Carbon Management Plan Annual Report 2018/19 and 2019/20

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UNIVERSITY OF WINCHESTER

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Summary

This report details progress against targets set in the University of Winchester Carbon Management Plan for the years 2018/19 and 2019/20.

Contents

Introduction

This report details progress against targets set in the University of Winchester Carbon Management Plan. To avoid an overly long document, only key headline achievements and areas of concern are covered.

Key Points

1. Continued reductions in carbon emissions in absolute terms and relative to the size of the estate
2. Carbon emissions reduction target for scope 1 & 2 by 2021/22 already exceeded.
3. On track for achieving carbon emissions reduction 2030 target for scope 1 & 2.
4. Significant improvements in renewable energy purchasing with the introduction of renewable gas (biomethane) purchasing and therefore market-based emissions
5. Further work required to be able to fully quantify and report on all the universities scope 3 emissions.

Area	Description	Progress by 2019/20 (2018/19)	Target	By When
Carbon	Total Carbon Emissions for Scope 1 & 2	43% (36%)	55%	2030
	Carbon Emissions (scope 1 & 2) Intensity by Floor Area	65% (60%)	65%	2025

Recommendation

The Committee is recommended to note the report

Chief Operating Officer

INTRODUCTION

This report details progress against targets set in the University of Winchester Carbon Management Plan, the baseline year for the Carbon management Programme is the 2006/7 academic year, against which all carbon data is measured. The information within the document is for the 2018/19 and 2019/20 academic years.

It should also be noted that due to the global pandemic in 2020 the figures and results may not be representative compared to a 'business as usual' scenario.

CLIMATE EMERGENCY

The university has declared a climate emergency. In May 2019, the Committee on Climate Change (CCC) published its comprehensive report 'Net Zero –The UK's contribution to stopping global warming' advising the UK government to set a net zero carbon emissions target by 2050. As a result, the UK set a net zero target in June 2019. As of August 2019, 13 universities have made net zero pledges and sixteen have declared climate emergencies. With students demanding climate action, now is the time to listen and act.

The university has also signed the SDG Accord –a global higher education accord drafted by the EAUC and other international academic bodies designed to support the advancement of the Sustainable Development Goals (SDGs). This commits the University to aligning its operations with the SDGs. Furthermore, The university has also signed the Accord's Climate Emergency Letter', which declares a climate emergency and commits the university to becoming carbon neutral by 2025, or by the latest, 2050. The next step here is therefore for the university to build a detailed roadmap to understand how this target will be achieved.

UNIVERSITY OF WINCHESTER TARGETS

NET ZERO TARGETS

The University of Winchester has signalled its intent to be Net-Zero carbon by 2025. For Scope 1 and 2 emissions, this will be achieved by reducing energy consumption on campus, purchasing renewable energy and switching to an electric fleet. Those emissions which cannot be realistically reduced or avoided, which will mostly be Scope 3 emissions, will then be offset through funding an equivalent amount of carbon offsets through a certified emissions offsetting scheme.

Further work is planned for the 2020/21 academic year to identify and quantify all scope 3 sources that the university generates which are not currently measured. Once the scope 3 emissions of the University have been quantified, the university Carbon Management Plan will be updated to reflect the change in scope of the plan and inform our Net-Zero strategy.

A "net-zero" target refers to reaching net-zero carbon emissions, but differs from zero carbon, which requires no carbon to be emitted.

Net-zero refers to balancing the amount of emitted greenhouse gases with the equivalent emissions that are either offset or sequestered. This should primarily be achieved through a rapid reduction in carbon emissions, but where zero carbon cannot be achieved, offsetting through carbon credits or sequestration through rewilding or carbon capture and storage needs to be utilised.

It is very important to highlight that carbon offset should never be an alternative solution to carbon reductions. It is proposed that our use of an offset is an interim mitigation measure, in addition to the University commitment to continue to reduce emissions where they are possible to do so.

