



Finalist's case study



The College of West Anglia Carbon Reduction Greening West Anglia



Profile

- Further Education
- 6,116 students (4,291 FTE)
- 775 staff (includes full and part time staff)
- Rural
- Annual turnover of £29m

About the project

Summary

At the College of West Anglia we are committed to reducing our carbon footprint and aim to set an example of responsible environmental management. The College exceeded its first carbon reduction target of 30% from the 2009/10 baseline by achieving a 36% reduction in 2014/15. We have built on this and have set an even more ambitious target of a 60% reduction by 2019/20 (on the 2009/10 baseline). We are well on the way to achieving this by making an enormous 15% reduction in one year, with 2015/16 seeing us reach 51%.

Since the 2009/10 baseline, CWA has invested over £30 million in improving its King's Lynn, Wisbech and Cambridge campuses. CWA's Sustainability Strategy details our approach to environmental sustainability with programmes including the Carbon Management Plan, Travel Plans and Waste Strategy. Even though we are a small institution, we have achieved a great deal over the past few years. This includes investing in new state of the art buildings, refurbishments, solar PV, an electric car, rainwater harvesting and LED lighting. Staff and students get involved in College events and participate in environmental activities on campus and in the wider community.

Project partners

Internal CWA partners: Property Services Department, teaching faculties and support departments. **Funding partners:** Norfolk and Cambridgeshire County Councils, Borough Council of King's Lynn and West Norfolk, Fenland District Council, East of England Development Agency, Anglia Ruskin University, Skills Funding Agency and Salix Finance. **Campus development partners:** Fusion Project Management, Pick Everard, RG Carter, Lindum, Turner Contracting, Mick Ward (Heating and Plumbing), JD Power, Kevin Moulton Heating, Plumbing and Bathrooms, FW Hendry (King's Lynn), Munro Building Services, Morgan Sindall and Country Grounds Maintenance (CGM). **Consultancy:** Carbon Trust and Concept Energy Solutions.

The results

The problem

The College had mostly 1960s and 1970s buildings on its King's Lynn and Wisbech campuses and also a number of aged buildings at subsidiary sites. Even though most buildings on the Cambridge campus were built post 2000, these were poorly insulated with inefficient mechanical and electrical infrastructure. The College, at



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that time, had a surplus of space with teaching taking place across several buildings and very little dedicated teaching and learning accommodation.

There were plans to relocate the King's Lynn campus to the Nar-Ouse development on the outskirts of the town and the Wisbech campus to March, however the Learning and Skills Council was unable to fund the relocation in 2011/12. CWA recognised that significant investment in building stock was required to improve the working environment for staff and students, improve energy efficiency and reduce utility costs.

The approach

Campus development

Over £30 million (£14 million from external sources) has been invested in the College's four main campuses (King's Lynn, Wisbech, Cambridge and Sports Campus), with a comprehensive programme of new builds, refurbishments and disposal/demolition of redundant and inefficient building stock. Notable developments include the Tower Block and Technology Centre at King's Lynn and F Block and Technology Centre at Wisbech. The King's Lynn Technology Centre houses a 143kWth wood pellet fired biomass boiler and three air-source heat pumps for space and water heating and sun pipes to provide natural lighting. At Wisbech, the Technology Centre includes a 199kWth biomass boiler and F Block houses a roof-mounted 24kW TIC solar array. The Tower Block was completely refurbished with an innovative heating and ventilation strategy to individually control each room, utilising heat gains to provide heating to rooms not receiving direct sunlight.

The College has a rolling programme of LED lighting upgrades, including LED street lighting and PIR controls wherever possible. Nearly all buildings are controlled by our TREND 963 Building Management System, with many areas controlled centrally and remotely. Equipment has also been upgraded, including a low loss transformer, modulating boilers, variable speed drives on air handling units and thermostatic radiator valves.

Travel

We have active travel plans for King's Lynn and Wisbech (currently operating through Modeshift STARS) and are developing a travel plan for the Cambridge campus. Initiatives include: covered cycle parking at each main campus (252 spaces), in-house staff car sharing scheme with five dedicated bays at the King's Lynn campus (16 active sharers) and staff cycle to work scheme. Sustainable travel information is provided in LRCs.

In March 2016, we replaced the old fleet (between seven to nine years old) with 11 new vehicles on a three year lease. An electric 27kWh Kia SOUL EV is used for the staff shuttle service between the King's Lynn and Wisbech campuses. The electric car can make use of twin 7kW charging points at our three main sites.

Travel events include Dr. Bike and a sustainable travel information stand and smoothie bike at the Money Matters and Employee Wellbeing event in February 2016. We also promote national events, such as Cycle to Work Day and Bike Week. In February 2016, we held a pop-up travel café and Dr. Bike event in Wisbech in partnership with Cambridgeshire County Council.

Water

Low capacity dual flush cisterns, Cistermiser flush controls, PIR sensors, aerated taps, sensor taps have been installed during refurbishments and new builds, with mains-fed water coolers at all sites. The King's Lynn and Wisbech Technology Centres have 25,000 litre rainwater harvesting tanks to supply all toilets and urinals.

Our goals

To improve the quality of the College estate for all stakeholders.

CWA published its first carbon management plan (2010-2015) through the Carbon Trust's FE Carbon Management Programme. The target was a 30% reduction on Scope 1, 2 and 3 (fuel and electricity used in



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buildings/estate, fleet transport emissions, refrigerant gas loss and business travel through staff vehicle use) CO₂e emissions by 2014/15 from the 2009/10 baseline.

