University of Northampton

Energy Consumption Report

2020 - 2021

Energy Summary Report 2020/2021

The University of Northampton (UON) recognises that our activities affect the local and global environment and acknowledge a responsibility for lessening these negative impacts.

This report is a snap shot of our energy performance across our estate for the academic year 2020/21. The report includes total energy consumption, a breakdown of our energy sources and a review of our energy related carbon emissions as carbon dioxide equivalents (CO_2e). The UON has confirmed a new baseline year of 2018/19 following the completion of its Carbon Management Plan 2017- 2020. This report will also refer to the new baseline energy consumption as a measure to compare our progress against usage. This report complements our Environmental Management System (EMS) manual which gives details of our eight action plans to reduce energy use and demand.

The Estates and Campus Services directorate are dedicated to developing and demonstrating our commitment to environmental management and sustainability at an institutional, local and national level.

Total Energy Consumption across the UON estate

The UON estate comprises of its Waterside campus, two offsite halls of residences and a further six satellite sites; a mix of academic, office and storage spaces. The Waterside campus is the largest site with academic, residential and commercial buildings. Avenue Campus was disposed of during 2020/21, leaving only the Newton building remaining at this site.

Figure 1 provides the total energy consumption (electricity, gas and biomass) breakdown per site.

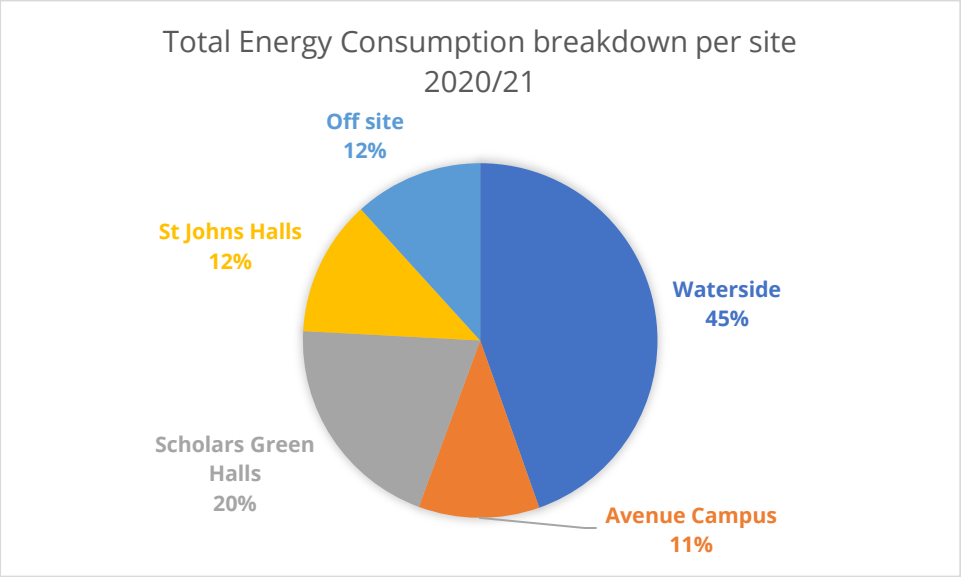

Figure 1: Breakdown of energy consumption across UON sites 2020/21

The University uses a mix of supplied and self-generated energy. Currently, 11% of our energy supply is through onsite generation; a combination of the biomass boiler at Waterside and solar PV panels at St Johns Halls. Compared to 2019/20, onsite generation has remained the same, whilst gas consumption decreased by 5% and electricity increased by 5%. A breakdown of energy consumption at Waterside campus shows that the biomass boiler supplied 79% compared to 21% natural gas. This is a slight increase in gas compared to 2019/20 which is likely due to a biomass fault combined with an increased heat demand as students and staff returned back to campus.