CARBON MANAGEMENT PLAN - TARGETS

The university created its initial Carbon Management Plan in 2006/07 and having achieved its initial 2015 targets of 30% reduction per m2, following a successful emissions reduction programme, a review of the CMP was undertaken a revised plan was launched in September 2016. The revised 2015/16 CMP set new ambitious targets for reducing emissions to 2030, the targets approved in this plan were;

- 30% absolute carbon reduction against its 2006/07 baseline by 2020/21
- 55% absolute carbon reduction against its 2006/07 baseline by 2030/31
- 65% carbon intensity reduction against its 2006/07 baseline by 2025/26

These targets are key to help in reducing the amount of CO2 the university generates and therefore reduce the amount of CO2 to offset to achieve Net-Zero by 2025.

The University of Winchester has committed to a long-range target of a 55% reduction by 2030, against a 2006/07 baseline. This target is based on total emissions (absolute) and is aligned with the level of decarbonisation required to limit global warming to 2°C. It will be a challenging target to achieve, given the expected growth in the size of the campus.

In order for the University of Winchester to demonstrate progress against its ambitious 55% reduction target, an emissions intensity target of a 65% reduction by 2025, against 2006/07, has also been set. This target has been designed to stretch the University in its efforts to deliver a low-carbon campus and deliver a challenging carbon reduction pathway aligned to the climate science.

UNIVERSITY OF WINCHESTER CARBON FOOTPRINT 2019/20

The table below shows the current emission sources being measured as part of the University of Winchester Carbon Management Plan. Further work is planned to increase the scope of the CMP to cover all Scope 3 emissions to inform the University ambition to be 'Net-Zero' by 2025.

Type of Emissions	Emissions sources	Carbon Emissions 2018/19 (tCO2e)	Carbon Emissions 2019/20 (tCO2e)	% Change
Scope 1 Direct emissions from our activities	**Fossil Fuels** Fuels used to heat and operate our buildings **Vehicle fuels** Fleet vehicle fuel consumption	1,223 tCO2e 24.5 tCO2e	1,018 tCO2e 13 tCO2e	-17% -46%
Scope 2 Indirect emissions from our electricity use	**Electricity** Used for lighting, IT, equipment, ventilation	1,088 tCO2e	1,038 tCO2e	-5%
Scope 3 Other indirect emissions associated with our activities and supply chain ↑ **Emissions measured**	**Water** consumed **Water** discharged to sewer **Waste** generated On campus Construction projects **Business travel** Air and rail travel booked for business related work Grey fleet usage	23 tCO2e 44 tCO2e 47 tCO2e 372 tCO2e	24 tCO2e 47 tCO2e 49 tCO2e 253 tCO2e (assumed 33% reduction due to CV-19 travel ban)	+6% +6% +6% -33%
↓ **Emissions not yet measured**	**Staff/ student travel** Commuting to campus **Goods & services** All the things we purchase			
Total Emissions		**2,823 tCO2e**	**2,445 tCO2e**	**-13%**

FIGURE 1 – EMISSIONS SCOPE TABLE

SCOPE 1 & 2 EMISSIONS

LOCATION VS MARKET BASED EMISSIONS SCOPE 1 & 2

GHG Protocol reporting methodologies allow organisations to report two figures for carbon emissions from energy.

Location-based methodology reporting means that emissions from electricity and gas are based on the energy grid conversion factors for the chosen energy type (the UK grid average emissions intensity).

Market-based methodology reporting means that emissions from energy are determined by the emissions factor of the specific energy supplier and tariff being purchased- allowing organisations to demonstrate their commitment to the environment & carbon reduction through purchasing renewable energy.

The university has purchasing renewable electricity to cover 100% of its demand since 2008/09, meaning that, under the market-based methodology, carbon emissions are much lower. In 2019/20 the university also purchased 47% of its annual gas demand from renewable gas generation (biomethane).

