



Nottingham Trent
University

Carbon Report 2019-20



Carbon Emissions Report

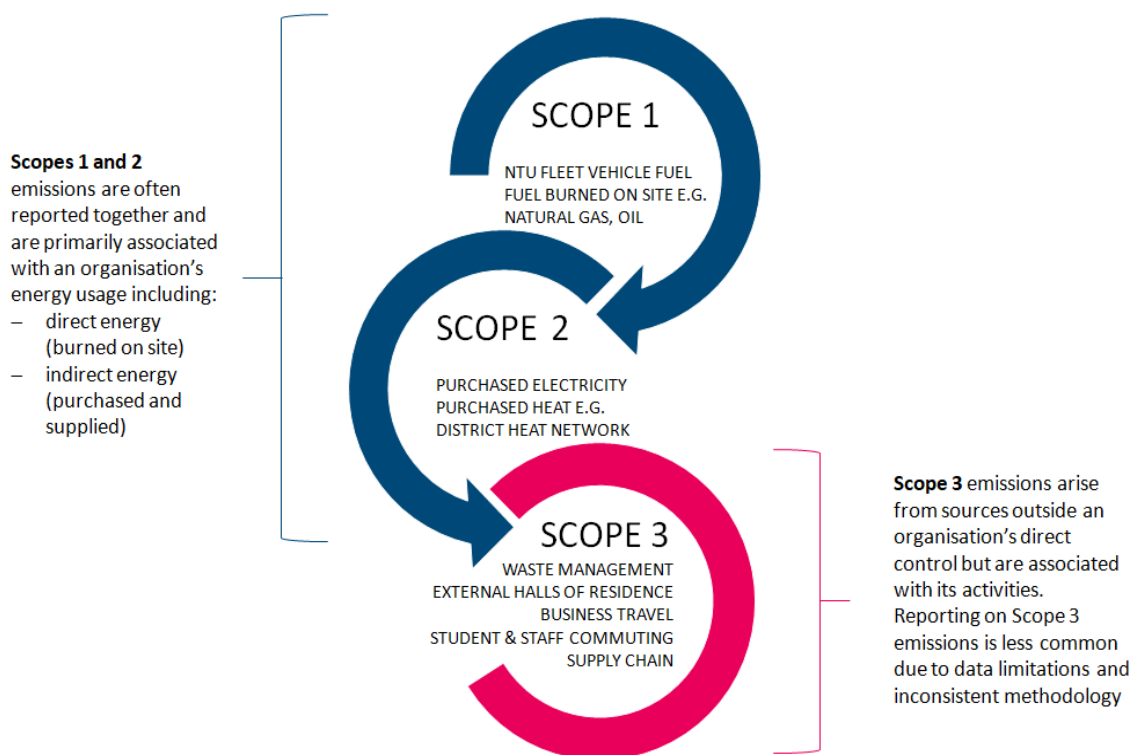
This is NTU’s Annual Carbon Emissions Report which covers all aspects of NTU’s carbon emissions including scopes 1, 2 and 3. Further information and detail on this can be seen below.

Carbon Emissions Breakdown

Carbon emissions can be broadly split into three areas or ‘scopes’.

Scope 3 carbon emissions are those emissions that arise from sources outside of an organisation’s direct control but that are associated with its activities. These emissions contrast with scopes 1 and 2 which are, respectively, ‘direct’ emissions and ‘indirect’ emissions. ‘Direct’ emissions are from, for example, the use of natural gas and ‘indirect’ emissions are from, for example, the use of electricity on site where the emissions are produced upstream at a power plant.

The below diagram breaks down the three different carbon scopes and explains which activities fall into each category for Nottingham Trent University (NTU).



(Figure 1, NTU’s Carbon Emissions Breakdown)

NTU reports on scope 1 and 2 emissions annually and has also reported its scope 3 emissions since 2012. Annual trends are shown on the following pages. Emissions are composed of a range of different greenhouse gases but for reporting purposes they are all given a carbon value, measured in tonnes of carbon dioxide equivalent (tCO₂e). Emissions are also often displayed per ‘Full Time Equivalent’ (FTE) staff & student numbers. This allows for comparisons across years as student and staff numbers fluctuate.

For 2019/20, due to the coronavirus pandemic, NTU has also reported on emissions arising from staff & students carrying out contracted work and timetabled study respectively, away from campus. These emissions from ‘Working Elsewhere’ have become more significant during the coronavirus pandemic so NTU has adjusted its reporting to account for this.