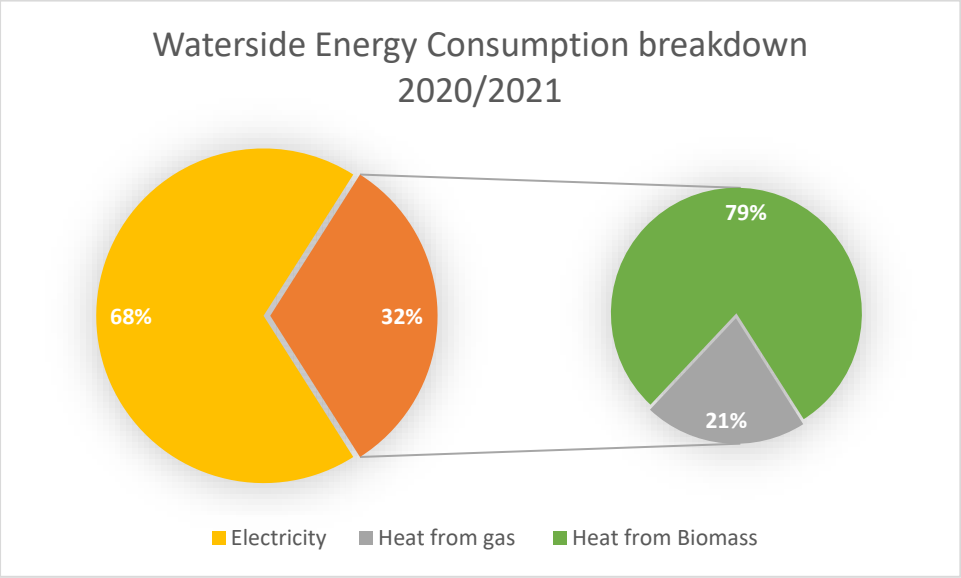

Figure 2: Waterside energy breakdown 2020/21

Electricity

Baseline annual electricity consumption for 2018/19 academic year was 11,202 MWh and annual electricity consumption for 2020/21 academic year was 9,733 MWh, representing a decrease of 13%, from the base line. This contributes 2,152 tonnes CO_2e to our carbon footprint, which is a reduction of 28% compared to our baseline emissions at 2,996 tonnes CO_2e.

Compared to previous academic year 2019/20, electricity consumption has decreased by 1%. This small decrease is likely due to the effects of lockdown during 2019/20 and the return to campus in 2020/21.

Natural Gas

Baseline annual gas consumption for 2018/19 academic year was 11,358 MWh, and annual gas consumption for 2020/21 academic year was 7,909 MWh, representing a 30% reduction from the baseline.

The carbon footprint for our 2020/21 gas consumption equates to 1,451 tonnes CO_2e which is also a 31% saving against our baseline carbon footprint at 2,089 tonnes CO_2e. Gas consumption decreased by 10% compared to previous academic year 2019/20.

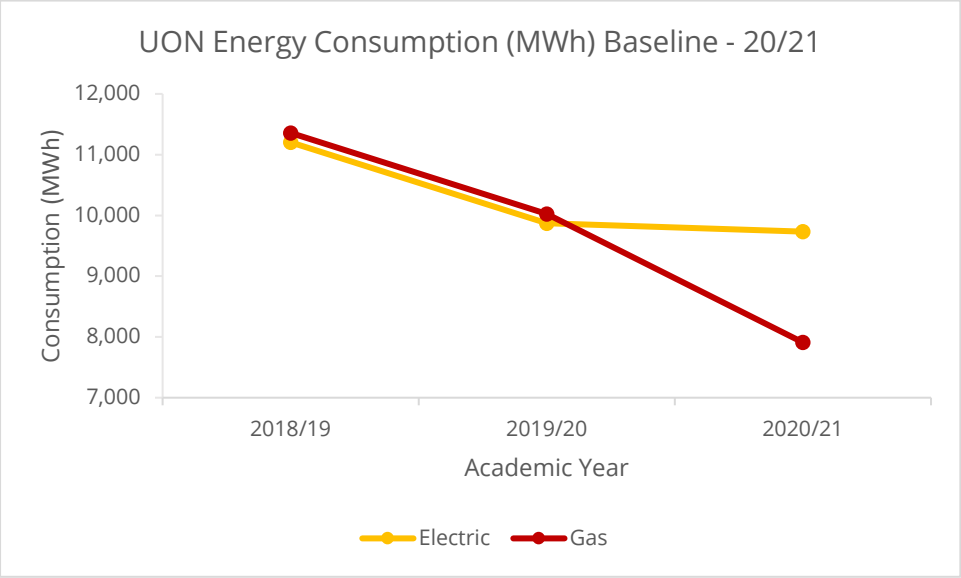

Figure 3: Total energy consumption per academic year since baseline 2018/19

The impacts of the national lockdown are evident across 2019/20 and 2020/21. A closer look at the monthly consumption from both periods shows a decrease in energy consumption from March/April 2020 and an increase from April 2021. The UON also had some staff and certain courses running onsite before the easing of all restrictions in April 2021. The overall total comparison of energy consumption and CO_2e of 2019/20 against 2020/21 is shown in Figures 4a and 4b.

