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University of Delaware

Greenhouse Gas Inventory for the 2017 – 2018 Academic Year

June 30, 2019

Introduction

The University of Delaware (UD) became a signatory to the Second Nature Presidents' Climate Leadership Commitment (formerly the American College & University Presidents' Climate Commitment - ACUPCC) in 2008. The Presidents' Climate Leadership Commitment is a voluntary program designed to address the "pace and intensity of global climate change and the potential for unprecedented detrimental impacts" by documenting institutional commitments from college and universities to increase awareness around climate change and eliminate net greenhouse gas (GHG) emissions from their own operations. UD, as part of its Presidents' Climate Leadership Commitment requirements, submitted an initial GHG inventory report detailing its carbon emissions for the 2007-2008 academic year in 2009 and, in 2010, filed a Climate Action Plan specifying future emissions reduction targets.

As part of its commitment to Second Nature, and in order to measure progress towards its Climate Action Plan targets, UD works with Siemens to compile greenhouse gas emissions inventory reports annually beginning with the 2011-2012 academic year. Each annual report contains a snapshot of annual emissions and a comparison against the baseline established by the initial 07-08 GHG inventory. This report has been prepared to address UD's commitment to the ACUPCC to submit a GHG emissions inventory for the 2017-2018 academic year. Although University emissions have fallen, these reductions are primarily linked to scope 2 reductions resulting from changes in the power industry and scope 3 reductions. The scope 3 emission reductions are driven primarily by changes in student, faculty, and staff commuting behaviors identified through the 2017 Transportation Survey update.

Overview of 2017-2018 GHG Inventory Approach and Results

Siemens worked with UD personnel to compile the 2017-2018 academic year GHG inventory. The aim of this effort was to replicate the scope and approach of the 2007-2008 GHG inventory and generate a brief, written update for comparison to the 2007-2008 benchmark. This process allows for direct correlations between the two records while measuring the benefits of carbon mitigation actions taken during the intervening ten years.

Direct data records were compiled for building energy use, UD owned fleet vehicles, organic waste outputs, and fertilizer used. Estimates were utilized to assess fuel consumption associated with commuting activities as was required for the 2007-2008 academic year GHG inventory. The Campus Transportation Survey was updated in 2017 and this new information and associated analysis was leveraged to refresh the scope 3 mobile combustion emission models for the 2017-2018 GHG Inventory Report.

Emission factors for the combustion of natural gas, fuel oil, gasoline, diesel fuel, and jet fuel were obtained from the U.S. EPA Mandatory Reporting Rule for Greenhouse Gases (MRR), Table C-1, in keeping with the accounting methodology specified by The Climate Registry's *General Reporting Protocol (GRP)*. This represents a slight departure from the 2007-2008 approach which relied upon emission factors from the U.S. Energy Information Administration (EIA). Another change is that methane (CH₄) and nitrous oxide (N₂O) emissions associated with fuel combustion were considered in the 2017-2018 report while only CO₂ emissions were documented in the 2007-2008 report. These modifications are warranted however, because they align UD's GHG accounting approach with current best practices and the resulting difference is less than 1% for all commodities, so this change does not substantially impact the emission totals.

Emission factors for purchased electricity, in keeping with *GRP* methodology, were derived from the U.S. EPA eGRID2016 tables. UD is located within the RFC East Subregion, so the published GHG emission factors representing the fuel mix used in generating electricity in this region were used. This source differs from the one used for the 2007-2008 report, but the eGRID system is a universally accepted source which is regularly updated so, adopting this standard will facilitate future emissions inventory calculations. Scope 3 transmission and distribution losses associated with purchased electricity were calculated based on the loss percentages published in the eGRID2016 for the East region.

Scope 3 GHG emissions from the disposal of mixed waste, food waste, and food composting were calculated using emission factors obtained from the U.S. EPA WARM Model, version 14. This is an updated version of the same source used in the 2007-2008 report.

GHG emissions resulting from usage of nitrogen fertilizer were calculated with an emission factor derived from the U.S. EPA's Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2001 (April 2003). This is the same value that was used in the 2007-2008 report.

UD emitted a total of 99,612 Metric Tons of CO₂e from Scope 1 and Scope 2 sources during the 2017-2018 academic year. The largest emission source was purchased electricity, which accounted for 57% of the combined Scope 1 and 2 totals. The other significant source was natural gas, at 38%. The remaining sources were UD's fleet (1%), heating oil (2%), and landscaping fertilizer (less than 0.25%).