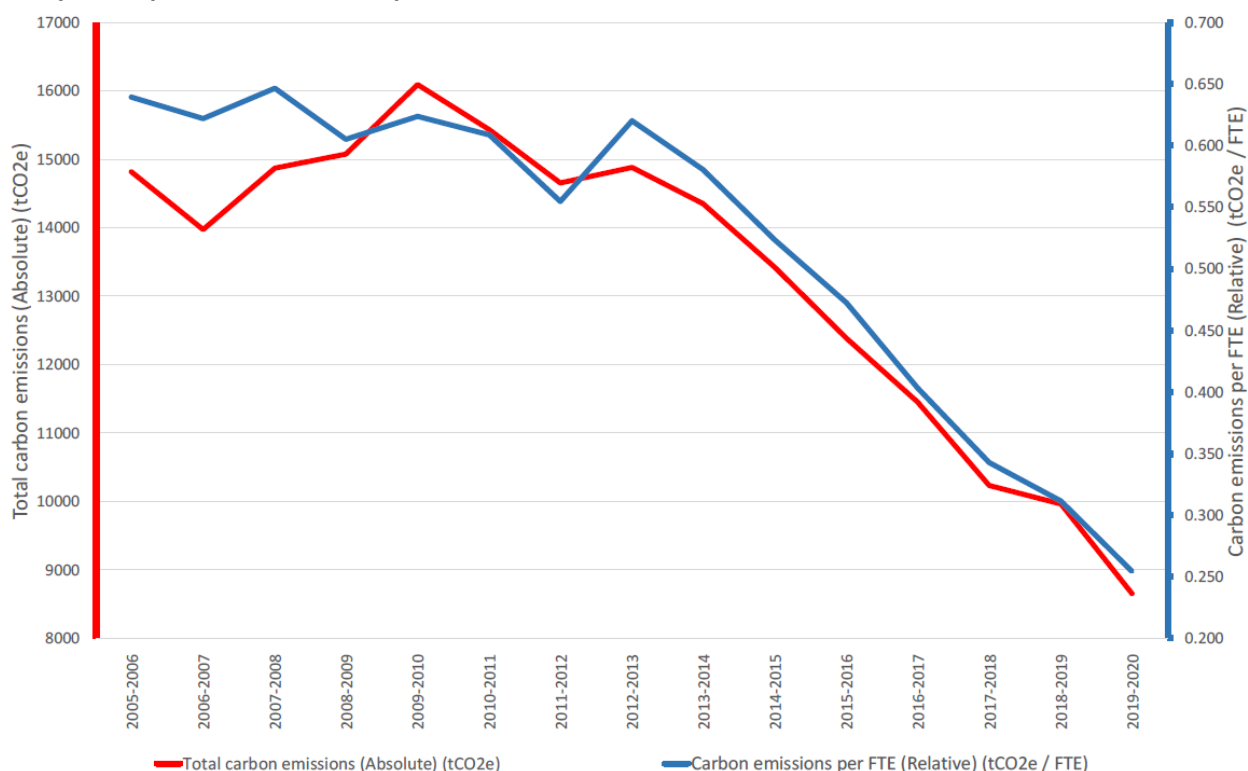
Target

NTU has a target of achieving Net Zero Carbon across all three carbon scopes by 2040.

Data Sources

Type of emissions	Source of data	Method of calculation
Emissions from energy usage (scopes 1 &2)	Utility bills, metering and fuel usage data	Charged energy usage (kWh's) converted to tCO ₂ e using the correct carbon conversion factor.
Business travel	Expenses system and University travel agents.	Mileage statistics converted to tCO ₂ e and flights emissions data from contracted travel agents also included.
Staff and student commuting	Bi-annual travel survey and Student Planning department.	Sample travel survey data uplifted for population and whole academic year. Student home postcodes used to estimate emissions from travel to NTU (via car for UK students and flights for international students)
Supply chain emissions	Finance department	Commodity code spend data converted to tCO ₂ e.
Waste management	NTU's Waste contractor	Composition and disposal method data converted to tCO ₂ e.
Externally managed halls of residence	Provided by NTU Energy Team & UPP (Universities Partnership Programme)	Energy consumption data converted to tCO ₂ e.
Staff and student emissions from 'Working Elsewhere' e.g. not on campus	Collaboration with local partners to estimate home 'office' energy usage.	Using staff and student FTE figures and contracted/timetabled hours to estimate total energy usage.
Emissions from Supplied Water and Treated Water	Utility Bills and Metering	Supplied water in m ³ converted to tCO ₂ e and 95% of this m ³ value used to calculate treated wastewater.

