

Sightlines LLC FY10 Go Green MB&A Presentation Champlain College

Tuesday, June 14, 2011

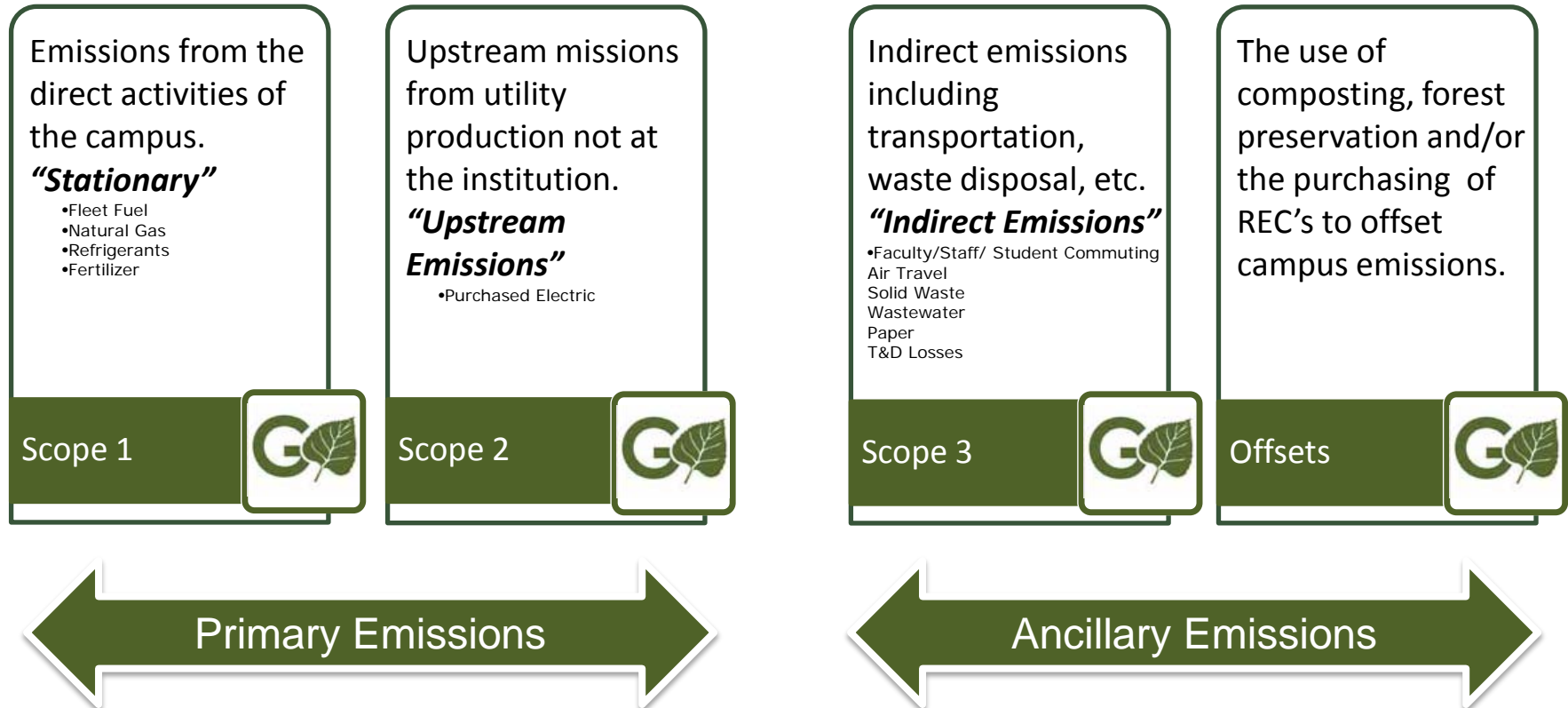
Sightlines



University of Illinois at Urbana-Champaign
The University of Maine
University of Maine at Augusta
University of Maine at Farmington
University of Maine at Machias
University of Maine at Presque Isle
University of Maine at Fort Kent
University of Maryland
University of Massachusetts Amherst
University of Massachusetts Boston
University of Massachusetts Dartmouth
University of Massachusetts Lowell
University of Michigan
University of Minnesota
University of Missouri
University of Missouri - Kansas City
University of Missouri - St. Louis
University of New Hampshire
University of New Haven
University of Notre Dame
University of Oregon
University of Pennsylvania
University of Portland
University of Redlands
The University of Rhode Island, Narragansett B
The University of Rhode Island, Feinstein
Providence
The University of Rhode Island, Kingston
University of Rochester
University of San Diego
University of San Francisco
University of St. Thomas (TX)
University of Southern Maine
University of Toledo
University of Vermont
Upper Iowa University
Utica College
Vassar College
Virginia Commonwealth University
Virginia Department of General Services
Wagner College
Wellesley College
Wesleyan University
West Chester University of Pennsylvania
West Virginia University
Western Connecticut State University

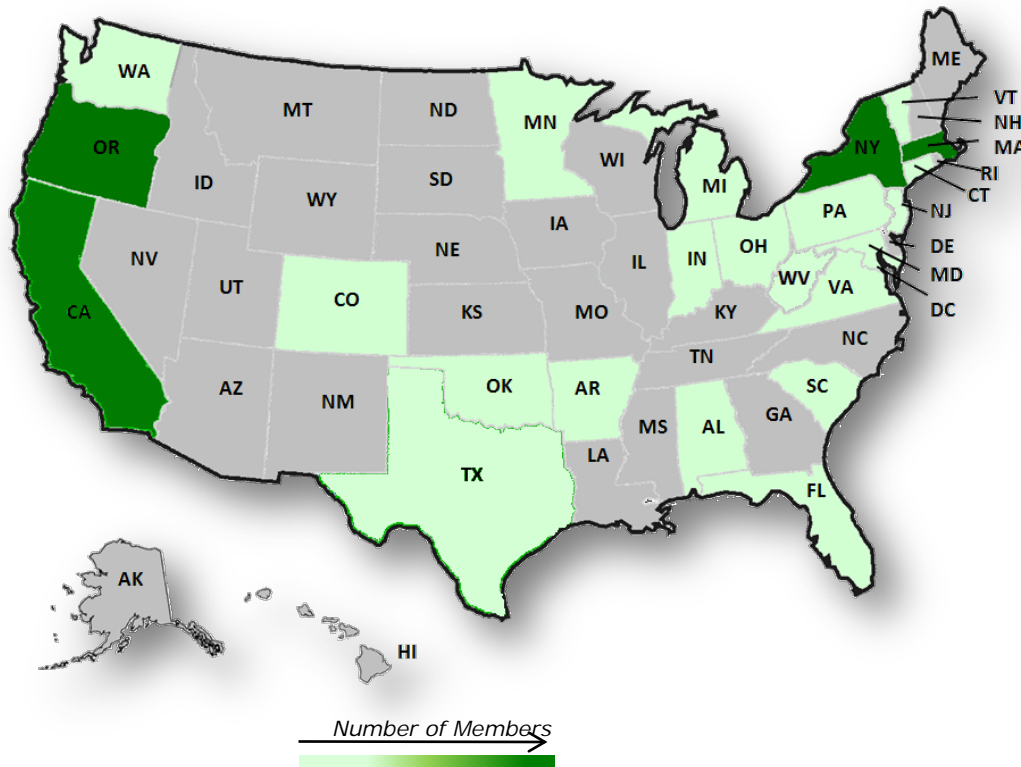
A vocabulary for measurement

Measurement, benchmarking and analysis





Go Green Service Membership Map



Go-Green Measurement and Analysis Service

- ✓ Sightlines has approximately 50 Members
- ✓ Approximately two-thirds are private
- ✓ Approximately one-third are public
- ✓ Approximately two-thirds have signed the ACUPCC
- ✓ Approximately forty percent are Charter Signatories of the ACUPCC

Go-Green Peer Institutions

Babson College
Bentley University
Eastern Oregon University
Hamline University
Hampshire College
Le Moyne College
University of Portland
Wesleyan University
Western Oregon University

Comparative Considerations

- Size
- Complexity
- Location
- Program

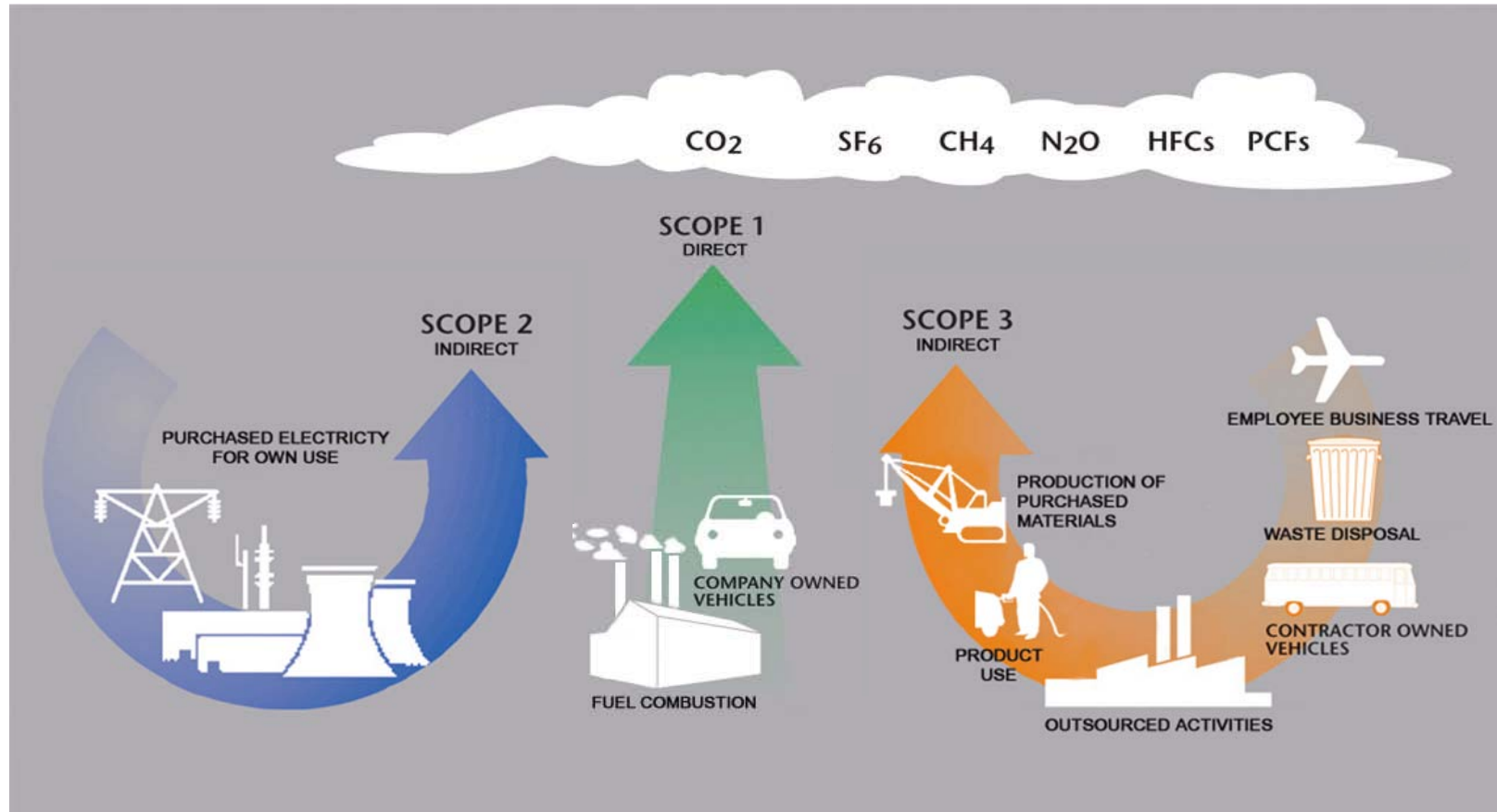


Simplifying the types of GHG emissions

All expressed as Metric Tons of Carbon Dioxide Equivalent (MTCDE)



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Scope 2: Emissions from utility production not at the institution