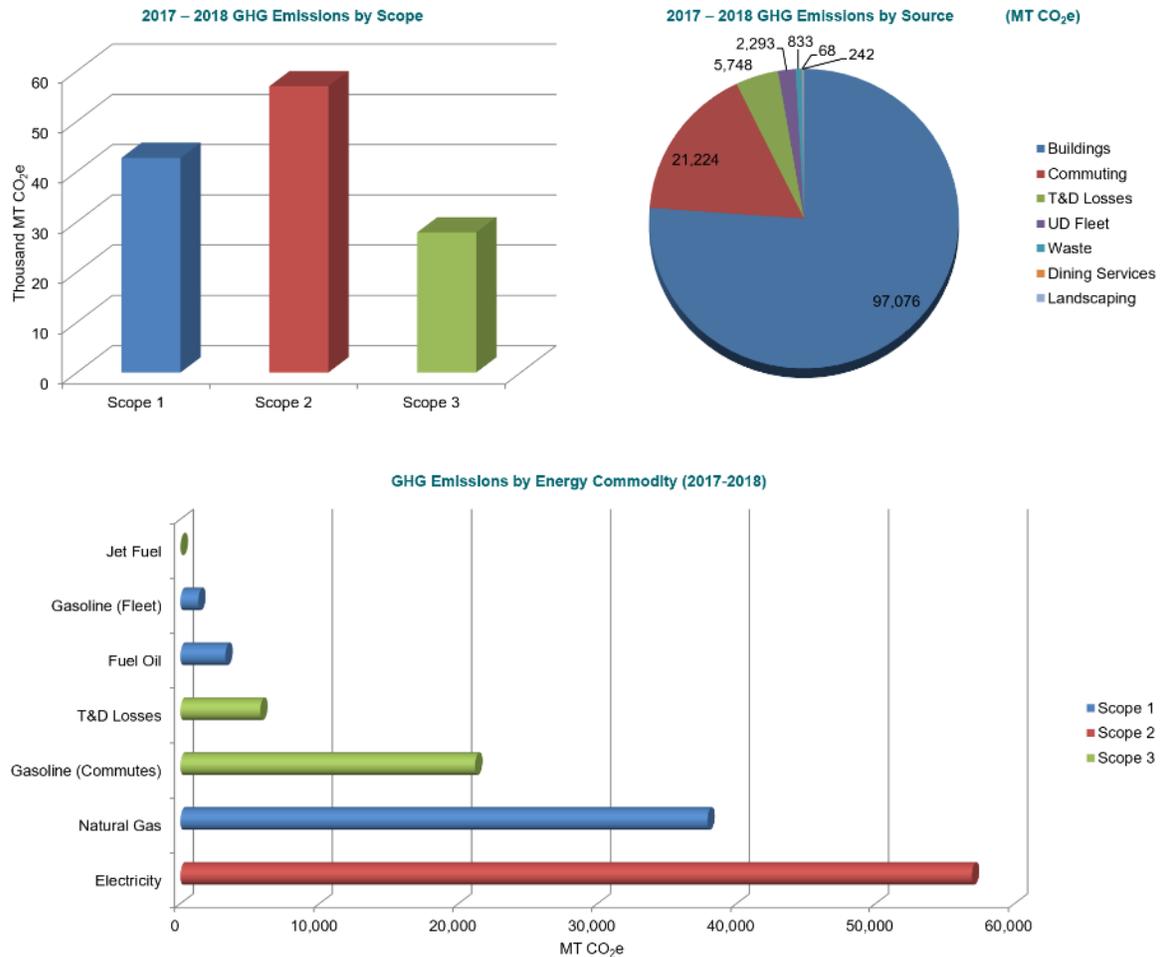
UD's reported Scope 3 emissions totaled 27,873 Metric Tons of CO₂e. Scope 3 sources included student/staff commuting and trips home (76% of Scope 3 total), electric transmission and distribution losses (21%), municipal solid waste (3%), and air travel from student trips home (less than 0.09%).

Grand total (all scopes) emissions were 127,485 Metric Tons of CO₂e.

Table 1: 2017-2018 Total Consumption and GHG Emissions by Source

Activity	Source	Scope	Consumption	Unit	Emissions (MT CO ₂ e)
Natural Gas (combustion)	Buildings	1	694,390	MCF	37,913
Fuel Oil #2 (combustion)	Buildings	1	2,288	tons	2,231
Gasoline (transportation)	Fleet	1	147,010	gal	1,290
Diesel Fuel (transportation)	Fleet	1	98,234	gal	1,003
Fertilizer	Landscaping	1	60,500	lb	242
Electricity Purchases	Buildings	2	164,693,079	kWh	56,933
Scope 1 and 2 Total		1 & 2		MT CO₂e	99,612
Mixed Solid Waste	Buildings	3	2,288	tons	833
Compost/Food Waste	Buildings	3	126	tons	68
Gasoline (commuting)	Non-UD Vehicles	3	2,415,190	gal	21,200
Jet Fuel (air travel)	Non-UD Aircraft		2,487	gal	24
Electricity (T&D Losses)	Power Grid	3	16,627,056	kWh	5,748
Scope 3 Total		3		MT CO₂e	27,873
All Scopes Total				MT CO₂e	127,485

