduction. This should feed directly into the strategic plan, with different renewable energy options as potential components of the overall solution.

Therefore, our revised recommendation to the University is to coordinate and provide funding for a thorough cost-effectiveness analysis to identify possible solutions that will achieve the existing carbon reduction target and the proposed carbon intensity target at a minimum cost. This cost-effectiveness analysis could be implemented as a Living Labs Project, run by two internship students. The project would require collaborations with supervisors, other interested academics and industry professionals to ensure correct methods are employed to make the analysis viable and accurate.

The purpose of this exercise would be to produce a useful decision making tool to inform the University's policies and actions. It would identify the 'low hanging fruit' which are actions that produce large outcomes for low costs that can be implemented immediately. It would also identify the more expensive ventures, which may ultimately be required to achieve the existing and proposed targets, allowing for the University to plan and budget for these in advance. While energy efficiency is very important to reduce carbon emissions, it is highly likely that

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retrofitting and behaviour change will not be sufficient to achieve the set or proposed targets. Decarbonising the energy the University uses for electricity, gas and transport fuels will be another aspect of carbon management that the University has to address and take action on in the near future. While economic and political arguments may be preventing the purchasing of renewable energy at the moment, the analysis may show that it will eventually be required to reach the targets.

For this analysis to have an effect on the carbon policy at Cambridge, its findings must be integrated into the overall strategic plan (see first recommendation) and actually be implemented to ensure that the targets are reached using effective and efficient carbon reduction strategies.

3.4 Increase transparency and public awareness of commitments and actions

An important aspect of successful environmental management projects is public support and awareness. The new Carbon website has addressed many issues we flagged in the fourth recommendation of our original report, by increasing transparency of the University's vision, goals and actions towards a cleaner, greener future. The website provides a wealth of information about the governance and management of carbon reduction strategies that was previously unavailable to the public, allowing for a clear understanding of how the key stakeholders and decision makers are connected.

Since the meeting in January 2012, there has been notable increased collaboration between the estates management staff and students involved in environmental issues. This has been demonstrated by inviting a member of Energise Cambridge to attend the ESC and ECRP project team meetings. This has been a vital step in helping us to understand how the University functions and to promote our ideas and views to the decision making bodies. However, this is only an initial phase, which we hope will lead to increased collaborations and joint projects, such as the cost-effectiveness analysis. It is worth noting our good working relationship with the Environment Officer and Environmental Coordinator, who have kept us informed about the University's progress and provide us with feedback on our ideas.

4. Conclusion

We request that you continue discussions about these serious issues at the ESC meetings (and any subsequent committee responsible for environmental management and decision making). At the very least we ask that you to support the cost-effectiveness analysis. There is little to be lost by approving and coordinating such a task. The product of this analysis will be highly useful to guide future actions with greater efficiency, certainty and transparency.

We support the current revision of the carbon reduction targets and the restructuring of the environmental working team. Decisions about revising the carbon reduction targets, producing the strategic plan and purchasing renewable energy should be made promptly, before the renewal of the University's energy contract in September 2013.

As quoted from our original submission in February 2012: "Above all, we are calling upon the University of Cambridge's managers, staff and students to take ambitious and meaningful action on climate change and environmental sustainability, with the urgency and commitment that the unfolding global emergency demands.

Energise Cambridge believes that Cambridge University has the opportunity to be a leader in response to climate change and the challenges of sustainability. We believe that to do less than the measures we recommend in this submission would forsake key responsibilities and opportunities, and would only defer action to a time when it may be both more costly and less effective."

5. References

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Appendix 1: Energise Cambridge's activities in 2012

On top of our involvement with the University's environmental management in 2012, we have organised creative and fun events to engage students in action on climate change and sustainability. The Energise Cambridge Rally in February was a success, with over 70 students congregating on a snow-covered Parkers Piece to make the shape of a turning wind turbine.



We collected over 200 signatures in support of our recommendations to the University, which we presented to the Vice Chancellor in March. Prof. Borysiewicz was impressed by our submission and gladly supported our campaign. He requested to meet us again in December this year to report on the University's progress on carbon reduction and climate change issues.

Other events included 'Connecting the Dots' on International Climate Impacts Day (<http://www.climatedots.org/>), involvement in the Cambridge Climate Forum, organisation of the Cambridge Rio +20 Symposium and a photo competition between colleges, entitled Lights Cambridge Action.



In the new academic year, we plan to campaign for increased carbon reductions at the University, expand our focus towards colleges in collaboration with the Student Switch Off programme and develop stronger collaborations with other student environmental groups to increase capacity and presence on campus.

Through these activities we are promoting the message of climate change action to students. We encourage the University to follow our lead and increase their environmental profile through exciting events (such as the University Switch Off) and more frequent communication with staff and students about their carbon reduction activities.

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