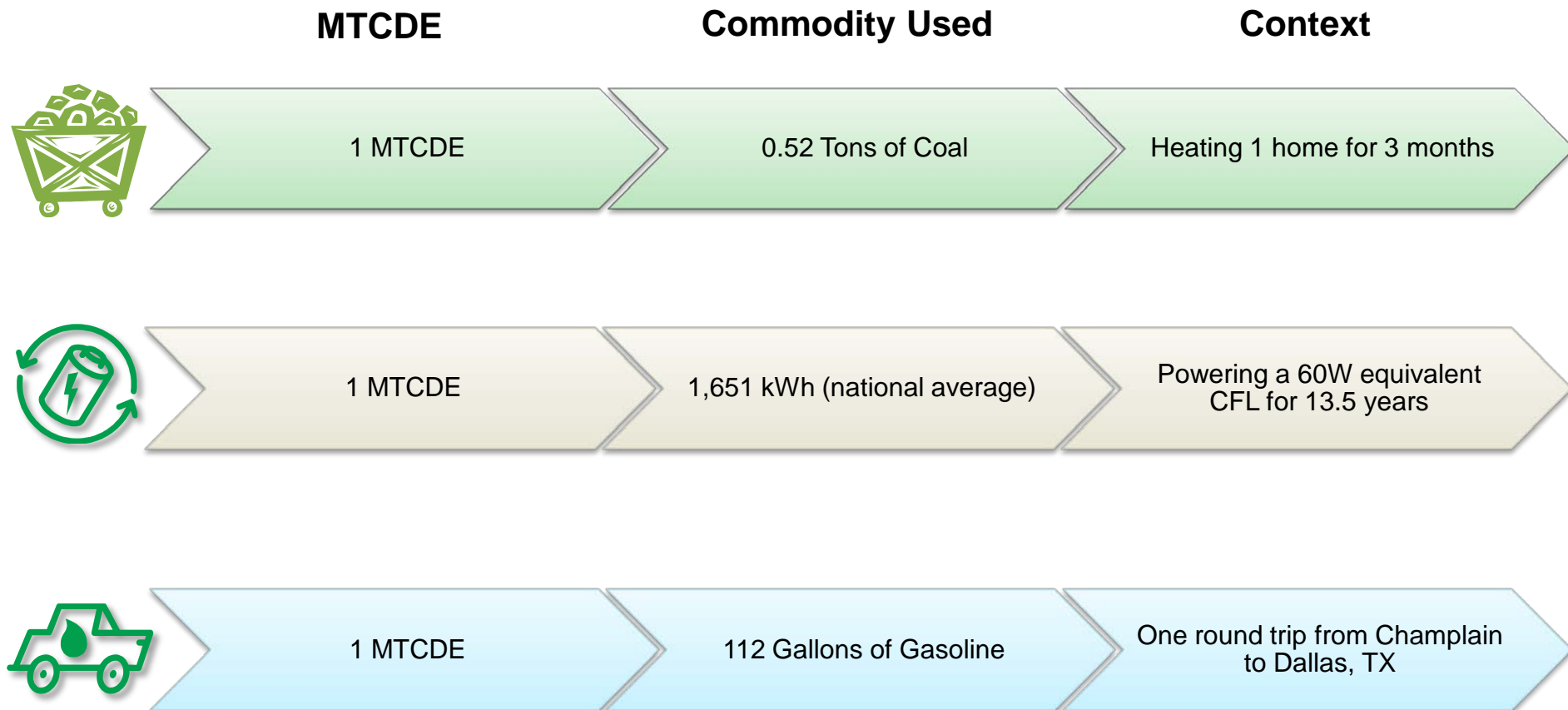
Scope 1: Emissions from the direct activities of the campus

Scope 3: Indirect emissions including transportation, waste disposal, etc.



Understanding MTCDEs

What is a Metric Ton of Carbon Dioxide Equivalent?





Positive Trends

- Overall energy consumption and GHG emissions/1,000 GSF have fallen over the past 7 years
 - This is due to the decrease in normalized Scope 1 and 2 emissions have
- FY10 GHG emissions are in lower than peer averages
 - Brings 7-year average in line with peers
- Purchasing of offsets effective in managing emissions

Opportunities

- Gross Scope 2 emissions are above peer average
- Scope 3 is responsible for 41% of all emissions
 - Commuting emissions are the largest contributor to Scope 3 emissions





GHG Emissions per 1,000 SF



Stresses efficient operation
of physical plant.

$$\frac{\text{Net GHG Emissions}}{\text{Total GSF in Footprint}} * 1,000$$

GHG Emissions per Student

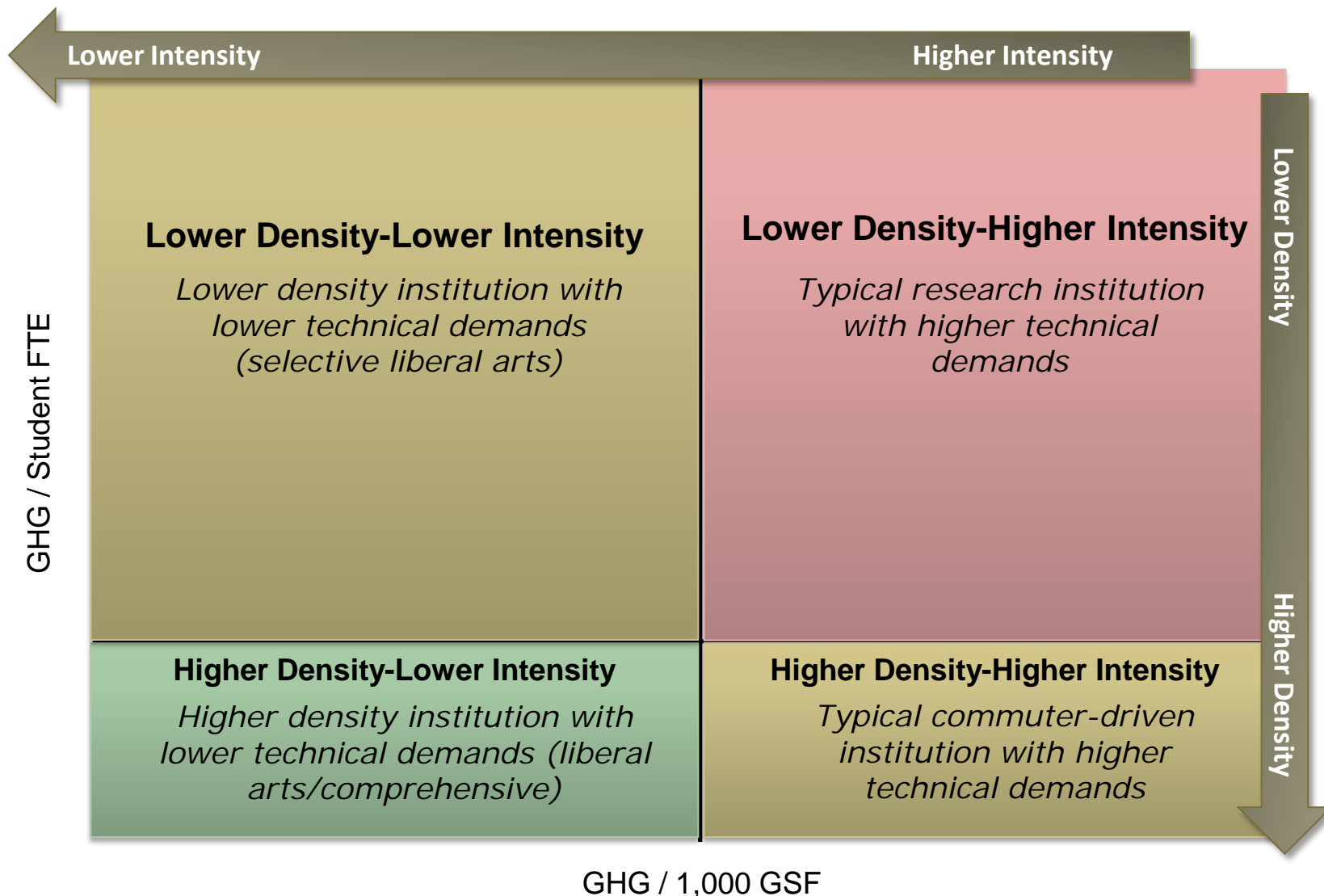


Stresses efficient
use of space.

$$\frac{\text{Net GHG Emissions}}{\text{Total Student FTE}}$$

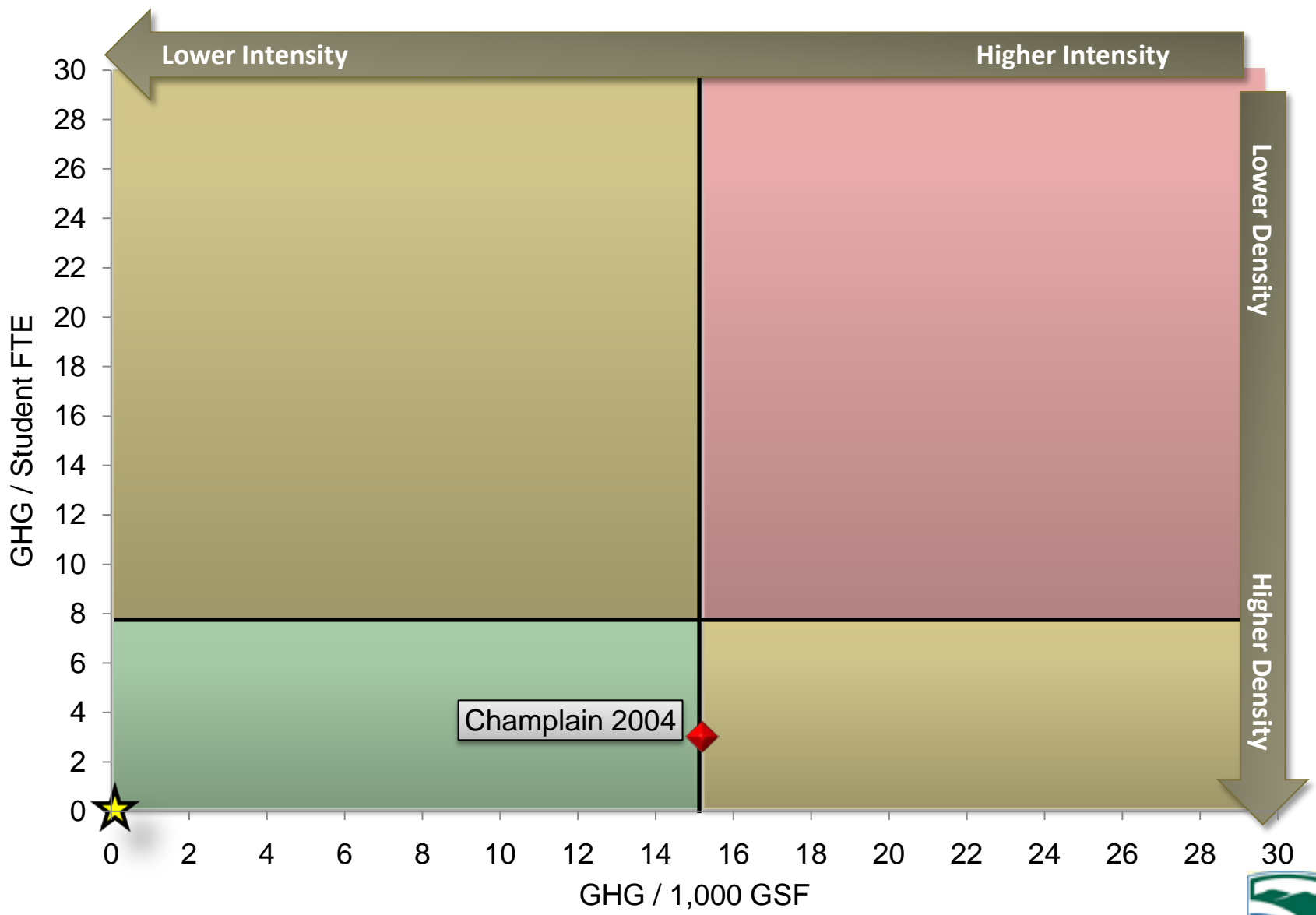
Gross Carbon Snapshot (Space vs. Density)

Understanding "Performance Portfolios"