Figure 1: 2017-2018 GHG Emissions Overview



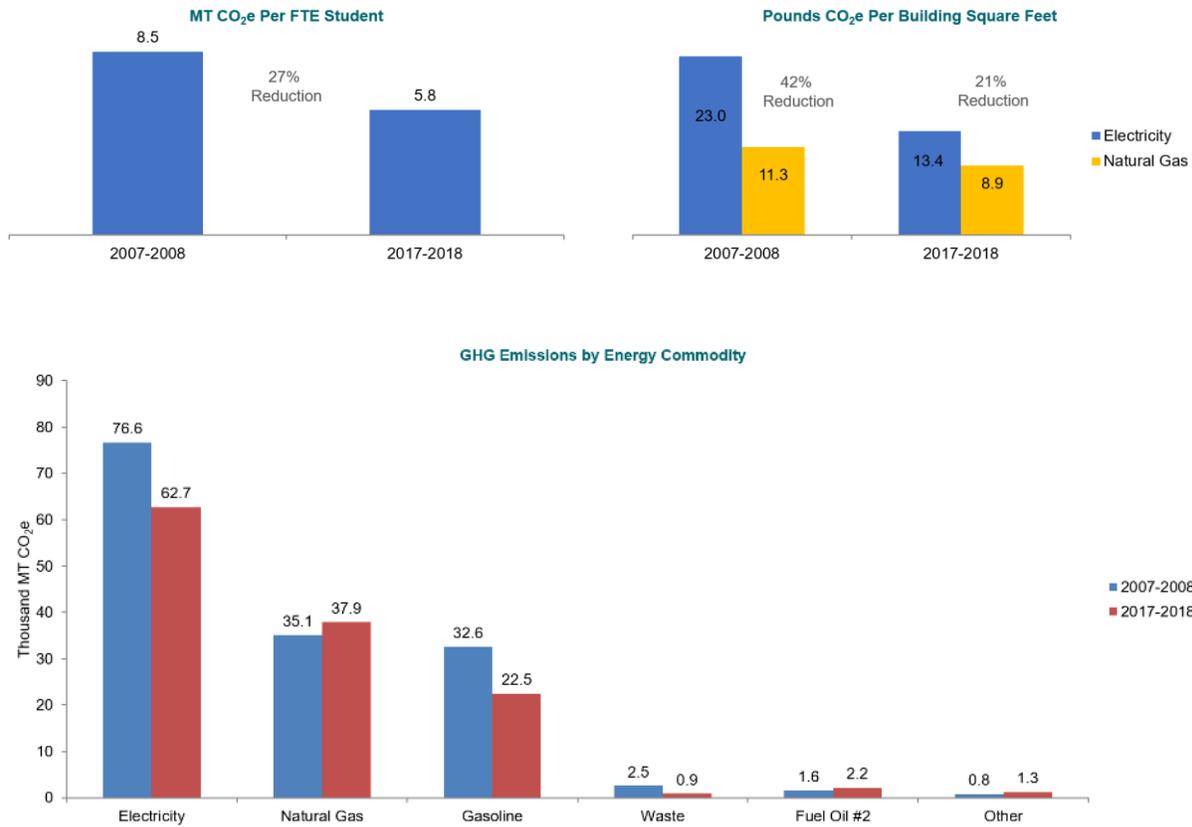
Comparison of 2017-2018 Results to 2007-2008 Results

UD’s measured GHG emissions declined from 149,207 MT CO₂e during the 2007-2008 academic year to 127,485 Metric Tons of CO₂e during 2017-2018. This GHG emissions reduction of 21,722 MT CO₂e represents an approximate 14.5% decline.

A net emissions reduction was achieved despite the fact that student enrollment at the University increased from 17,631 Full-Time Equivalents (FTE) in 2007-2008 to 22,168 FTEs in 2017-2018. In 2007-2008, 8.5 MTCO₂e were emitted for each FTE student. In 2017-2018 that ratio dropped to 5.8 MTCO₂e per FTE student, a decrease of 27%.

Newark Campus’s aggregate building area also increased from 6,863,991 square feet in 2007-2008 to 9,391,978 square feet in 2017-2018. However, efficiencies caused the GHG emissions rate per building square foot to outpace this facility growth and emissions intensity fell by 42% for electricity (from 23.0 lbs. CO₂e per square foot to 11.3) and fell by 21% for natural gas (11.3 to 8.9 lbs. CO₂e per square foot). These results are summarized in Figure 2.

Figure 2: 2007-2008 v 2017-2018 GHG Emissions Comparisons



Notes:

- 1 - "Electricity" includes emissions from both consumption (Scope 2) and T&D losses (Scope 3)
- 2 - "Gasoline" includes emissions from both UD fleet (Scope 1) and student/staff commuting (Scope 3)
- 3 - "Other" category includes emissions from fleet diesel fuel and nitrogen fertilizer (Scope 1) and jet fuel (Scope 3)

Student/Staff Commuting and Trips Home

UD conducted an initial transportation survey in 2008 and, in 2017, this survey was updated. Based on the results from the updated survey, it was estimated that students and staff consumed approximately 3,470,617 2.4 million gallons of gasoline and a share of 2.5 thousand gallons of jet fuel during daily commutes and trips home to permanent residences. This equates to 21,224 metric tons CO₂e, which is down 31% from the 2008 total of 30,609 metric tons.

Mixed Solid Waste/Composting

UD compiles data annually on quantity of mixed solid waste generated and wasted diverted to a digester project. Mixed Solid Waste generation has declined from 2,937 short tons in 2008 to 2,288 short tons in 2017-2018. 506 short tons of compost were generated in 2008 (126 in 2018.) Combined GHG emissions from these sources during this period have declined from 1,301 Metric Tons CO₂e to 901 (~30% decrease.)

Electricity Transmission and Distribution Losses

As electricity is transmitted from the power plant to the final consumer, a portion is lost along the way. This means that, in order to generate a kilowatt-hour of electricity for the end user, slightly more than a kilowatt-hour must be produced by the power plant. Most published electricity emission factors, like those from eGRID, are based on generated, rather than delivered electricity.