The second carbon management plan (2015-2020) has built on CMP1 by setting an even more ambitious target of a 60% reduction on Scope 1, 2 and 3 CO₂e emissions by 2019/20 from the 2009/10 baseline. Concept Energy Solutions carried out an independent energy and water audit in June 2016 to identify further carbon reduction projects for CMP2.

Obstacles and solutions

Project finance	Seek funding from external sources (e.g. Salix College Energy Fund)
Lack of clarity on utility consumption	Invest in automatic monitoring and targeting software, sub metering and a Building Management System.

Performance and results

Wisbech campus development

Resulted in 53% saving (by 2015/16) on carbon emissions from energy, since development started in 2012 (including demolitions, refurbishments and new builds). Saw a reduction in electricity (23%) and a shift from gas usage (reduced by 83%) towards biomass.

2010-2015 Carbon Management Plan (CMP1)

The 2010-2015 carbon management plan received approval and commitment from senior management, who signed a pledge to do their part to meet the target. CWA exceeded its CMP1 target (30%) and achieved a 36% reduction in CO₂e emissions (2,733 tCO₂e) in 2014/15 over the 2009/10 baseline (4,298 tCO₂e).

2015-2020 Carbon Management Plan (CMP2)

In CMP2, student numbers have continued to fall (26% in 2015/16 and 33% in 2016/17 since the baseline year), with tCO₂e/student FTE also decreasing to 0.44 in 2015/16, a 34% reduction on the baseline. In 2015/16 we reached a 51% reduction in absolute CO₂e emissions (2,097 tCO₂e) over the 2009/10 baseline.

2011-2016 Travel Plans

During the 2011-2016 Travel Plans we saw reductions in staff sole occupancy car use from both urban (43.4% in 2010/11 to 32.6% in 2015/16) and rural (79.2% in 2010/11 to 76.3% in 2015/16) staff working at King's Lynn and from rural staff (89.5% in 2010/11 to 70% in 2015/16) working at Wisbech.

Initiatives relating to renewing and consolidating the fleet and reducing staff vehicles used for business travel (such as the introduction of the King's Lynn to Wisbech staff shuttle) have reduced our carbon footprint from travel from 285 tCO₂e in the 2009/10 baseline year to 131 tCO₂e in 2014/15, a 54% reduction over the period of CMP1. Travel emissions have reduced by a further 4% in one year to 125 tCO₂e in 2015/16.

At the Cambridgeshire and Peterborough Workplace Travel Plan Awards the Wisbech Campus Travel Plan received 'Certificate of Commitment' in 2012 and the Wisbech pop-up travel café achieved 'Commended for Sustainable Travel Initiatives' in 2016.

Water

Projects over the period of CMP1 have resulted in carbon savings of 41% (20 tCO₂e in 2014/15) since the 2009/10 baseline (34 tCO₂e) for water usage and water treatment. Water consumption over the period of CMP1 reduced by 26% (4 m³/student FTE in 2014/15) since the 2009/10 baseline (5.38 m³/student FTE). In 2015/16, we reached a 50% reduction in the carbon footprint (17 tCO₂e) of water consumption since the



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2009/10 baseline. Water consumption reduced to 3.59 m³/student FTE in 2015/16, resulting in a 33% reduction since the 2009/10 baseline.

Since the Wisbech Technology Centre was completed in summer 2013, the rainwater harvester has saved the College 424m³ of potable mains water, resulting in a mains water usage by area of 0.041 m³/m² in 2014/15 and 0.038 m³/m² in 2015/16. Total figures compare well with the Waggett and Arotzky (2006) typical office benchmark of 4 m³/employee/annum and the Wisbech Technology Centre exceeds the best practice benchmark 0.4 m³/m²/annum. Water usage and treatment is not currently covered in the CMP, but will be monitored and reviewed following the publishing of the CWA Water Management Plan (currently in draft stage) and targets added to both plans.

CO₂ savings

CO ₂ t savings over the life cycle of the project:	2,201 (Actual, achieved over 6 years)
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The future

Lessons learned

1. Ensure that key stakeholders are involved at every stage of the project.
2. To avoid costly modifications in the future, make sure technical specifications are fit for purpose.
3. Real-time monitoring and targeting pays for itself, especially after low hanging fruit has been picked.

Sharing your project

A Green West Anglia section has been created on CWA's online learning platform (LEARN) for students and staff and students are emailed about upcoming events/surveys. Staff communication has been via the staff intranet, blogs, emails and articles in staff newsletter (CWA Scene). Posters and digital signage have been used to advertise upcoming events/surveys.

External communications have included posts on Twitter, Facebook and the CWA website (e.g. BREEAM projects, EV chargers) and press releases (e.g. new fleet, campus developments). The May 2016 EAUC Member Spotlight article was highlighted on the CWA website and CWA Scene.

We plan to add a Green West Anglia section on the CWA website to further raise awareness with internal and external stakeholders.

What has it meant to your institution to be a Green Gown Award finalist?

We are so pleased that CWA has been shortlisted for this prestigious award. It showcases the investment and sheer hard work that has been put into improving the college's estate over the past few years. We are now seeing the dividends through this massive reduction in our carbon footprint, which is saving money and ensuring the long-term sustainability of the College.

Further information

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