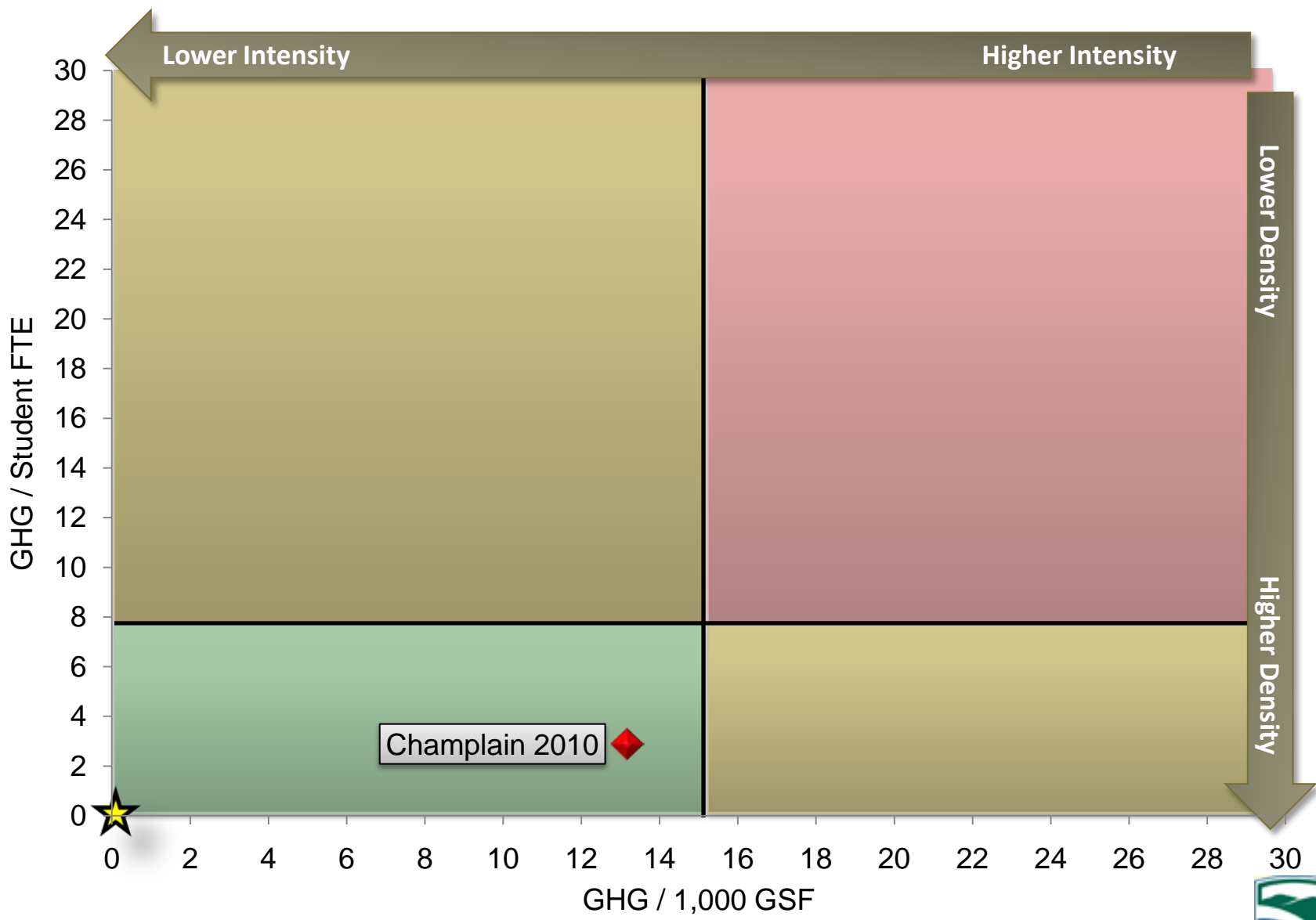
Understanding emissions profile

Setting targets for future emissions

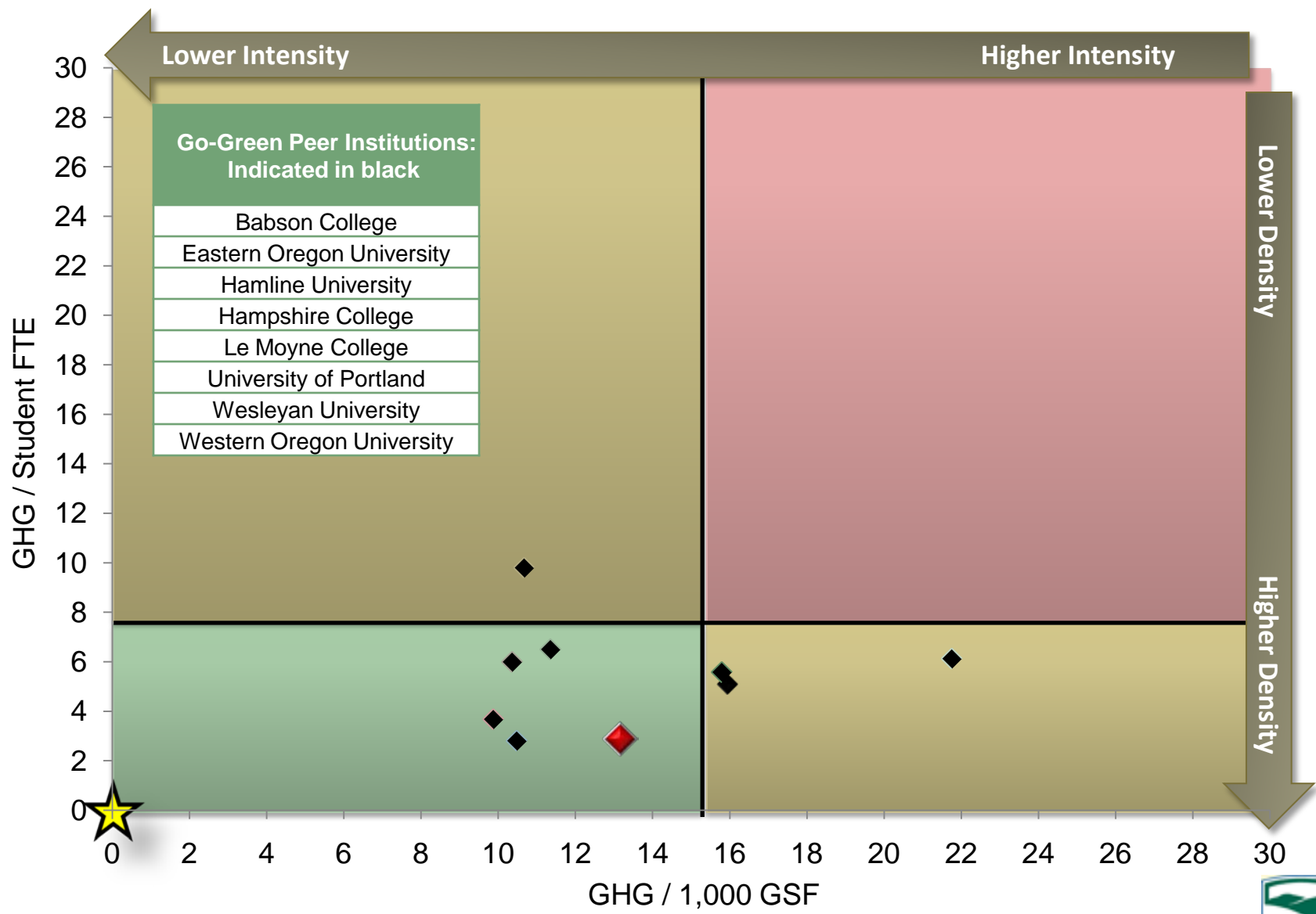


Understanding emissions profile

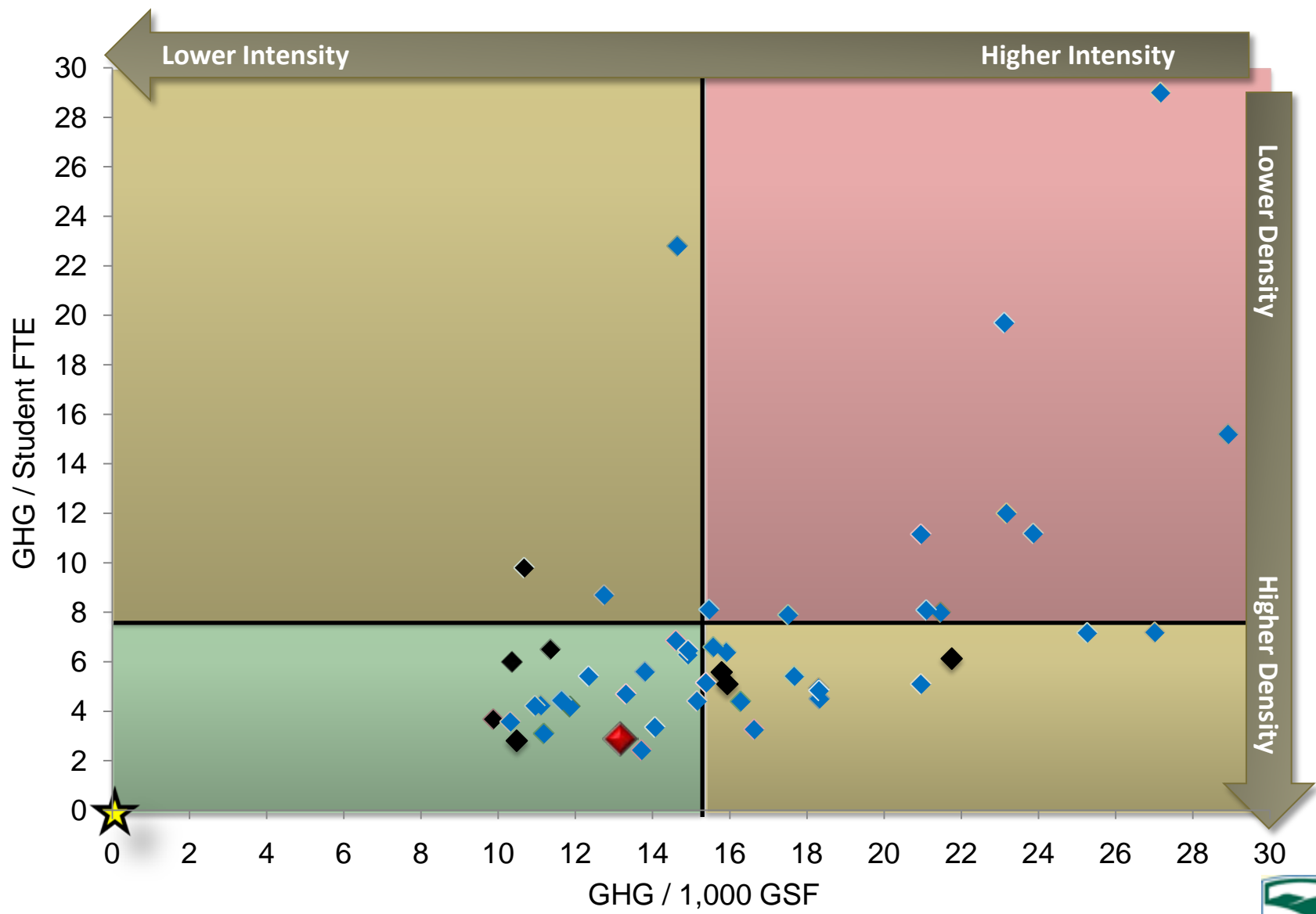
Setting targets for future emissions



Gross Carbon Snapshot (Space vs. Density)



Gross Carbon Snapshot (Space vs. Density)



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Emissions Overview



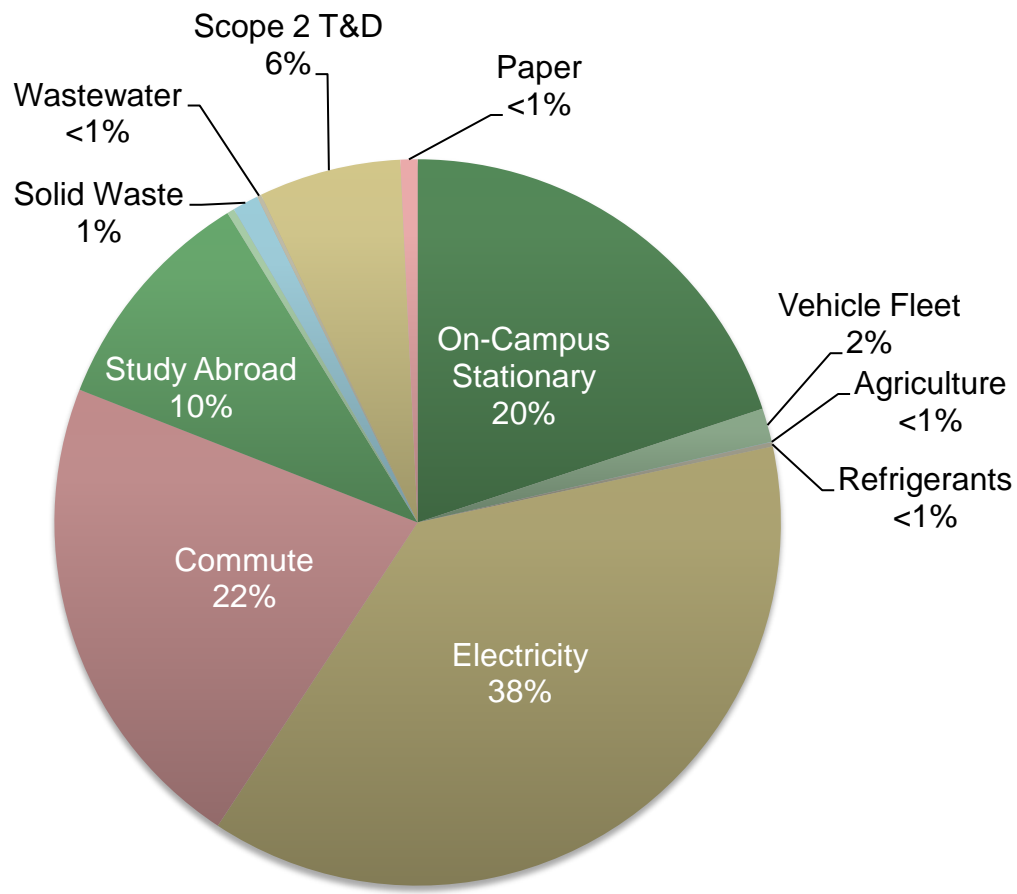
Gross Carbon Emissions FY10

Gross Carbon Emissions: 6,189 MTCDE in FY10

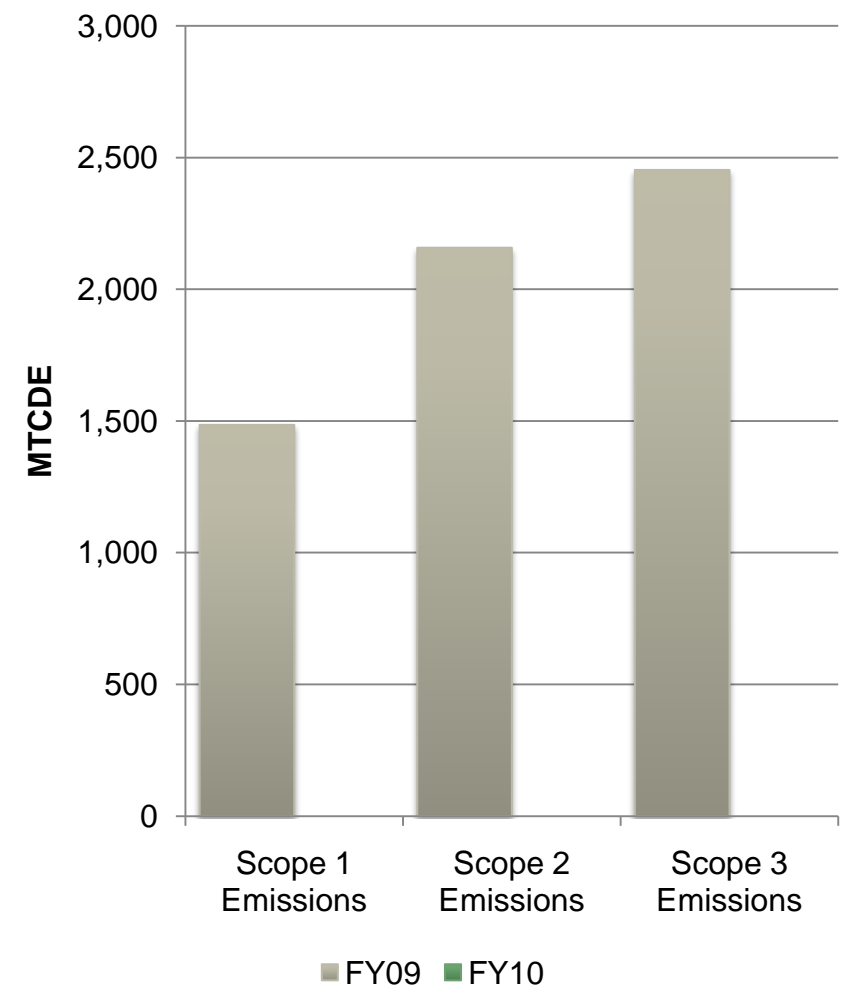


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Carbon Emissions by Type



Carbon Emissions by Scope



Large role of Scope 3 emissions reflect impressive institutional energy management