In previous annual inventories (though not originally in the base year) UD reported the emissions from grid losses as part of its Scope 3 total. This was calculated based on the eGRID RFC East subregion GHG emission factor and the eGRID East Region grid loss %.

While electricity consumption has increased 19.4% from 2008 to 2018, the grid emissions factor has decreased by ~40% and grid losses have decreased from 6.47 % to 4.97 %. As a result, estimated scope 3 emissions from transmission and distribution losses have increased slightly from 4,958 metric in 2008 to 5,748 metric tons in 2018.

Comparison Against Climate Action Plan

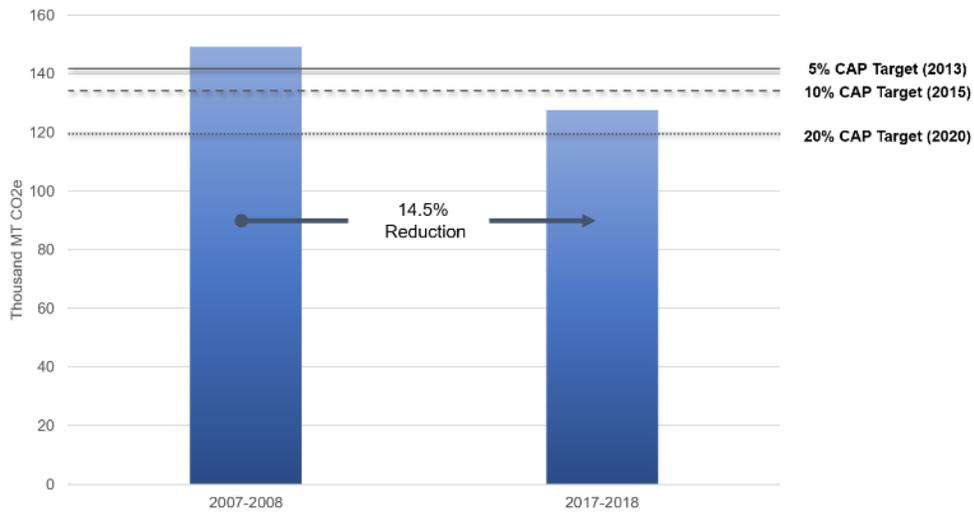
UD, as part of the ACUPCC Climate Action Plan, adopted emission reduction target milestones to be achieved by 2013 (a 5% reduction target from 2007-2008), 2015 (10%), and 2020 (20%).

The results of the 2017-2018 GHG inventory report demonstrate that the UD emission totals are below the 2013 and 2015 reduction targets (5% and 10%, respectively). Presently, with an estimated 14.5% reduction from the baseline, the 2017-2018 academic year emissions remain above the 2020 20% GHG reduction target.

It is important to note that largest component of the university's absolute emissions reduction was a result electricity supply generation shifts from coal to natural gas and renewable resources due to state, regional, and national policy changes. Also significant is the updated information associated by commuting behaviors as detailed within the 2017 update to the Campus Transportation Survey. Emissions from electricity T&D losses were slightly higher compared to the 2007-2008 baseline year (+16%), but the net contribution to the university totals were similar (4% in 2007-2008 compared to 5% in 2017-2018).

Finally, due to increases in enrollment, UD's FTE-normalized emissions declined by a much greater proportion than did absolute emissions.

Figure 3: Emissions Progress Against 2020 Climate Action Plan Target



Peer Analysis

During the development of the 2017-2018 GHG inventory report, UD's sustainability program and key performance metrics were benchmarked against a defined set of peer institutions. Secondary research was performed to evaluate peer institutions for comparison to UD. The results of this research are summarized herein, but details are provided only for institutions for which information was readily available. Some peer institutions had little, publicly available information so, UD was not benchmarked against these campuses.

Table 2 provides an overview of campus sustainability programmatic activities. Most institutions evaluated have set a carbon reduction goal and many have established a zero-carbon goal for 2050. Approximately half of the evaluated peers are signatories to the Second Nature Presidents' Commitment and hold an AASHE STARS rating of Gold or higher.

Table 2: University of Delaware Peer Institution Sustainability Programs

Institution	Carbon Goal	Presidents' Commitment Signatory	AASHE STARS Rating
Boston College		No	Reporter
Brown University	Zero Carbon by 2040	No	No
Carnegie Mellon University		No	Gold
College of William and Mary		No	Silver
University of Delaware	Zero Carbon by 2050	Yes	Reporter
Georgia Institute of Technology	Zero Carbon by 2050	Yes	Gold
Lehigh University		No	Silver
Pennsylvania State University	35% by 2020	No	Gold
University of Maryland	25% by 2020; 35% by 2030; 50% by 2040	Yes	Gold
University of North Carolina	Zero Carbon by 2050	Yes	Silver
University of Notre Dame	83% by 2050	No	Silver
University of Pittsburgh		No	Silver
University of Virginia	25% by 2025	No	Gold
Case Western University	Zero Carbon by 2050	Yes	Silver
Indiana University	80% by 2050	No	Gold
Iowa State University	65% by 2030	No	Gold
Michigan State University	65% by 2030	No	Silver
NC State University	Zero Carbon by 2050	Yes	Gold
Ohio State University	Zero Carbon by 2050	Yes	NA
Purdue University		No	Silver
Rutgers University		No	NA
Stony Brook University	Zero Carbon by 2050	Yes	Reporter
Texas A&M University		No	Gold
University of Arizona	Zero Carbon by 2050	Yes	Gold
University of Connecticut	Zero Carbon by 2050	Yes	Gold
University of Illinois Urbana-Champaign	Zero Carbon by 2050	Yes	Gold
University of Massachusetts Amherst	Zero Carbon by 2050	Yes	Gold
University of Michigan	25% by 2025	No	Gold
University of Minnesota	Zero Carbon by 2050	Yes	Gold
University of North Carolina Chapel Hill	Zero Carbon by 2050	Yes	Gold
University of Utah	Zero Carbon by 2050	Yes	Silver
Virginia Polytechnic Institute and State University	80% by 2050	No	NA
Temple University	Zero Carbon by 2050	Yes	Silver
George Washington University	Zero Carbon by 2050	Yes	Gold
Virginia Commonwealth University	Zero Carbon by 2050	Yes	Silver
George Mason University	Zero Carbon by 2050	Yes	Gold
Towson University	Zero Carbon by 2050	Yes	Bronze