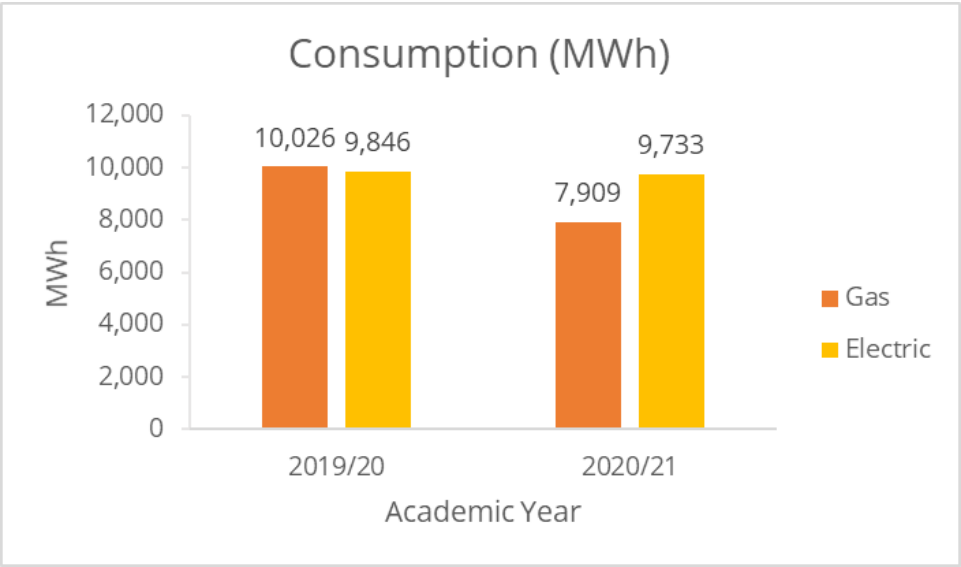

Figure 4a: Energy consumption 2019/20 against 2020/21

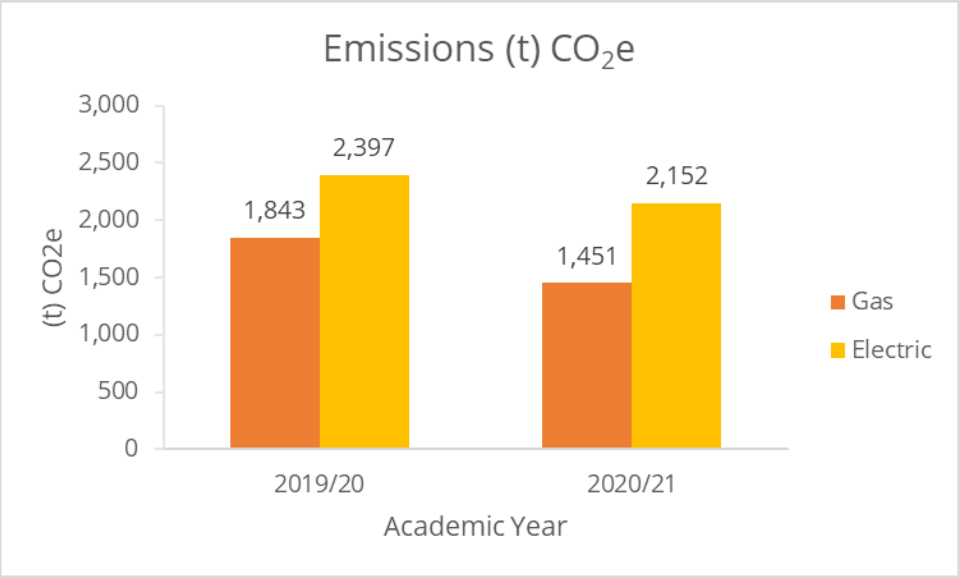

Figure 4b: Energy related CO2e emissions 2019/20 against 2020/21

Low Carbon Energy

Of the total 19,893 MWh energy consumed during 2020/21, 59% of this was generated from low carbon sources (Figure 5). This includes energy produced by our biomass boiler, solar PV panels and renewable electricity from our provider.