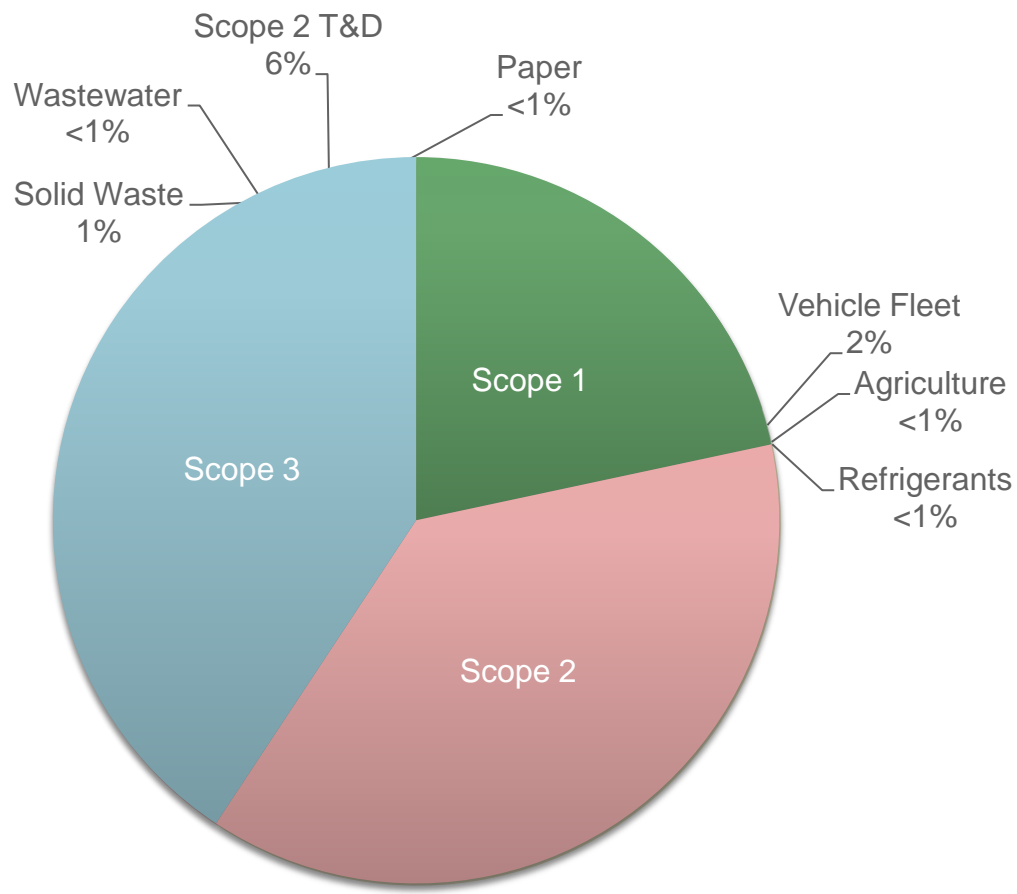
Gross Carbon Emissions FY10

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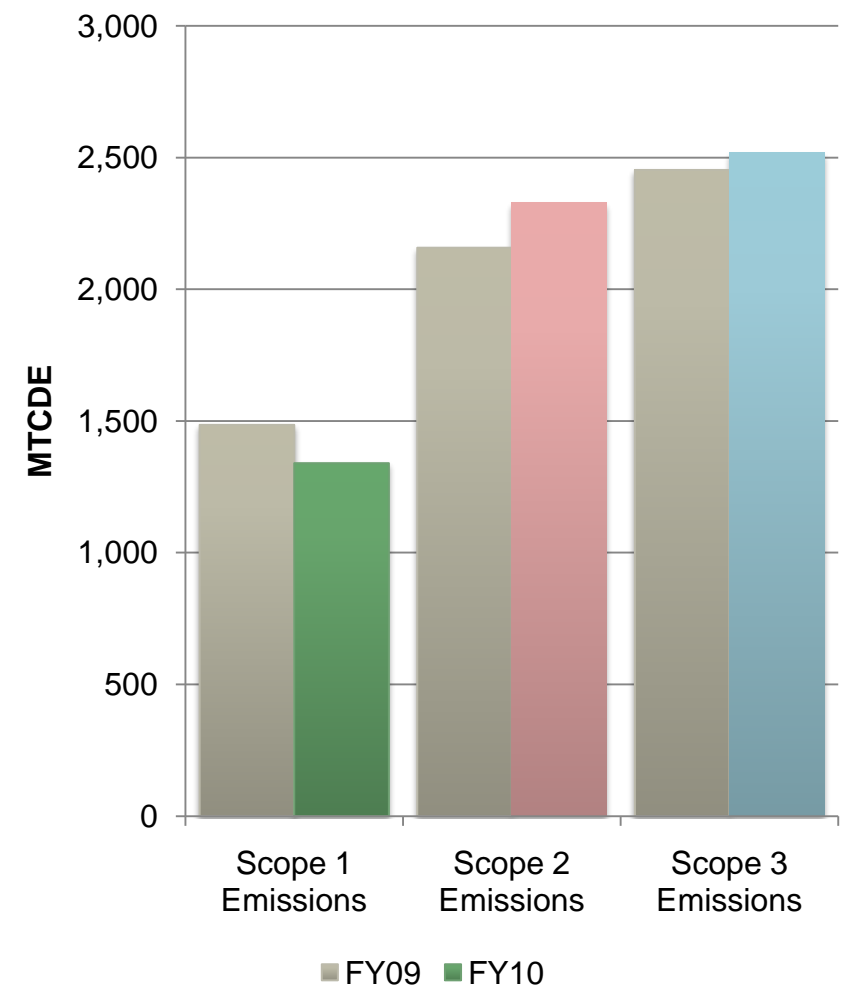


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Carbon Emissions by Type



Carbon Emissions by Scope



Large role of Scope 3 emissions reflect impressive institutional energy management



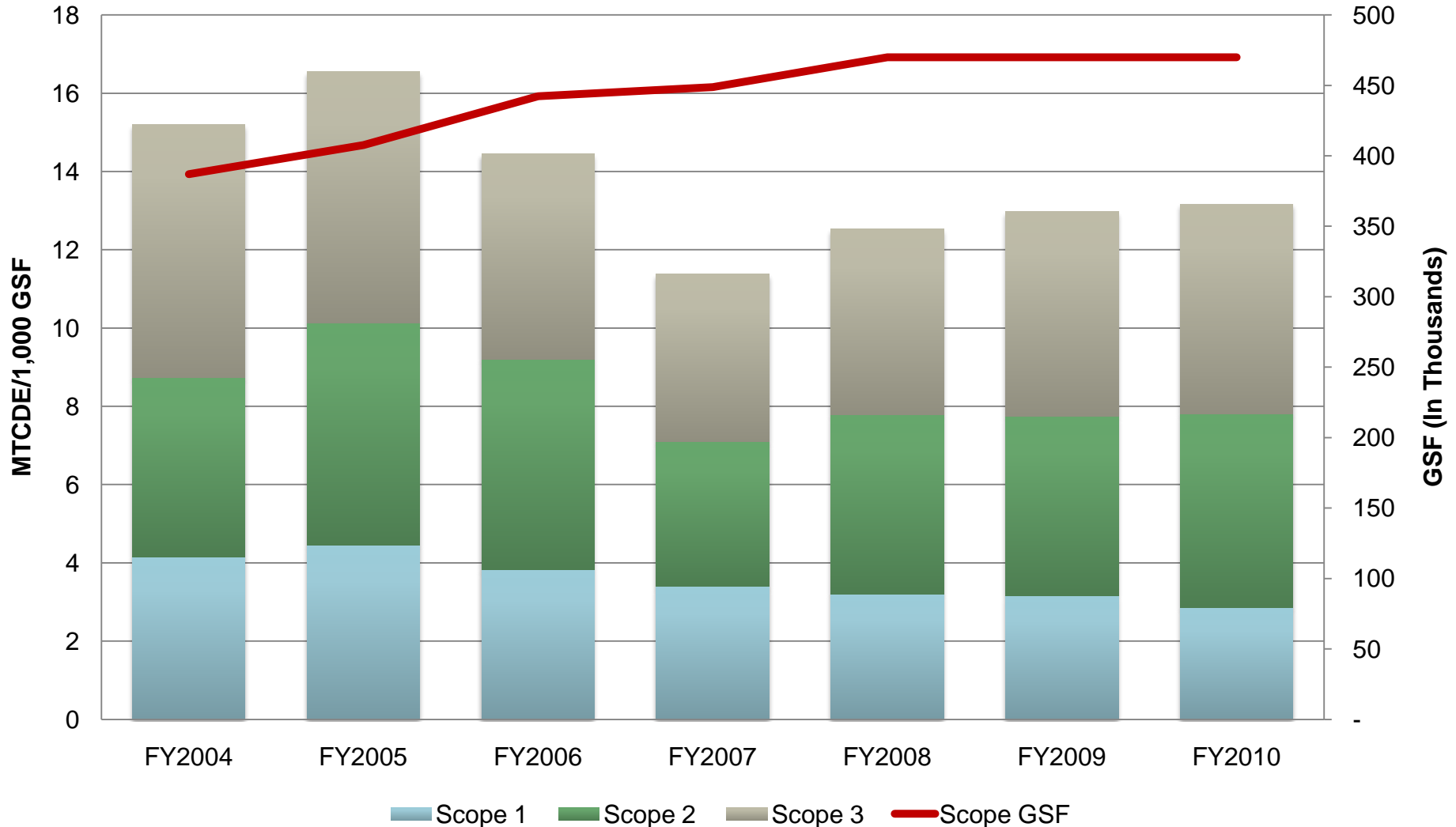
Longitudinal Emissions Snapshot

GSF increasing; Emissions per 1,000GSF decreased 13% from FY04-10



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Longitudinal Gross Emissions