Notes:

NA – Denotes that the institution is an AASHE STARS “member” but either has not reported or has not reported in recent years. “
 No – Denotes that the institution is not a member or a reporter to the designated organization.

Figures 4 and 5 charts UD’s energy and carbon performance along with those peers for which similar data was available. Figure 4 provides absolute energy usage and GHG emissions along with each institution’s building square footage. Figure 5 considers energy and GHG emissions normalized against building square footage. For the EUI comparison charts, two average EUI lines were drawn for the entire peer group and a subset of “regional” peers. Energy usage at UD compares favorably compared to the entire peer group, but energy intensity is higher at UD compared to regional peers. UD’s carbon performance compares favorably against peers, regional weather differences and the generation mix associated with electricity supplies appear to be the significant drivers of this result.

Figure 4: University of Delaware Peer Institution Sustainability Performance Analysis

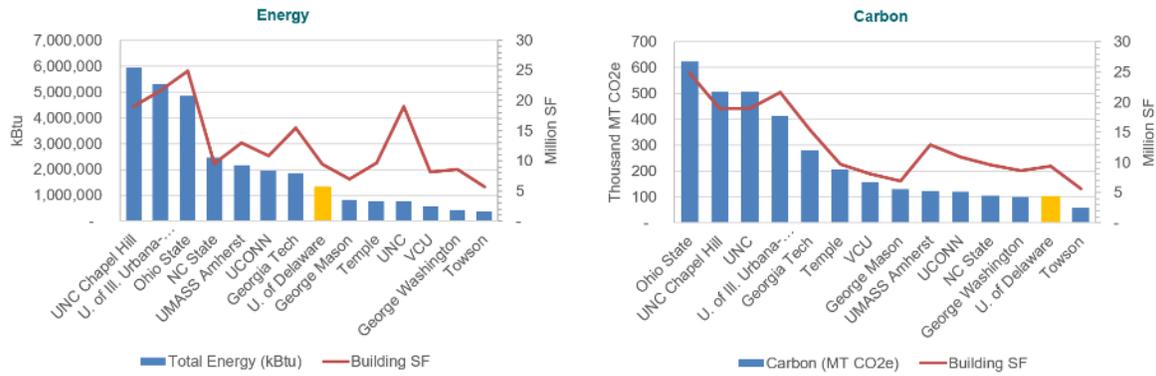
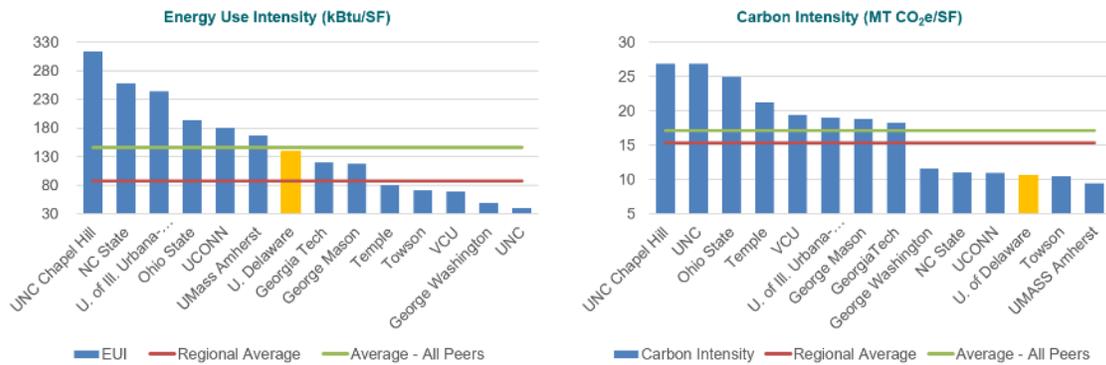


Figure 5: University of Delaware Peer Institution Intensity-based Performance Analysis



Notes:

The "Regional" Peer group includes George Mason, Temple, Towson, VCU, George Washington, and University of Delaware