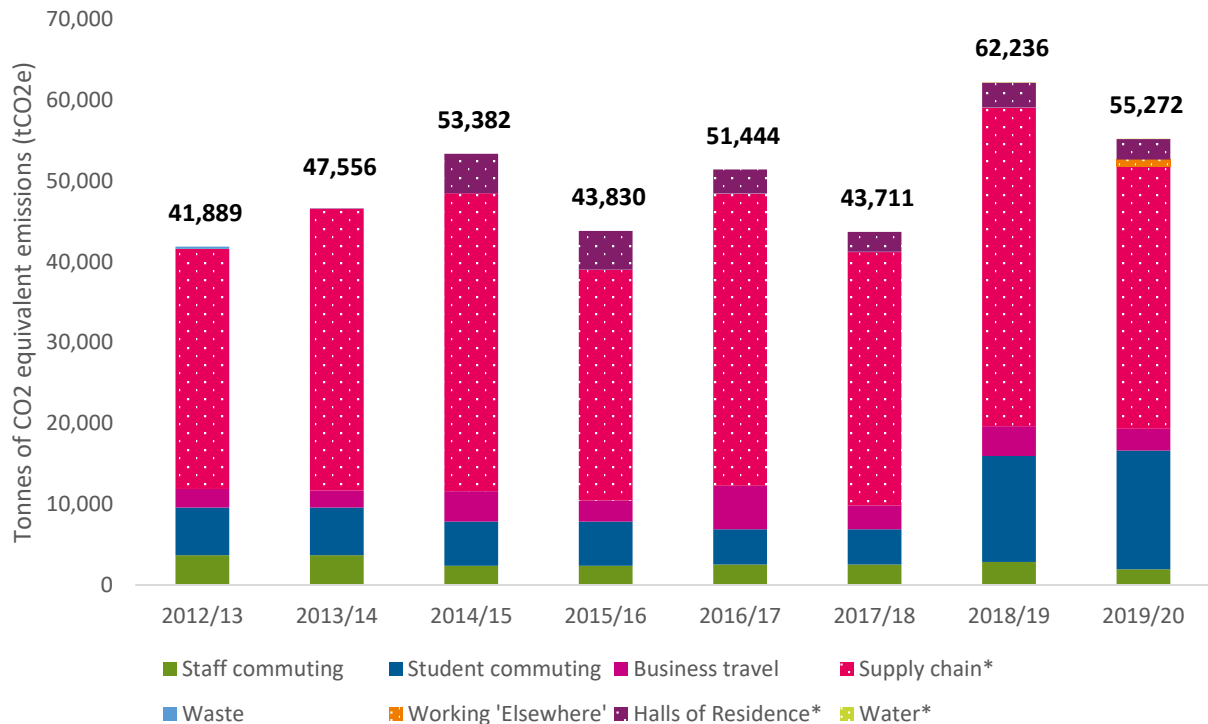
Summary of Scope 1&2 Carbon Footprint



(Figure 2, NTU's Scope 1&2 Carbon Emissions)

NTU's scope 1 and 2 carbon emissions arise from a range of different types of energy usage. This includes electricity, natural gas, district heating, fuel usage for NTU-owned vehicles and biomass. For 2019/20 absolute emissions fell to a low of 8,659 tCO₂e and relative emissions per FTE dropped to 0.254 tCO₂e from 0.312 tCO₂e per FTE in the previous year.

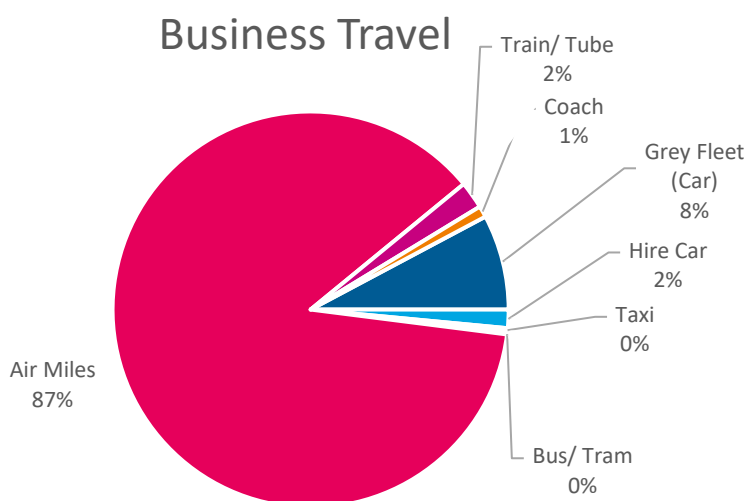
Summary of Scope 3 Carbon Footprint 2012/13 to 2019/20