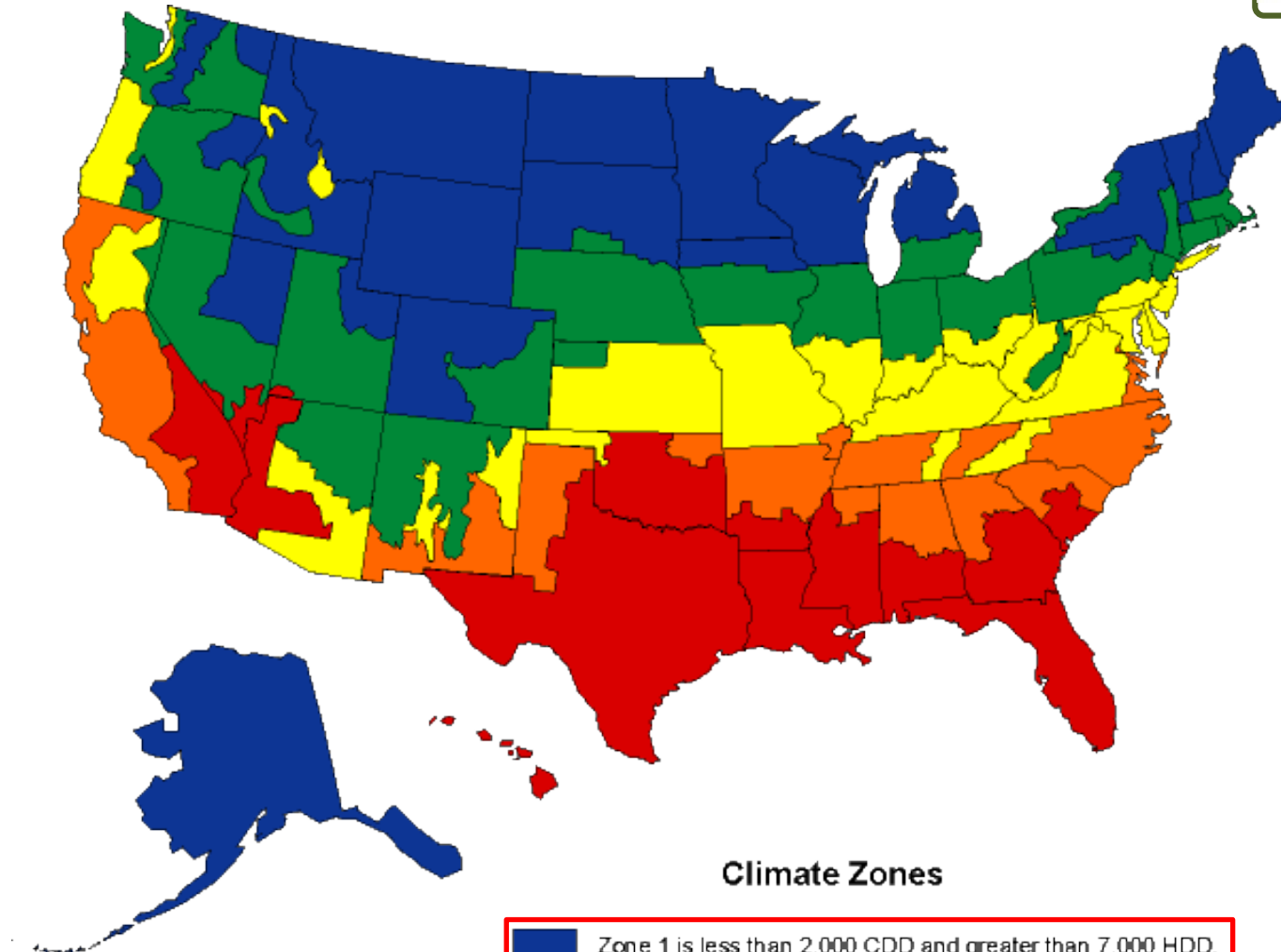
Overall Energy Consumption/GSF saw a 27% decrease from FY04-11

Database perspective

Low consumption compared to database & climate zone



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Climate Zones

- Zone 1 is less than 2,000 CDD and greater than 7,000 HDD.
- Zone 2 is less than 2,000 CDD and 5,500-7,000 HDD.
- Zone 3 is less than 2,000 CDD and 4,000-5,499 HDD.
- Zone 4 is less than 2,000 CDD and less than 4,000 HDD.
- Zone 5 is 2,000 CDD or more and less than 4,000 HDD.



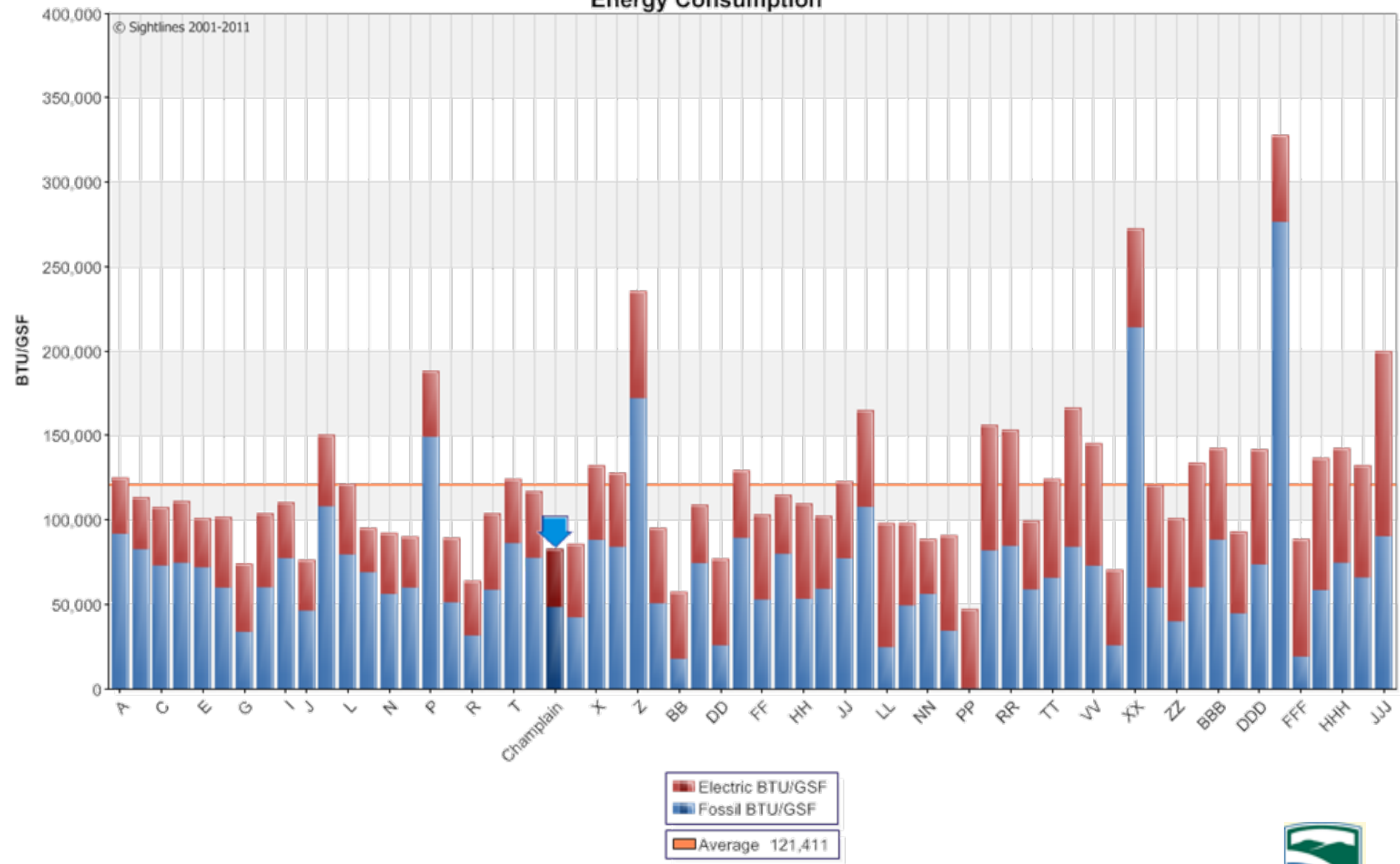
Database perspective

Low consumption compared to database & climate zone



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Energy Consumption



Institutions Ordered By: Tech Rating



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Scope 1

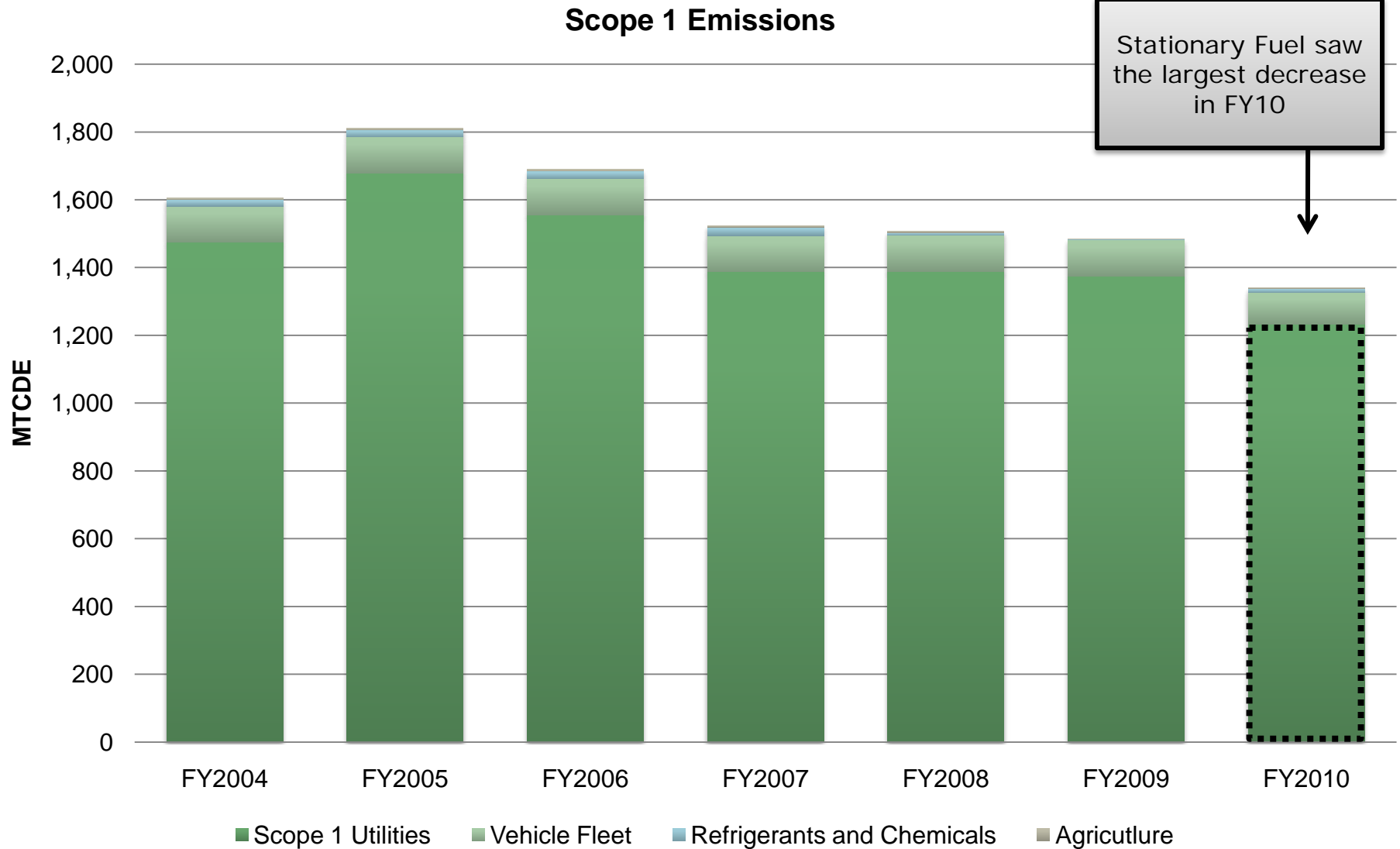


Scope 1 Emissions

Gross Scope 1 emissions decreased by 16% from FY04-10



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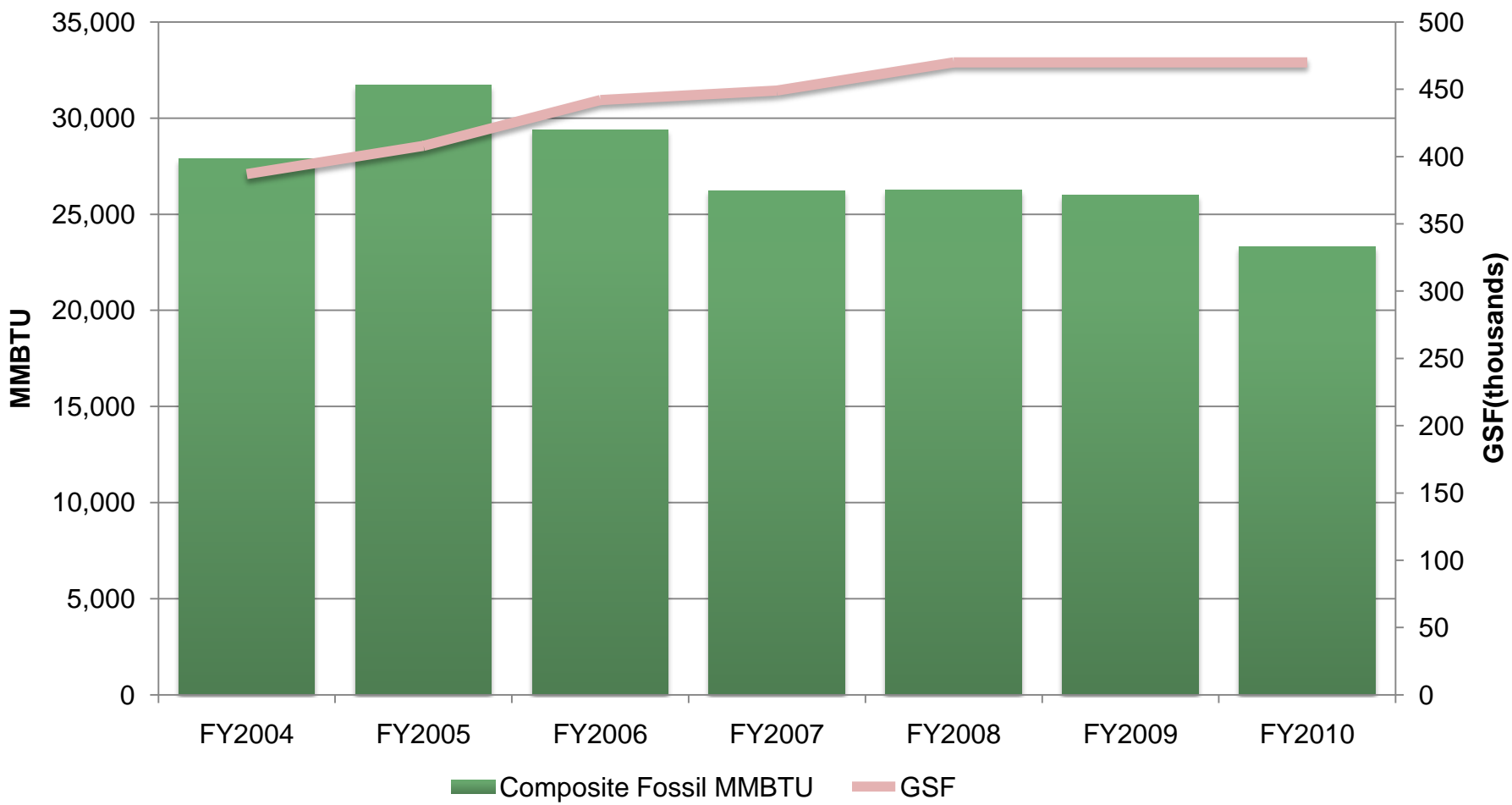