Appendix A: Data

Table A1: 2017-2018 Consumption Data and GHG Emission Factors

Scope	Source	Commodity	Usage	Unit	CO2 Factor	CO2 Unit	CH4 Factor	N2O Factor	CH4/N2O Unit
1	Building	Natural Gas	694,390	MCF	0.0544	Kg/CF	5	0.1	g/mmBtu
1	Building	Fuel Oil #2	217,139	Gal	10.21	Kg/gal	11	0.6	g/mmBtu
1	Fleet	Gasoline	147,010	Gal	8.7775	Kg/gal	0.000788	0.0008717	g/gal
1	Fleet	Diesel	98,234	Gal	10.21	Kg/gal	0.000027	0.0000531	g/gal
1	Landscaping	Fertilizer	60,500	lb	0.004	MT/lb			
2	Building	Electricity	164,693,079	kWh	762.113	lb CO2e/MWh			
3	Waste	MSW	2,288	Tons	0.35	MT/ton			
3	Waste	Food Comp.	126	Tons	0.54	MT/ton			
3	Commuting (Daily)	Gasoline	2,047,455	Gal	8.7775	Kg/gal	0.000788	0.0008717	g/gal
3	Commuting (Long Trips)	Gasoline	367,734	Gal	8.7775	Kg/gal	0.000788	0.0008717	g/gal
3	Commuting (Long Trips)	Jet Fuel (Trips)	2,487	Gal	9.5684	Kg/gal	0.27	0.31	g/gal
3	T&D Losses	Electricity	16,627,056	kWh	858.56	lb/MWh	26.44	11.49	lb/GWh

Table A2: 2017-1018 Emission Totals (Metric Tons)

Scope	Source	Commodity	CO2	CH4	CH4 CO2e	N2O	N2O CO2e	Total CO2e
1	Building	Natural Gas	37,803	3.5622	89.0555	0.0712	21.2308	37,913
1	Building	Fuel Oil #2	2,217	0.3296	8.2404	0.0179	5.3577	2,231
1	Fleet	Gasoline	1,290	0.00012	0.00305	0.000135	0.04033	1,290
1	Fleet	Diesel	1,003	0.000003	0.000069	0.000004	0.001269	1,003
1	Landscaping	Fertilizer	242					242
2	Building	Electricity						56,933
3	Waste	MSW	833					833
3	Waste	Food Waste /Comp.	68					68
3	Commuting	Gasoline (Daily)	17,972	0.001703	0.042576	0.001885	0.561672	17,972
3	Commuting	Gasoline (Trips)	3,228	0.000306	0.007647	0.000034	0.100880	3,228
3	Commuting	Jet Fuel (Trips)	24	0.000672	0.016789	0.000771	0.229767	24
3	T&D Losses	Electricity						5,748

Notes:

Sources: EPA Final Mandatory Reporting of Greenhouse Gases, Table C-1 (CO₂ factors for Natural Gas, Fuel Oil, Gasoline, Diesel, Jet Fuel), EPA Climate Leaders (CH₄/N₂O factors for Gas, Fuel Oil, Gasoline,

Diesel, Jet Fuel), EPA Inventory of Emissions and Sinks (Fertilizer), EPA WARM Model v14 (MSW Waste, Food Waste), EPA eGRID (Electricity)

CO_{2e} calculations are based on IPCC Global Warming Potential Factors (CH₄ = 25; N₂O = 298)

Fertilizer and Waste emission factors are expressed in their source documents terms of CO_{2e}.

For Natural Gas and Fuel Oil #2, heat content values of 1.026 mmBtu/MCF and 0.138 mmBtu/gal, respectively, were assumed (EPA).

CH₄ and N₂O factors for transportation emissions are mileage-based in sources, and have been converted to volume-based factors based on national average fuel economy.

Appendix B: Emissions Without Scope 3

While the ACUPCC reporting protocol encourages the reporting of Scope 3 emissions, many other reporting programs do not require these to be reported. This is in part due to the inherent difficulties associated with quantifying these types of emissions.

Below is a comparison of only UD's Scope 1 and Scope 2 emission sources between the 2007-2008 and 2017-2018 academic years.

Table A3: 2007-2008 Scope 1 and 2 Emissions Only

Source	Sector	Category	Consumption	Unit	Emissions (MT CO ₂ e)
Natural Gas	Buildings	1	642,625	MCF	35,087
Fuel Oil #2		1	154,525	gal	1,569
Electricity		2	137,925,068	kWh	71,665
Gasoline	Transportation	1	229,697	gal	2,022
Diesel Fuel		1	72,451	gal	735
Fertilizer	Landscaping	1	13,427	lb	54
Total Emissions				MT	111,132

Table A4: 2017-2018 Scope 1 and 2 Emissions Only

Source	Sector	Category	Consumption	Unit	Emissions (MT CO ₂ e)
Natural Gas	Buildings	1	694,390	MCF	37,913
Fuel Oil #2		1	217,139	gal	2,231
Electricity		2	164,693,079	kWh	56,933
Gasoline	Transportation	1	147,010	gal	1,290
Diesel Fuel		1	98,234	gal	1003
Fertilizer	Landscaping	1	60,500	lb	242
Total Emissions				MT	99,611

Appendix C: ACUPCC GHG Report Inputs

Below are the input values for 2017-2018 for the ACUPCC GHG Report:

Table A5: 2017-2018 Presidents' Climate Commitment Summary Statistics

	Total (MT CO ₂ e)	Per Full-Time Enrollment	Per 1000 Square Feet	% Offset
Gross Emissions (Scope 1 + 2)	99,611	4.5	10.6	0%
Gross Emissions (Scope 1 + 2 + 3)	127,484	5.8	13.6	0%
Net Emissions	127,484	5.8	13.6	N/A

Emissions Inventory Methodology and Boundaries:

Start date of the 12-month period covered in this report:

July 1, 2017

Consolidation methodology used to determine organizational boundaries:

The University of Delaware greenhouse gas inventory covered all buildings which the university controls operations at on its Newark Campus.