(Figure 3, NTU's Scope 3 Carbon Emissions) *Not included originally due to data limitations

Business Travel

Air travel for the year 2019/20 accounts for 87% of all NTU business travel emissions. This data includes all domestic, short and long-haul flights. Business Travel Air Travel includes data from both staff and student flights.



(Figure 4, Business Travel tCO₂e)

Transport	tCO ₂ e
Air Miles	2,341
Grey Fleet (Car)	209
Hire Car	40
Train/ Tube	60
Coach	25
Taxi	9
Motorbike	3
Bus/ Tram	2
Total	2,689

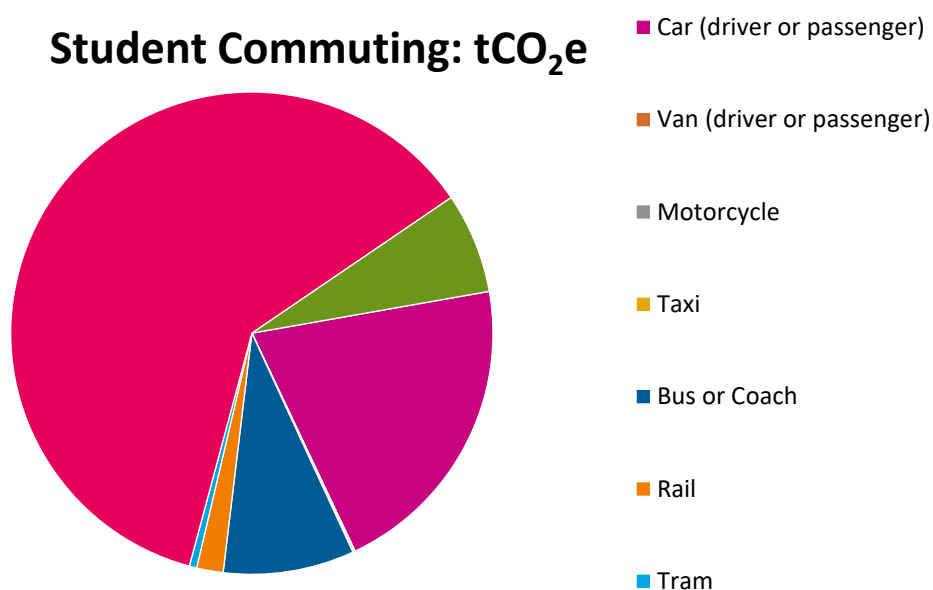
Commuting

Car travel makes up a significant proportion of the NTU commuting footprint at nearly 28%. Please note, as of academic year 2018/19, reported student commuting emissions have increased significantly due to additional reporting on students travelling to and from NTU at the start and end of each year.

When calculating the emissions from daily commuting in 2019/20, the impact of the Covid restrictions were considered. There was an approximately 80% reduction in visitors to campus from the 23rd March 2020. When calculating emissions prior to Covid restrictions, data was based on a typical commuting week. To calculate the emissions during Covid restrictions, the data assumes 20% of a typical commuting week.