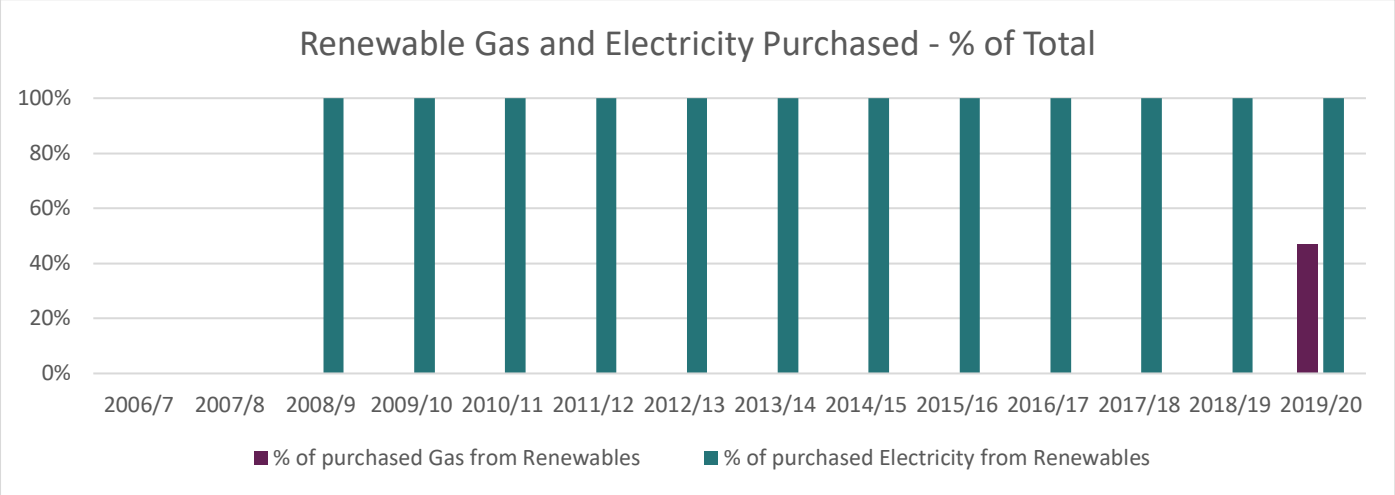

FIGURE 2 – RENEWABLE GAS AND ELECTRICITY PURCHASING BY YEAR (% OF CONSUMPTION)