Emissions inventoried in this study address activities at the Newark Campus of the University of Delaware. This includes Laird Campus, the Main Campus, and South Campus. UD's off campus farm facilities were outside of the scope of this inventory, as were its Dover, Wilmington, Lewes and Georgetown satellite campuses.

Emissions calculation tool used:

ecolink™ by Siemens was used for the 2007-2008 base year calculations. 2017-2018 calculations were performed offline in Excel spreadsheets.

Please describe why this tool was selected.

Siemens' ecolink® tool was leveraged to assist with data management and emissions calculations. This platform ensures that all emissions factors are clearly documented and correctly applied. This tool also provides safe and transparent data warehousing which will allow UD to re-analyze its organizational carbon footprint or solicit external validation of the UD carbon accounting practices.

Please describe the source(s) of the emissions coefficients used.

Emission factors for the combustion of natural gas, fuel oil, gasoline, diesel fuel, and jet fuel were obtained from the U.S. EPA Mandatory Reporting Rule for Greenhouse Gases (MRR), Table C-1, in keeping with the accounting methodology specified by The Climate Registry's *General Reporting Protocol (GRP)*.

Emissions factors for purchased electricity, in keeping with *GRP* methodology, were derived from the U.S. EPA's eGRID2012 tables. Specifically, UD is located within the RFC East Subregion, so the published GHG emission factors representing the fuel mix used in generating electricity in this region were used.

Scope 3 GHG emissions from the disposal of mixed waste, food waste, and food composting were calculated using emission factors obtained from the U.S. EPA WARM Model, version 14.

GHG emissions resulting from usage of nitrogen fertilizer were calculated with an emission factor derived from the U.S. EPA's Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2001 (April 2003).

Which version of IPCC's list of global warming potentials did you use?

Second Assessment Report

Who primarily conducted this emissions inventory?

Siemens

Please describe the process of conducting this inventory.

Siemens worked with UD personnel to compile the 2017-2018 academic year GHG inventory. The aim of this effort was to replicate the scope and approach of the 2007-2008 GHG inventory and generate a brief, written update for comparison to the 2007-2008 benchmark. This process allows for direct correlations between the two records while measuring the benefits of carbon mitigation actions taken during the intervening five years.

Direct data records were compiled for building energy use, UD owned fleet vehicles, organic waste outputs, and fertilizer used. Estimates were utilized to assess fuel consumption associated with commuting activities as was required for the 2007-2008 academic year GHG inventory and, in 2017, this Survey process was updated.

Please see the formal inventory for further detail.

Please describe any emissions sources that were classified as de minimis and explain how a determination of the significance of these emissions was made.

No emissions sources were excluded due to being classified as *de minimis*.

Please describe any data limitations related to this submission and any major assumptions made in response to these limitations.

Several sources of UD's emissions are excluded because of a lack of sufficient data. The omitted activities include UD related ground travel for which the UD fleet was not used; and UD related air travel. At UD, it is common for individuals to make their own travel arrangements, which precludes any ability to collect data on number of miles traveled or frequency of trips. Furthermore, the UD transportation survey scope only extended to travel around campus.

In addition, data limitation prevented UD from estimating the potential value of carbon sinks due to UD vegetation.

Emissions Data

all values in MT CO₂e

Scope 1 Emissions

Stationary Combustion	40143.5
Mobile Combustion	2293.4
Process Emissions	0.0
Fugitive Emissions	242
Total Scope 1 Emissions	42678.9

Scope 2 Emissions

Purchased Electricity	56932.5
Purchased Heating	0.0
Purchased Cooling	0.0
Purchased Steam	0.0
Total Scope 2 Emissions	56932.5

Scope 3 Emissions

Commuting	21200.0
Air Travel	25.0
Solid Waste	901.0
Transmission & Distribution Losses	5747.8
Total Scope 3 Emissions	27872.9

Biogenic Emissions

Biogenic Emissions from Stationary Combustion	0.0
Biogenic Emissions from Mobile Combustion	0.0

Mitigation Data:

N/A

Normalization and Contextual Data:

Building space

Gross square feet of building space	9,391,978
Net assignable square feet of laboratory space	1,464,799
Net assignable square feet of health care space	27,265
Net assignable square feet of residential space	2,510,473

Population

Total Student Enrollment (FTE)	22,168
Residential Students	No information provided
Full-time Commuter Students	No information provided
Part-time Commuter Students	No information provided
Non-Credit Students	No information provided
Full-time Faculty	No information provided
Part-time Faculty	No information provided
Full-time Staff	No information provided
Part-time Staff	No information provided

Other Contextual Data

Endowment Size	No information provided
Heating Degree Days	4,632
Cooling Degree Days	1,310

Supporting Documentation:

(link to inventory here)

Auditing and Verification:

These emissions data have not been audited, verified, or peer-reviewed.