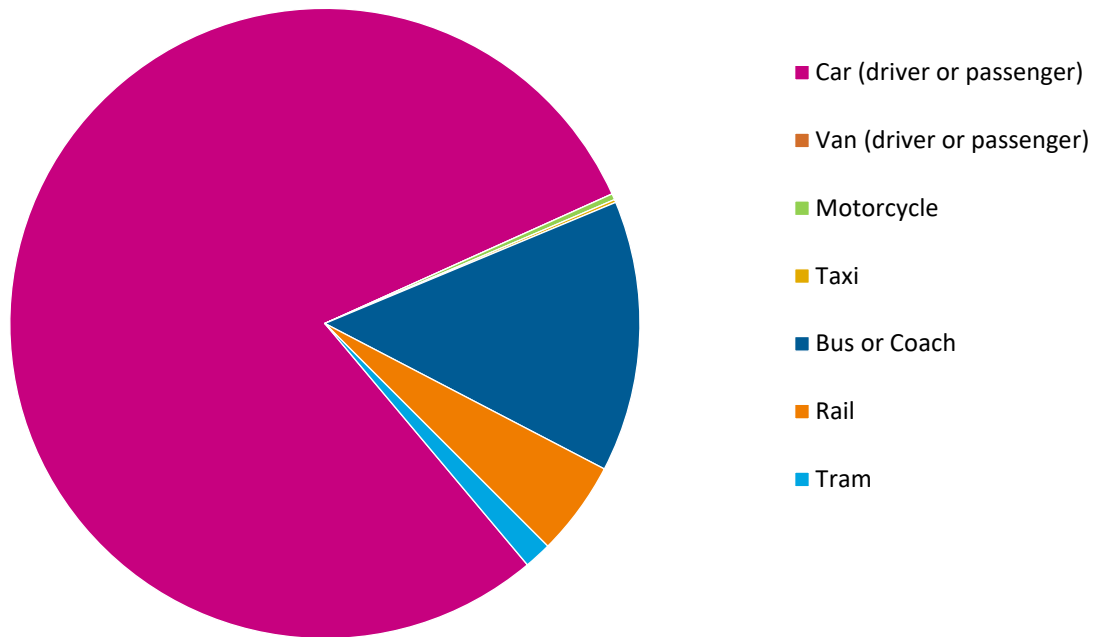
International student travel to and from NTU from countries of origin is assumed to take place at the beginning and end of the year. For the purposes of this report, we assume international students have still made these journeys at least once during the Covid pandemic.

Mode of Transport	tCO ₂ e		
	Staff	Students	Combined
International Student flights (to/from home capital to Heathrow at start/end of year)	-	9,014	9,014
Car (driver or passenger)	1536	3,049	4,584
Bus or Coach	269	1,292	1,561
UK based students Travel (to/from home postcode to 50 Shakespeare St at start/end of year)	-	990	990
Rail	94	261	355
Tram	27	73	100
Taxi	3	17	20
Motorcycle	6	7	13



(Figure 5, Student Commuting tCO₂e)

Staff Commuting: tCO₂e

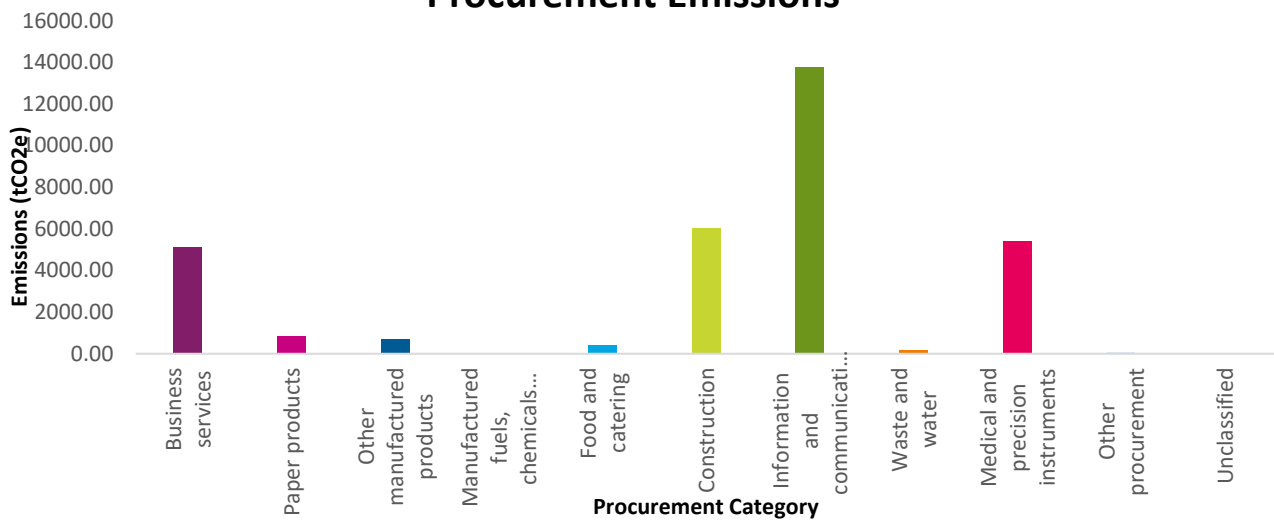


(Figure 6, Staff Commuting tCO₂e)

Supply Chain

During 2019/20, NTU spent approximately £46m on goods and services. This spend can be split into categories and each given a carbon conversion factor. The data excludes business travel and energy costs to avoid double counting. For example, energy costs are included in scope 1 and 2 reporting rather than scope 3 and business travel is reported separately in this scope 3 report. The results of our spend analysis can be seen below.