Gross Consumption decreases while space increases

Gross Stationary fuel consumption decreased by 16% from FY04-10



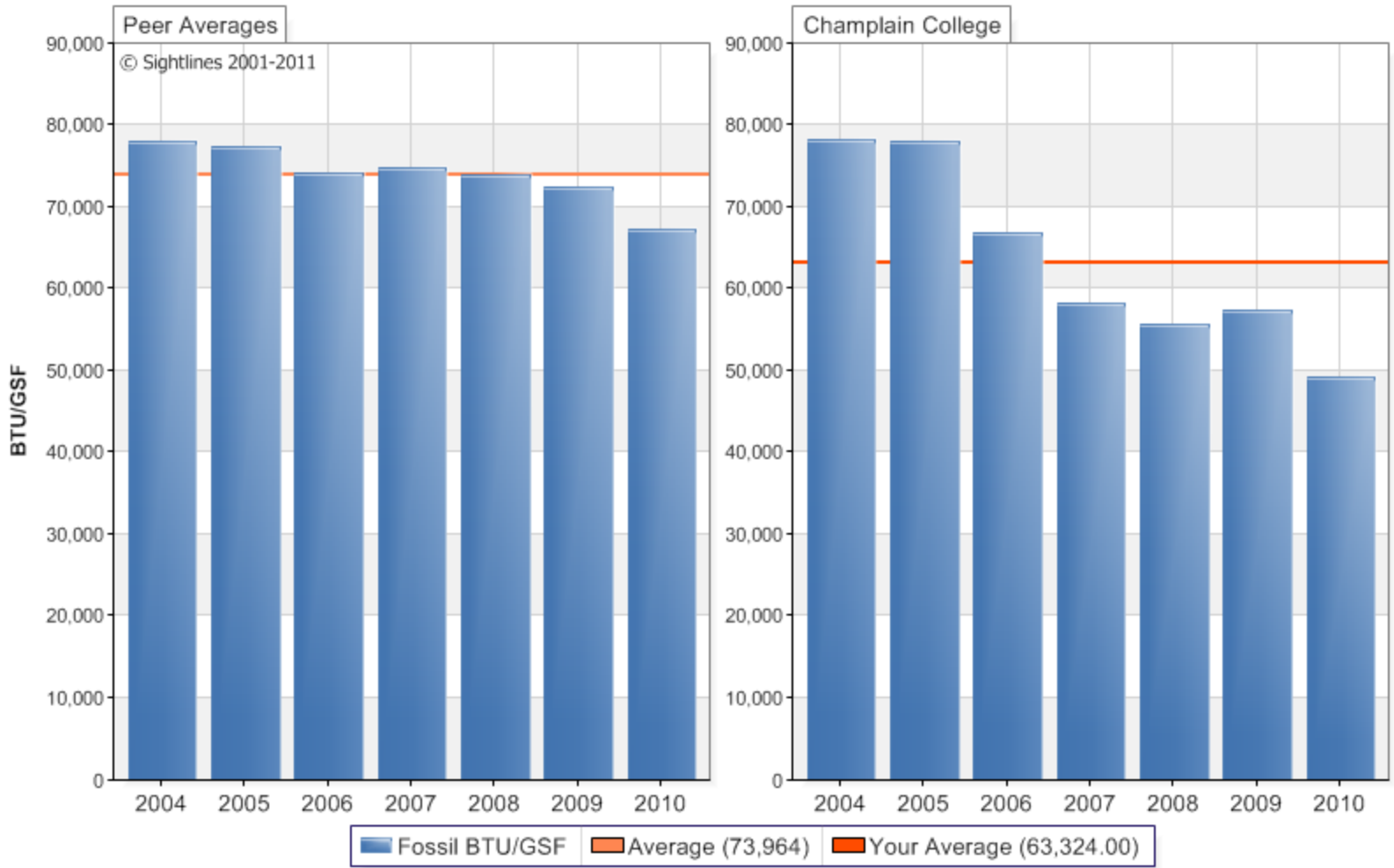
Longitudinal Gross Fossil Fuel Consumption Versus GSF



Decreasing fossil consumption faster than peers



Fossil Fuel Consumption

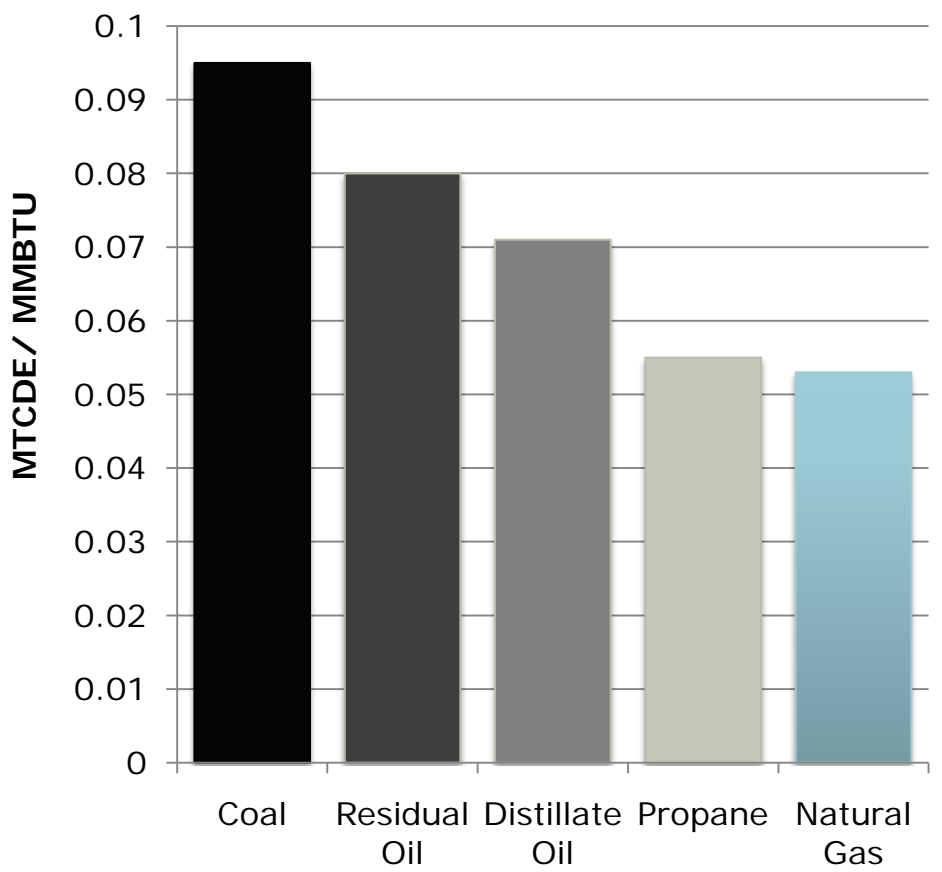


Champlain's Fuel Mix Is Less Carbon Intense

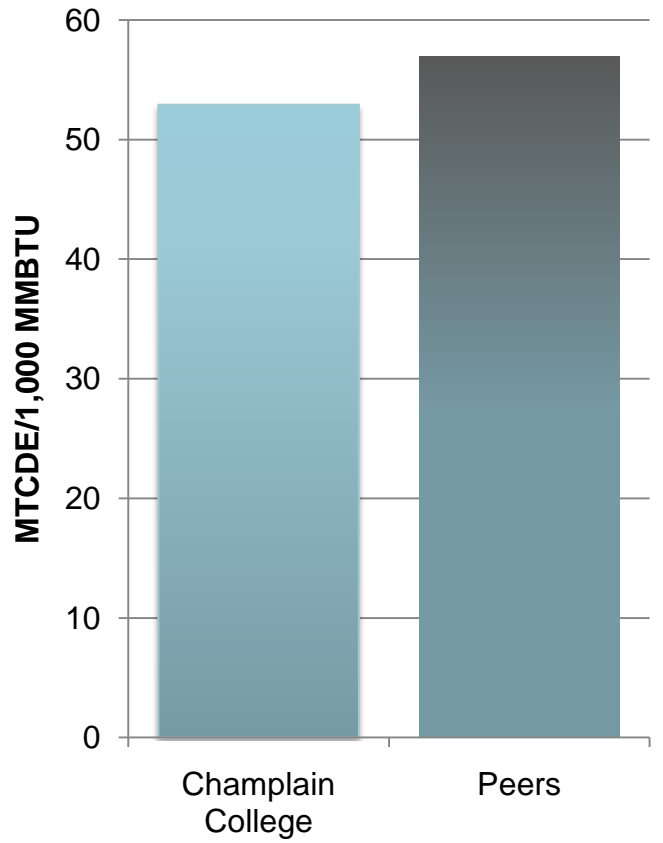
Natural gas is the least carbon intense of the fossil fuels



MTCDE of Commonly Used Fossil Fuels



Stationary Fuel Carbon Intensity



Champlain has a lower carbon intensity than peers

Fuel Fossil Mix	Coal	Residual Oil	Distillate Oil	Propane	Natural Gas
Champlain	0%	0%	0%	0%	100%
Peer Avg.	0%	0%	3.9%	0%	96.1%

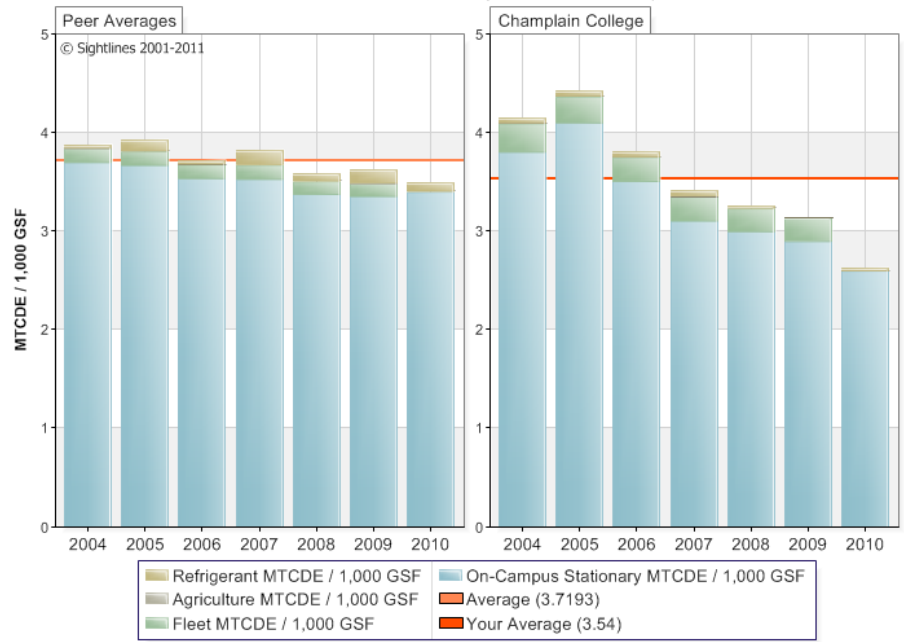
Longitudinal Scope 1 Emissions

On average Champlain's Scope 1 emissions are below peers

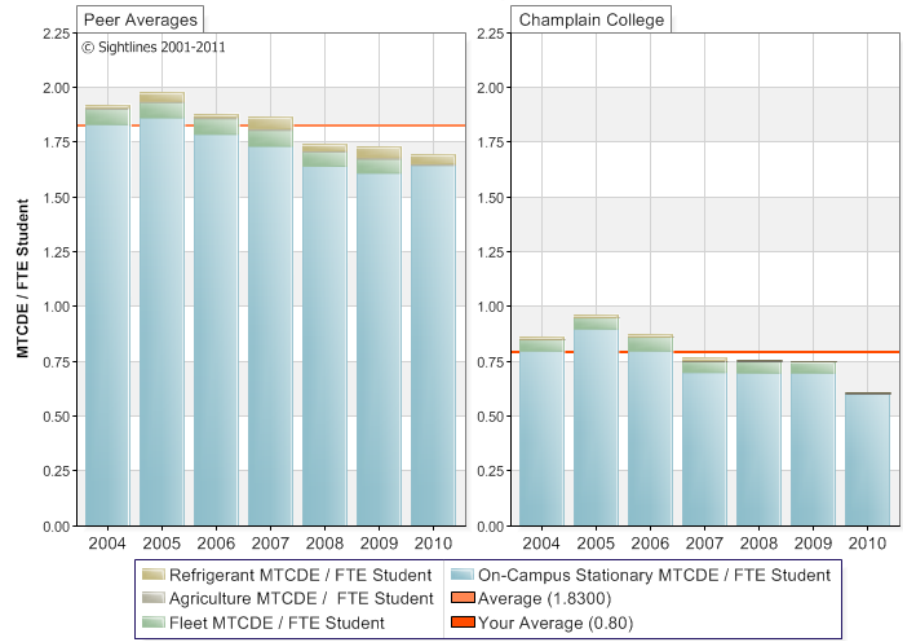


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Scope 1 Emissions (per 1,000 GSF)