Appendix D: UD Historical Enrollment Data

FY	Total – All	FTE - All	Full Time - All	Part Time - All	Total - Newark	FTE - Newark	Full Time - Newark	Part Time - Newark
FY08	20,342	18,567	17,679	2,663	18,723	17,596	17,033	1,691
FY09	20,500	18,754	17,881	2,619	18,855	17,767	17,223	1,632
FY10	21,138	19,359	18,469	2,669	19,391	18,272	17,713	1,678
FY11	21,176	19,472	18,620	2,556	19,556	18,429	17,866	1,690
FY12	21,489	19,844	19,022	2,467	19,957	18,851	18,298	1,659
FY13	21,856	20,257	19,458	2,398	20,363	19,262	18,712	1,651
FY14	22,166	20,512	19,685	2,481	20,550	19,426	18,864	1,686
FY15	22,680	21,153	20,389	2,291	21,141	20,124	19,616	1,525
FY16	22,852	21,325	20,562	2,290	21,327	20,306	19,795	1,532

Appendix E: Historical Degree Day Data (Wilmington Airport)

FY	Date	HDD	CDD
FY09	Jul-08	0	412
FY09	Aug-08	0	255
FY09	Sep-08	18	163
FY09	Oct-08	301	12
FY09	Nov-08	592	0
FY09	Dec-08	818	0
FY09	Jan-09	1128	0
FY09	Feb-09	794	0
FY09	Mar-09	674	0
FY09	Apr-09	351	39
FY09	May-09	108	66
FY09	Jun-09	19	190
FY10	Jul-09	0	277
FY10	Aug-09	0	367
FY10	Sep-09	34	87
FY10	Oct-09	304	5
FY10	Nov-09	463	0
FY10	Dec-09	914	0
FY10	Jan-10	1008	0
FY10	Feb-10	949	0
FY10	Mar-10	527	0
FY10	Apr-10	277	20
FY10	May-10	101	116
FY10	Jun-10	3	352
FY11	Jul-10	0	460
FY11	Aug-10	0	374
FY11	Sep-10	7	184
FY11	Oct-10	254	10
FY11	Nov-10	546	0
FY11	Dec-10	1023	0
FY11	Jan-11	1128	0
FY11	Feb-11	814	0
FY11	Mar-11	701	0
FY11	Apr-11	295	29
FY11	May-11	76	119
FY11	Jun-11	0	277
FY12	Jul-11	0	494
FY12	Aug-11	0	317
FY12	Sep-11	32	180
FY12	Oct-11	278	8
FY12	Nov-11	459	0
FY12	Dec-11	727	0
FY12	Jan-12	859	0
FY12	Feb-12	725	0
FY12	Mar-12	424	3
FY12	Apr-12	356	13
FY12	May-12	52	121
FY12	Jun-12	13	239

FY	Date	HDD	CDD
FY13	Jul-12	0	478
FY13	Aug-12	0	358
FY13	Sep-12	42	139
FY13	Oct-12	239	27
FY13	Nov-12	675	0
FY13	Dec-12	700	0
FY13	Jan-13	905	0
FY13	Feb-13	849	0
FY13	Mar-13	761	0
FY13	Apr-13	342	16
FY13	May-13	125	89
FY13	Jun-13	0	251
FY14	Jul-13	0	452
FY14	Aug-13	0	266
FY14	Sep-13	72	104
FY14	Oct-13	229	49
FY14	Nov-13	629	0
FY14	Dec-13	844	0
FY14	Jan-14	1164	0
FY14	Feb-14	938	0
FY14	Mar-14	824	0
FY14	Apr-14	377	7
FY14	May-14	76	59
FY14	Jun-14	2	236
FY15	Jul-14	0	345
FY15	Aug-14	0	245
FY15	Sep-14	39	146
FY15	Oct-14	218	16
FY15	Nov-14	635	0
FY15	Dec-14	769	0
FY15	Jan-15	1069	0
FY15	Feb-15	1126	0
FY15	Mar-15	838	0
FY15	Apr-15	331	1
FY15	May-15	56	164
FY15	Jun-15	18	266
FY16	Jul-15	0	372
FY16	Aug-15	0	335
FY16	Sep-15	1	230
FY16	Oct-15	288	3
FY16	Nov-15	425	6
FY16	Dec-15	478	1
FY16	Jan-16	1015	0
FY16	Feb-16	822	0
FY16	Mar-16	504	2
FY16	Apr-16	383	11
FY16	May-16	175	78
FY16	Jun-16	5	222

FY	Date	HDD	CDD
FY17	Jul-16	0	433
FY17	Aug-16	2	441
FY17	Sep-16	30	245
FY17	Oct-16	225	45
FY17	Nov-16	496	4
FY17	Dec-16	835	0
FY17	Jan-17	832	0
FY17	Feb-17	628	4
FY17	Mar-17	731	5
FY17	Apr-17	242	55
FY17	May-17	168	77
FY17	Jun-17	27	295

FY	Date	HDD	CDD
FY18	Jul-17	0	417
FY18	Aug-17	0	277
FY18	Sep-17	25	183
FY18	Oct-17	145	75
FY18	Nov-17	558	0
FY18	Dec-17	924	0
FY18	Jan-18	1037	0
FY18	Feb-18	671	0
FY18	Mar-18	788	0
FY18	Apr-18	440	8
FY18	May-18	36	117
FY18	Jun-18	8	233