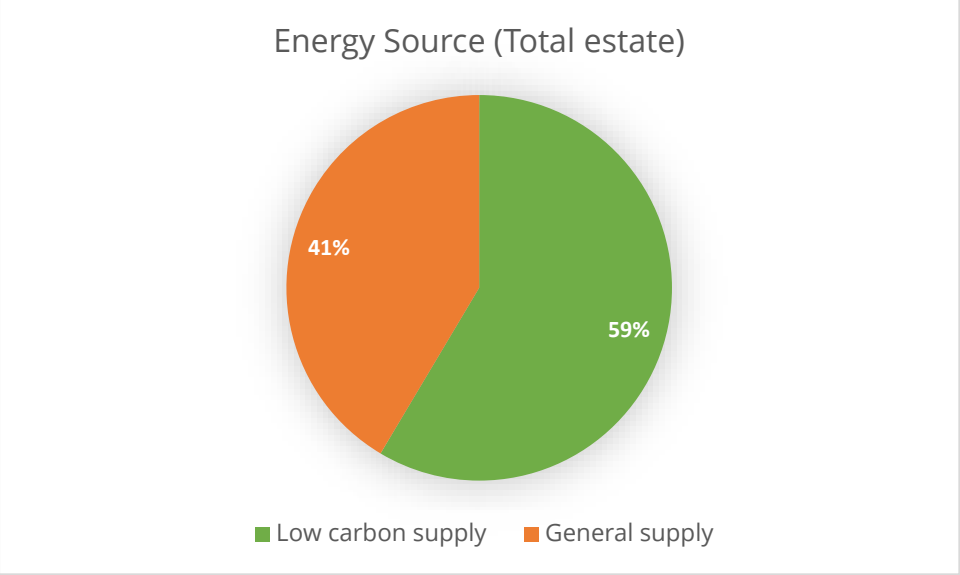

Figure 5: Breakdown of energy source 2020/21

The biomass boiler produced 2,241 MWh of heat energy during 2020/21, contributing 34 tonnes of CO_2e to our carbon footprint. This saved 411 tonnes of CO_2e if natural gas was used for this consumption.

The UON is on a '100% Renewables for Business' green tariff for our electricity supply. We claim REGO's (Renewable Energy Guarantees Origin) certificates from EDF for this

supply across the estate. The final site was moved on to this tariff January 2021, meaning 97% of our electricity consumption came from renewable sources (Figure 6).

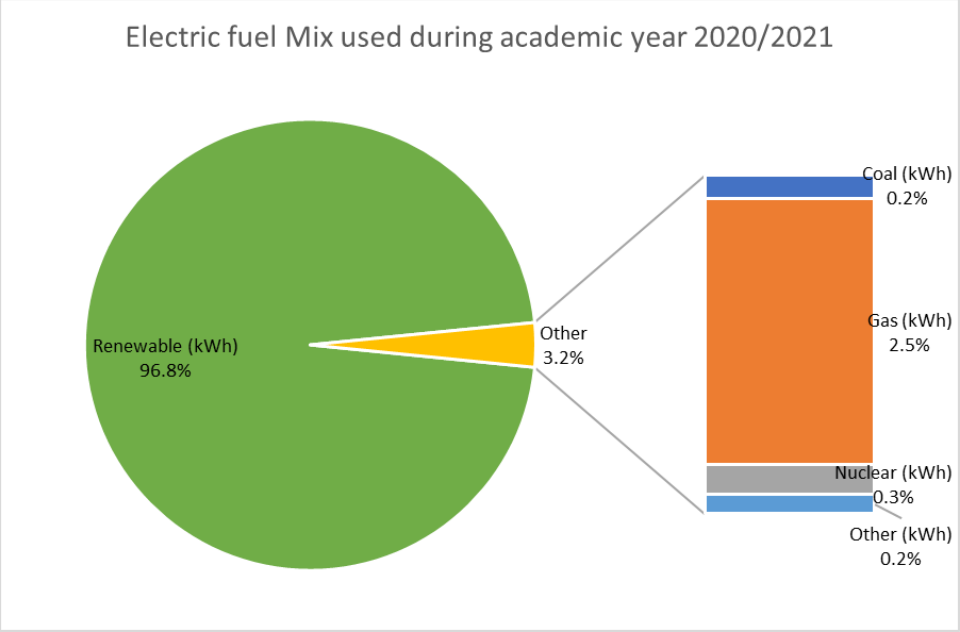

Figure 6: Breakdown of electric fuel mix, including 100% renewable from EDF.

Carbon Footprint

Overall, the University consumed a total of 19,893 MWh energy for the 2020/21 academic year. This is a **reduction of 19%** compared to our baseline total of 24,554 MWh. Our carbon footprint for electric, gas and biomass consumption was 3,637 tonnes CO_2e (Figure 7). This represents a **29% reduction** against our 2018/19 baseline levels at 5,115 tonnes CO_2e.

20/21 CO2e against 2018/19 baseline			
	Baseline 2018/19 CO2e(t)	**2020/21 CO2e (t)**	**% change**
Gas	2089	1451	-31%
Electric	2996	2152	-28%
Biomass	30	34	13%
Total	**5115**	**3637**	**-29%**

Figure 7: 2020/21 CO2e emissions against baseline

Net Zero Carbon

The UON has committed to become Net Zero Carbon by 2030 in scope 1 and 2 emissions and has backed Universities UK to cut emissions by 78% by 2035. Energy monitoring and reporting will play a critical part in achieving these targets. Academic year 2021/2022 will focus on behaviour change to reduce demand and investigating ways to decarbonise heat across the estate. The UON has already began working on a

heat decarbonisation plan that will be completed in 2022. The outputs of this report will provide significant opportunities and steps to reduce our emissions.