Procurement Emissions

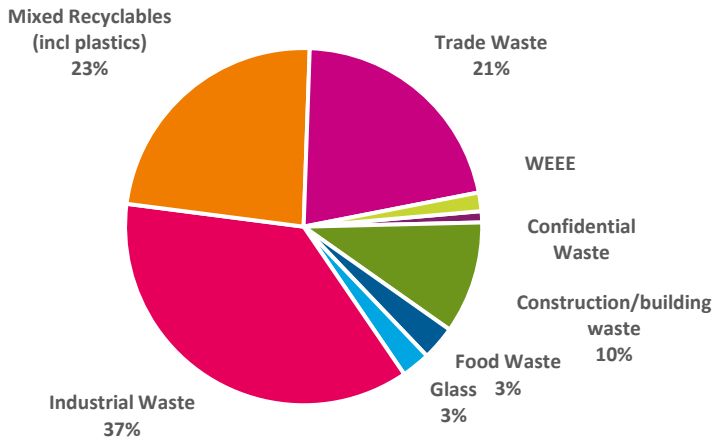


(Figure 7, Procurement tCO₂e)

Waste

In 2019/20, NTU produced approximately 974 tonnes of waste, accounting for nearly 18 tCO₂e. Approximately 30% of waste is segregated onsite. This includes general waste, construction, glass, metals and food waste. The waste contractor further segregates this, resulting in approximately 99% of our waste being diverted from landfill in 2019/20.

Waste: Proportion of tCO₂e 2019-20



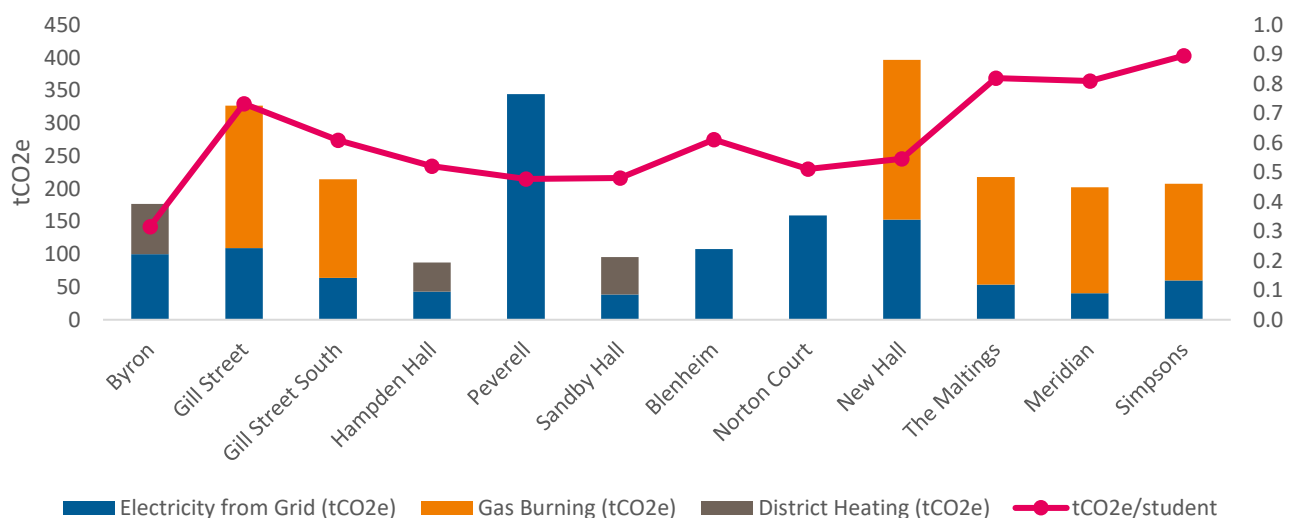
(Figure 8, Waste tCO₂e)

Type of Emissions	DEFRA tCO ₂ e
Confidential Waste	0.182
Construction/building waste	1.824
Food Waste	0.557
Glass	0.467
Industrial Waste	6.569
Mixed Recyclables	4.221
Trade Waste	3.841
WEEE	0.302
Total	17.96

Externally Managed Halls of Residence

University Partnerships Programme (UPP) manage the majority of NTU's halls of Residence, comprising a total of 4402 beds. Three halls, Byron, Hampden Hall and Sandby Hall, are connected to the Nottingham District Heating Network. Peverell, Blenheim and Norton Court Halls run on electricity only. It should be noted that several halls have utilities partly or fully managed independently of NTU. For example, Blenheim, New Hall, Norton Court, Maltings, Meridian and Simpson. Dashes denote this fuel is not in use.