SCOPE 1 AND 2 EMISSIONS - LOCATION BASED REPORTING

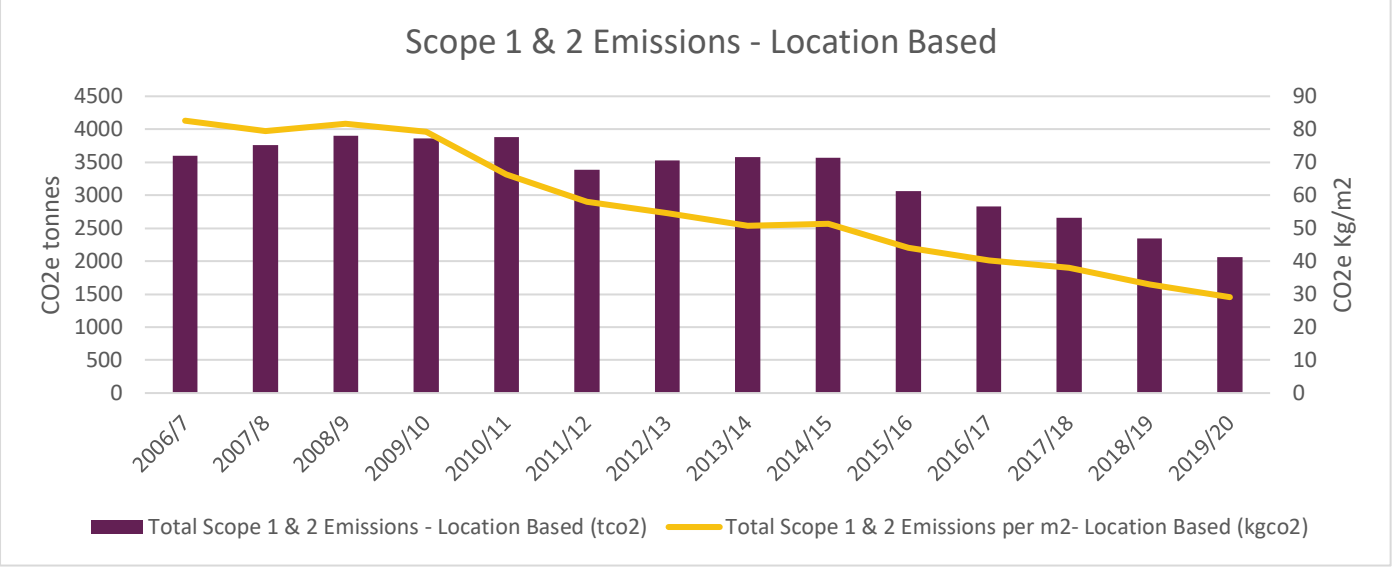

FIGURE 3 – SCOPE 1 & 2 ENERGY EMISSIONS – LOCATION BASED

Location based emissions per m2 of estate have reduced by 65% in 2019/20 when compared to the 2006/07 baseline year and have reduced 12% when compared to the previous year (2018/19).

Absolute and total location-based emissions have reduced by 43% in 2019/20 when compared to the baseline year and reduced by 12% when compared to the previous academic year (2018/19).

It should be noted however that a 50% decrease in carbon intensity of the grid electricity since the 2006/07 baseline year has supported this reduction. There has been a 9% reduction in the carbon intensity of grid electricity between 018/19 and 2019/20 alone.

SCOPE 1 AND 2 EMISSIONS - MARKET BASED REPORTING

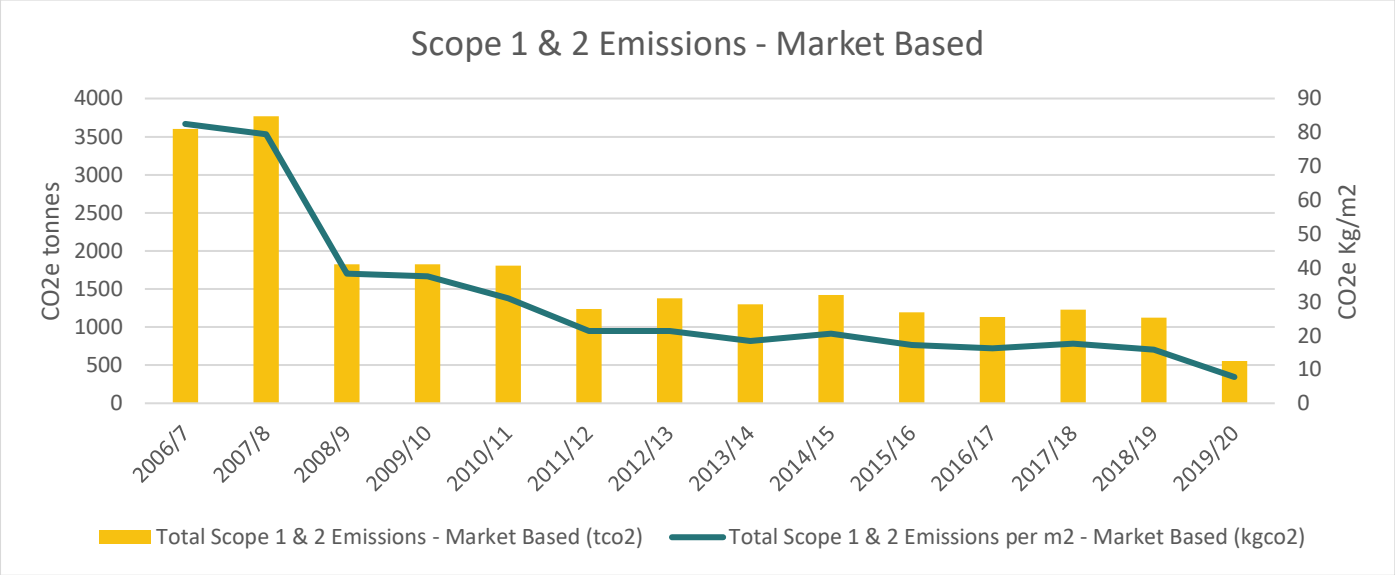

FIGURE 4 - SCOPE 1 & 2 ENERGY EMISSIONS - MARKET BASED

Market based emissions per m2 of estate have reduced by 91% in 2019/20 when compared to the 2006/07 baseline year and have reduced 51% when compared to the previous year (2018/19). This significant reduction in emissions is due to the university purchasing 100% renewable electricity since 2008/09 and as of the 2019/20 academic year purchasing 47% of annual gas consumption through a renewable tariff.