Scope 1 Emissions (per Student)



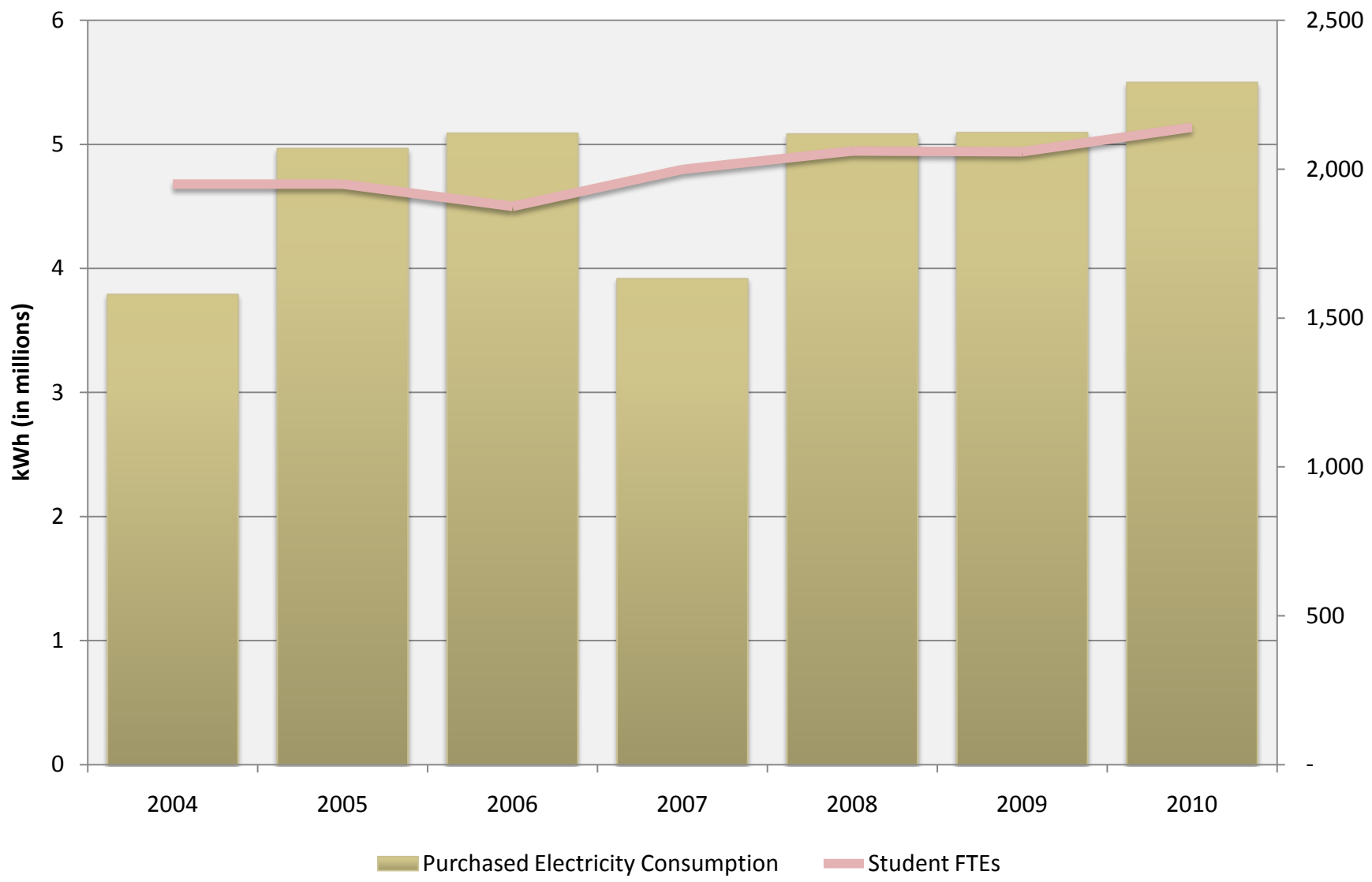
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Scope 2





Longitudinal Gross Electric Consumption



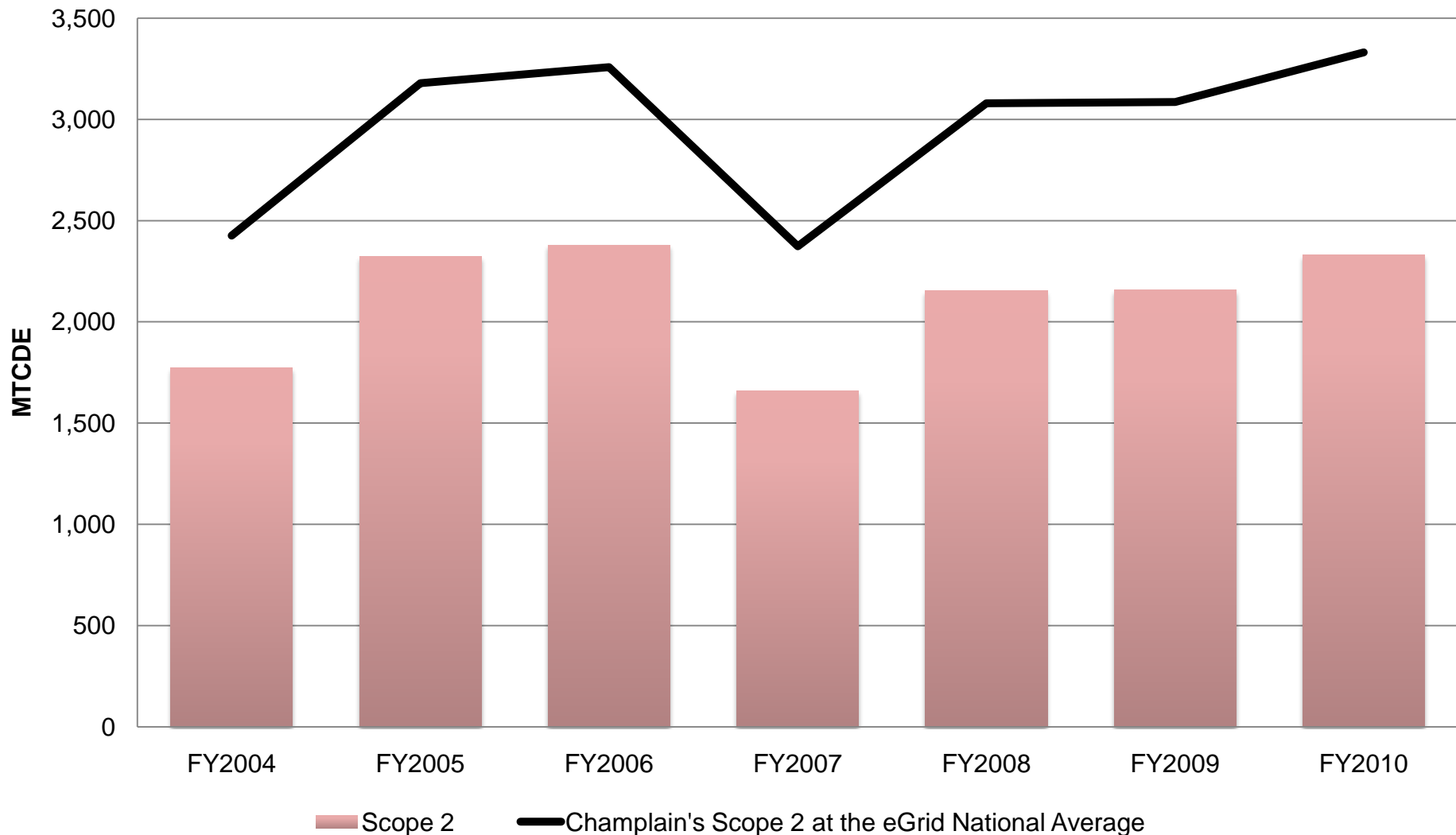
Cleaner Grid Lowers Scope 2 Emissions

Champlain's grid is cleaner than the national average



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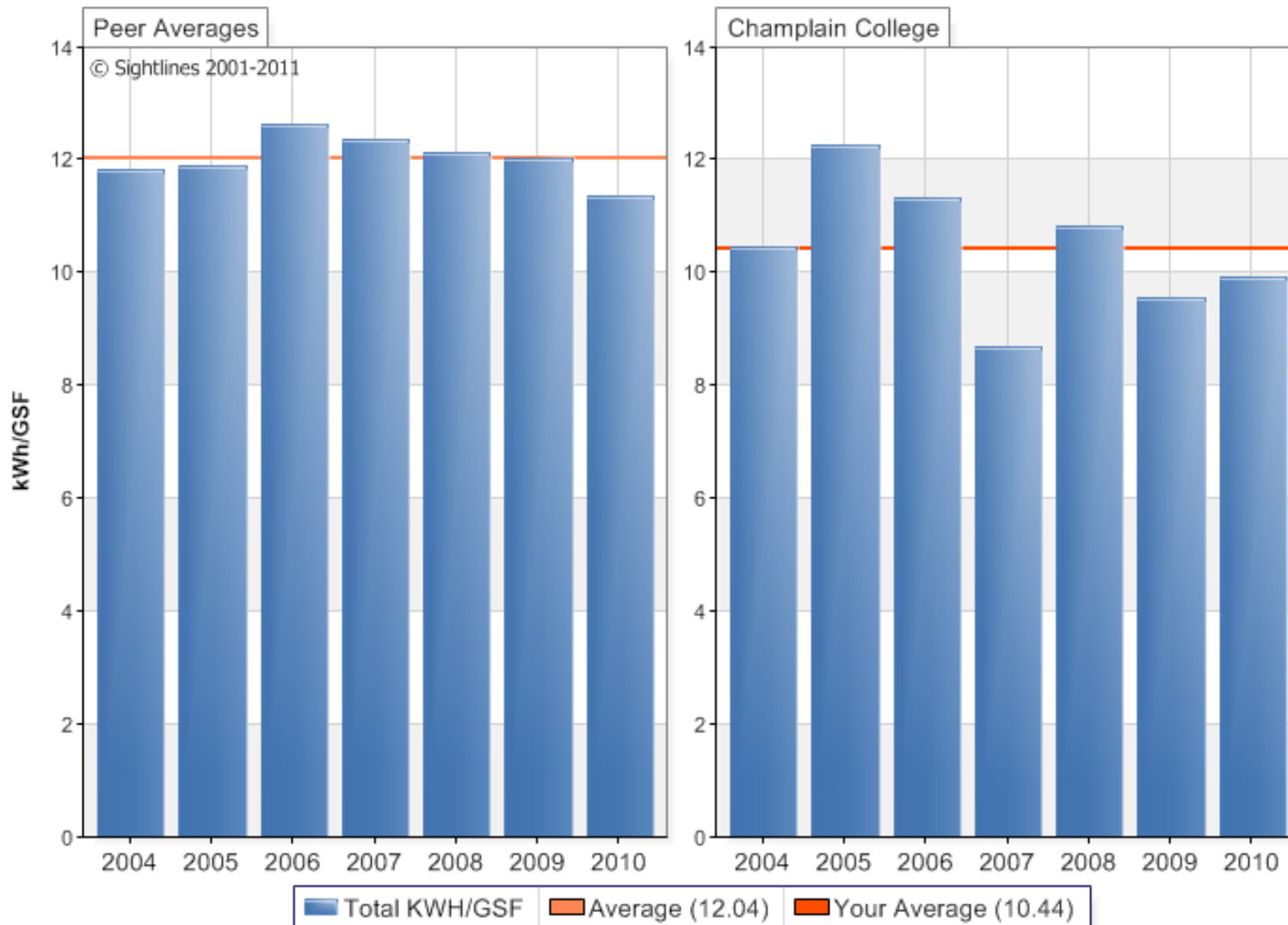
Longitudinal Gross Scope 2 Emissions