UPP Halls of Residence



(Figure 9, External Halls of Residences tCO₂e)

Location	No of Beds	Electricity from Grid (tCO ₂ e)	Gas Burning (tCO ₂ e)	District Heating (tCO ₂ e)	tCO ₂ e per bed
Byron	559	100	-	77	0.316
Gill Street	446	110	217	-	0.733
Gill Street South	352	64	150	-	0.609
Hampden Hall	168	43	-	45	0.522
Peverell	720	344	-	-	0.478
Sandby Hall	199	38	-	57	0.481
Blenheim	177	108	-	-	0.611
Norton Court	312	159	-	-	0.511
New Hall	727	153	244	-	0.546
The Maltings	266	54	164	-	0.820
Meridian	250	40	162	-	0.810
Simpsons	226	60	148	-	0.896
Total for UPP Halls	4,402	1,274	1,086	178	Total Emissions
					2,539

Emissions from 'Working Elsewhere'

Prompted by a significant rise in working elsewhere (e.g. at home) during academic year 2019/20, primarily due to the coronavirus pandemic, NTU made the decision to report on the emissions arising from this work during the lockdown period from April to August 2020.

This involved estimating home working energy usage (grid electricity and natural gas), accounting for total FTE staff and student numbers and furloughed staff numbers. Also factored in were staff and students contracted and timetabled hours respectively. NTU also analysed swipe card access data from staff and student numbers which suggested total staff and student physical presence on campuses was down by approximately 80% during the coronavirus lockdown period (April-August), meaning this work was instead being carried out elsewhere. This insightful data was also incorporated into the calculations.

	FTE Numbers	Total energy usage (kWh)	Total emissions (tCO ₂ e)
Staff	3,448	7,342,714	571.11
Students	30,591	3,608,905	311.72
Totals	34,039	10,951,619	882.83

Water

In 2019/20 NTU used 55,593 m³ of water in the Managed Estate. Carbon emissions from water are composed of emissions from both supplied water and treated water. We estimate that 95% of supplied water then goes on to become treated water. Emissions for both these areas can be seen below.

Water Supply tCO ₂ e	Water Treatment tCO ₂ e	Total
19.12	37.39	56.52

All three scopes summary

Year	Total Scopes 1 & 2 (tCO ₂ e)	Total Scope 3 (tCO ₂ e)	Total (tCo2e) All Scopes	Staff and Student FTE	Scope 1& 2 emissions/FTE	Change in Scope 1&2 emissions per FTE staff/student as compared to 2005/6 baseline
2005/06	14819		14819.0	23169	0.64	0%
2006/07	13977		13977.0	22474	0.62	-3%
2007/08	14868		14868.0	22987	0.65	1%
2008/09	15076		15076.0	24906	0.61	-5%
2009/10	16098		16098.0	25797	0.62	-2%
2010/11	15432		15432.0	25338	0.61	-5%
2011/12	14653	41889	56541.9	26415	0.55	-13%
2012/13	14882	47556	62438.3	23995	0.62	-3%
2014/15	13420	53382	66801.9	25634	0.52	-18%
2015/16	12389	43830	56218.9	26747	0.46	-28%
2016/17	11460	51444	62903.5	28392	0.40	-37%
2017/18	10239	43711	53950.1	29877	0.34	-46%
2018/19	9969	62192	72160.5	31990	0.31	-51%
2019/20	8659	55272	63931.4	34039	0.25	-60%

Next steps

As NTU looks forward to our NZC 2040 target and sets out the steps to achieving this, scope 3 emissions will be a key focus. A series of working groups will be setup during 2021 which will each focus on a different aspect of NTU’s carbon emissions across all three scopes. Several of these groups will focus specifically on scope 3 emissions, including supply chain, travel and emissions from ‘working elsewhere’.