Absolute and total market-based emissions have reduced by 85% in 2019/20 when compared to the baseline year and reduced by 51% when compared to the previous academic year (2018/19).

SCOPE 3 EMISSIONS

This report currently only looks at the carbon emission data, a detailed breakdown of the quantitative emissions sources data such as waste generated, recycling rates, water consumption etc. can be found in the University of Winchester Environment Strategy Report.

Note that scope 3 emission data from business travel is currently calculated using the 2015/6 data set. The data from that year is extrapolated by staff and student FTE by year. This was the last year of good quality data, collected for the voluntary submission for the ESOS scheme. It should be noted that due to the Business Travel ban imposed during the CV-19 pandemic the extrapolated figure has been adjusted by -33%. As part of our commitment to collecting Scope 3 data, processes to collate good quality data for these emission sources will be implemented in 2020/21.

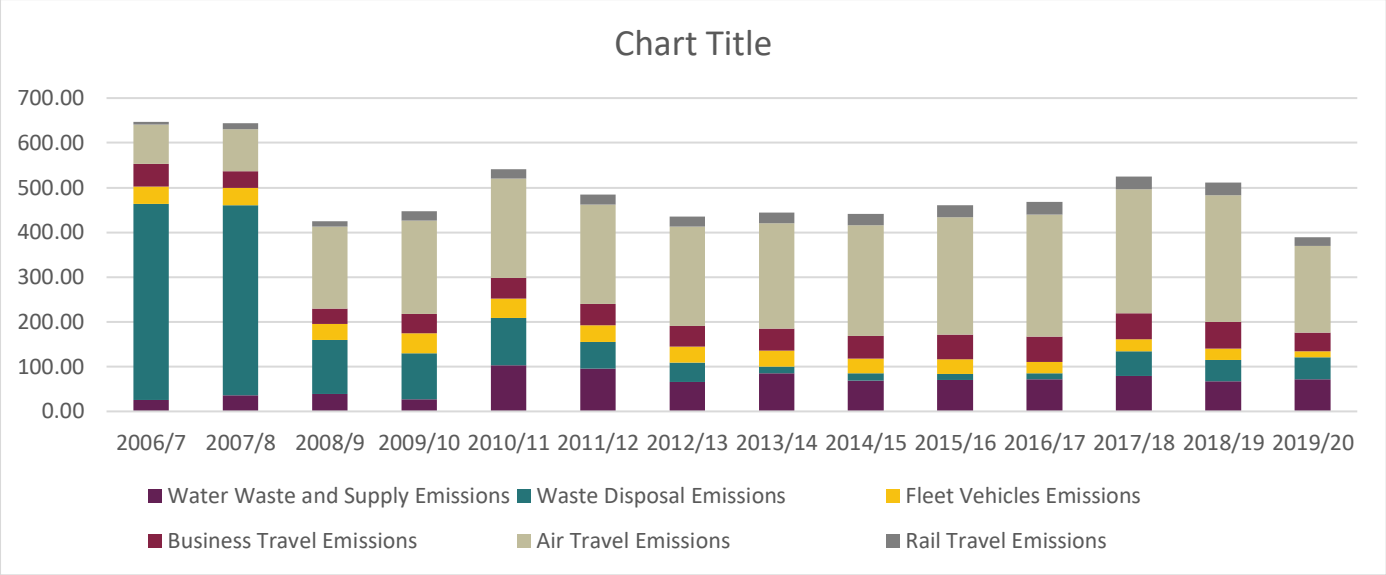

FIGURE 5 – SCOPE 3 EMISSIONS BY YEAR

As of 2019/20 the university has seen a 40% reduction in the reported scope3 emissions compared to the 2006/07 baseline. There has also been shown to be a 24% reduction in scope 3 emissions in 2019/20 when compared to the previous academic year, this is expected to be due in main to the reduction in travel in 2019/20 due to the covid-19 pandemic.

As mentioned above, further work is required to be able to fully quantify and report on all the university scope 3 emissions. The Energy & Environment team hope to start this work, carrying out a scope 3 gap analysis and a net zero target workshop, in the 2020/21 academic year.

A significant proportion of the university scope 3 emission are not currently quantified. A large part of the emissions footprint for scope 3 will be linked to goods and services provided by the University supply chain. Tackling these emissions will rely on working in partnership with suppliers, encouraging them to make plans for going net-zero across their own operations. Where it is not possible to avoid emissions, robust carbon offsetting or sequestration will need to be identified to mitigate any unavoidable carbon.

TOTAL REPORTED CARBON EMISSIONS

Year	Total CO2e t	kgCO2e per FTE	kgCO2e per m2
2006/07	4211.3	890.7	96.5
2007/08	4370.5	901.3	92.3
2008/09	4292.5	810.6	89.9
2009/10	4262.6	739.5	87.4
2010/11	4376.4	711.9	74.8
2011/12	3834.1	620.9	65.7
2012/13	3926.1	637.8	60.8
2013/14	3984.8	608.8	56.6
2014/15	3979.1	579.6	57.2
2015/16	3492.5	480.0	50.2
2016/17	3268.4	431.3	46.6
2017/18	3158.6	409.5	45.1
2018/19	2827.8	358.4	39.8
2019/20	2440.4	299.0	34.4
% change 2018/19 to 2019/20	**-13.7%**	**-16.6%**	**-13.7%**
% change against Baseline	**-42.1%**	**-66.4%**	**-64.4%**

FIGURE 6 – SCOPE 1, 2 AND 3 EMISSIONS

The above table represents the carbon emissions for all activities currently measured and reported on by the university:

- Scope 1 – fossil fuels & vehicle fuels (using location based factors)
- Scope 2 – electricity (using location based factors)
- Scope 3 – water consumed and wastewater, waste & business travel

Thanks to a very successful carbon reduction strategy the university has managed to successfully reduce absolute carbon emissions by 42% in 2019/20 based on the 2006/07 baseline despite significant growth of 62% in the size of the estate. This means that the university has already achieved the 2020/22 target of a 30% reduction and is in a very good position to meet the 2030/31 targets of an absolute reduction of 55%.

The university has spent around £2 million on energy efficiency and carbon reduction projects in the last 10 years. These projects have significantly reduced the carbon intensity of the estate with carbon emissions relative to floor area (per m2) having reduced by 64% by 2019/20 since the 2006/07 baseline year.

The university has also seen a reduction in carbon emissions per head of staff and student FTE by 66% in the same time period.

It should be noted that in addition to the work done as part of the Carbon Management Plan, the decarbonisation of the grid has also helped the university in the achieving part of the above targets. The lockdown due to the Covid-19 pandemic will also have had an impact on the amount of carbon emissions and energy consumed by the campus between April and July 2020.

CONCLUSION & LOOKING FORWARD

The university is currently on track to achieve its emissions reduction ambitions, 2019/20 saw the sixth consecutive year of significant improvement in absolute carbon emissions reduction. The university has successfully reduced its total carbon emissions for scope 1 & 2 by 43% in 2019/20 and has also reduced its carbon emissions intensity by floor area by 65% - therefore having already met the 2025 target.

The university has also moved to recently purchasing green gas (biomethane), which means that instead of buying traditional fossil fuels the university is stimulating demand for renewable gas that does not contribute towards climate change. It is hoped that in 2020/21 the university will increase the percentage of total gas usage which is purchased through renewable tariffs.

To continue with the fantastic progress the university has made in energy efficiency and carbon reduction, 2020/21 will see the University of Winchester its plans as part of the RE:FIT programme, an energy saving framework for the public sector.

Energy efficiency projects being explored include:

- Ground source heat pumps & air source heat pumps
- LED lighting upgrades
- Lighting controls
- Air handling unit upgrades
- Boiler upgrade and optimisation
- Electric vehicle charging points
- Solar PV and other renewables

Staff and student engagement will also continue to be a priority, encouraging building users to use the buildings in a sustainable manner.

As an interim measure, on its journey to Net Zero the university will also be looking at recognised and certified offsetting programmes. The university will continue to ensure there is a robust methodology in place to measure, reduce and mitigate our carbon emissions, and work to the ethos that carbon offset should never be an alternative solution to carbon reduction.