While fluctuating, electric consumption is below peers



Electric Consumption



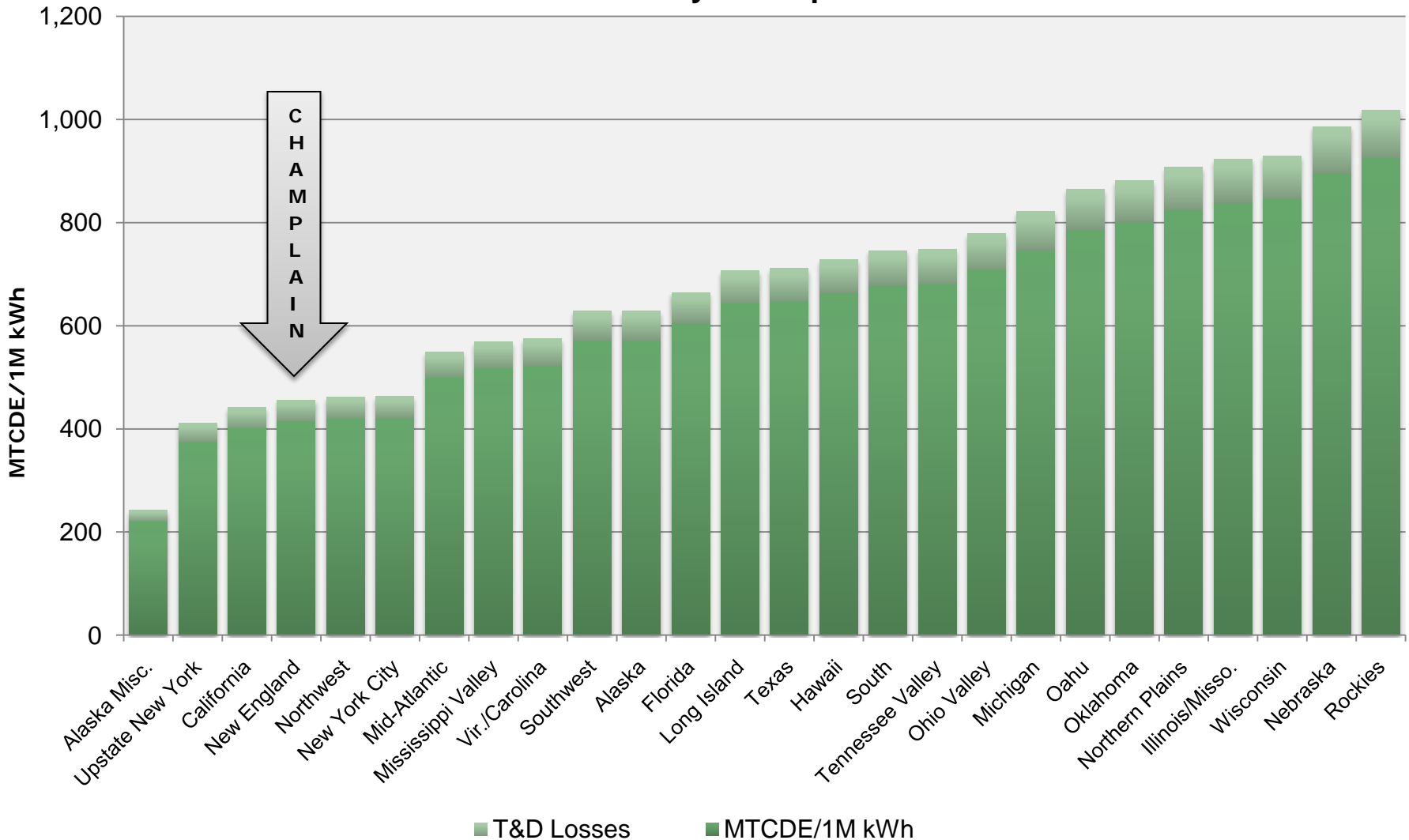
Grid Fuel Mix Impacts Scope 2 Emissions

Champlain electricity produced in the 4th least carbon intense grid in the nation



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MTCDE By Grid Operator



■ T&D Losses

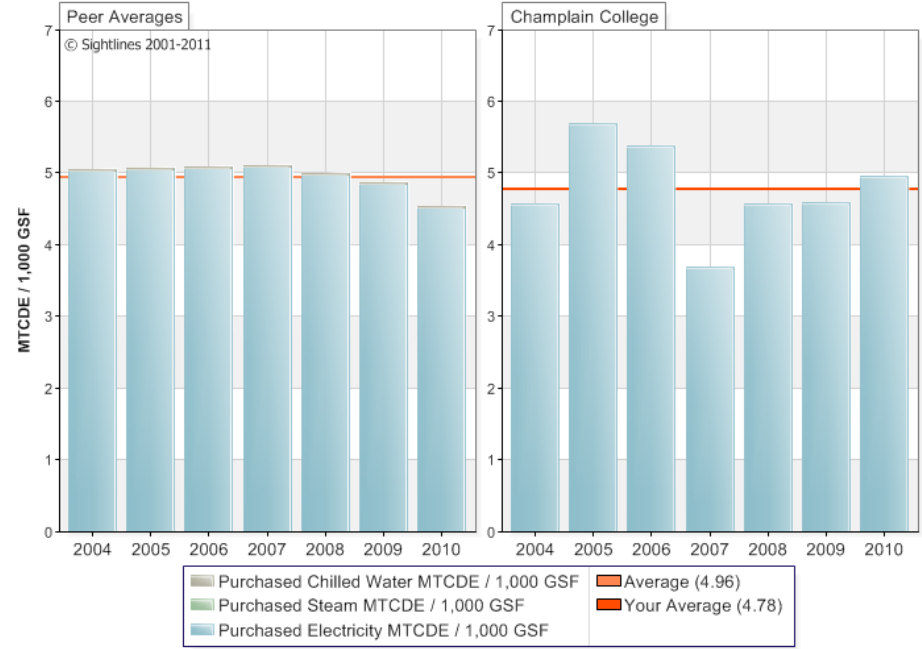
■ MTCDE/1M kWh



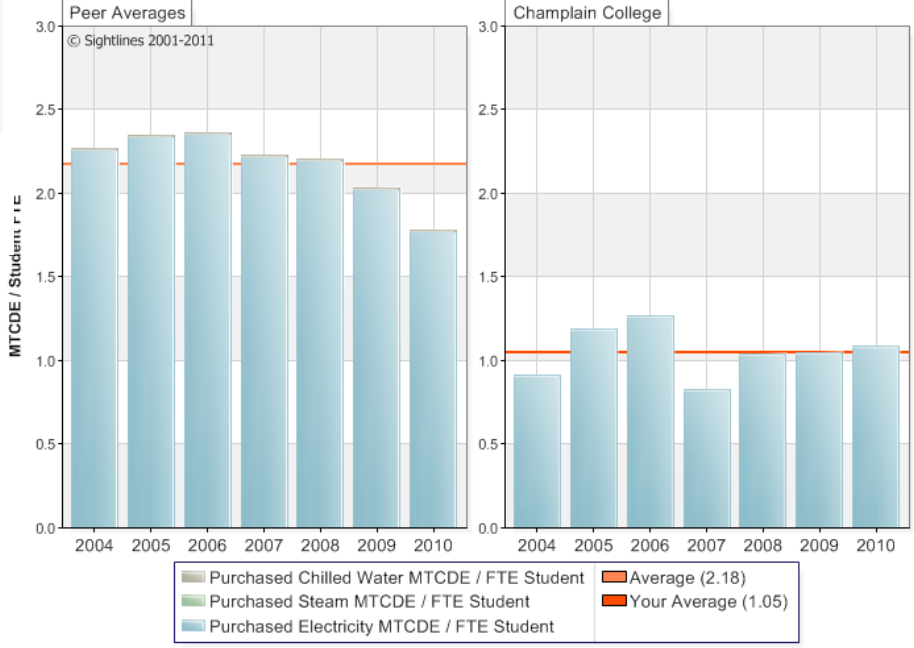
Scope 2 Summary



Scope 2 Emissions (per 1,000 GSF)



Scope 2 Emissions (per Student)



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Scope 3

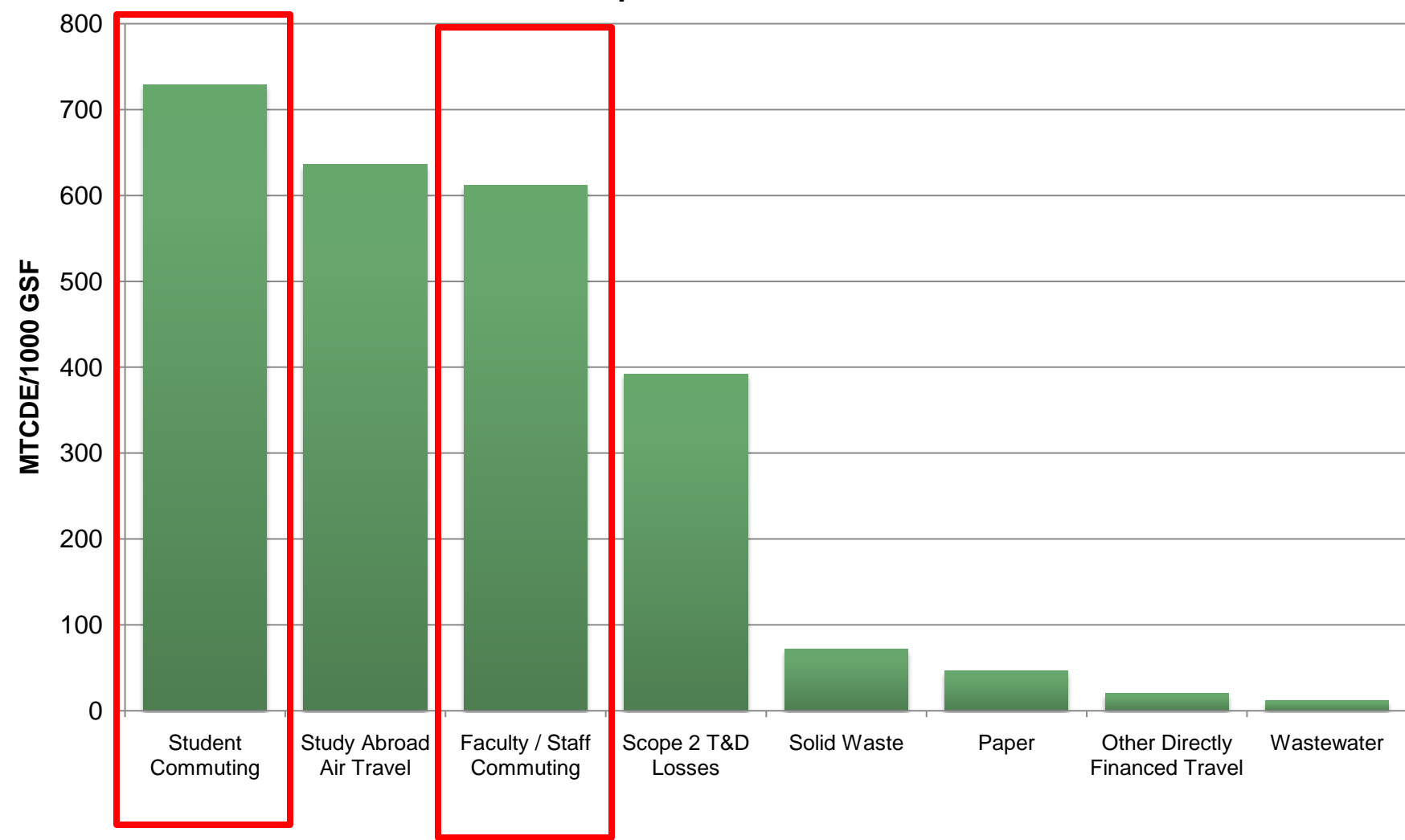


Scope 3 FY10 Emissions Snapshot

Commuting 53% of Scope 3 emissions; 22% of total emissions



Scope 3 Emissions

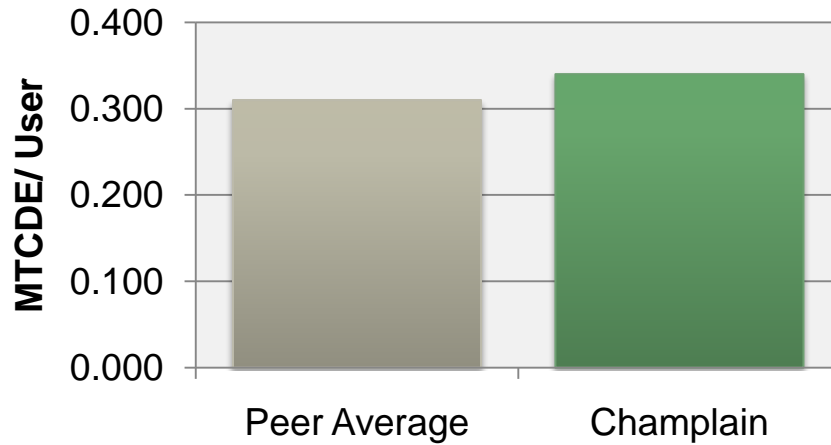


Higher commuting emissions result of trip distance

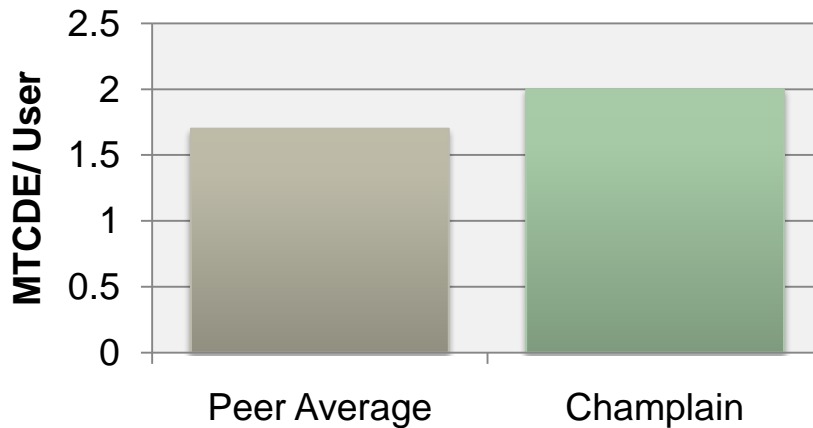
Comparatively more student commuting emissions than peers



Student Commuting Emissions



Faculty & Staff Commuting



Impacts on commuting emissions

	Peer Average	Champlain FY10
% Student body commuting	42%	43%
Average trip distance (in miles)	8.7	11.1
% Faculty / Staff commuting	94%	82.6%
Average trip distance (in miles)	9.4	14.9

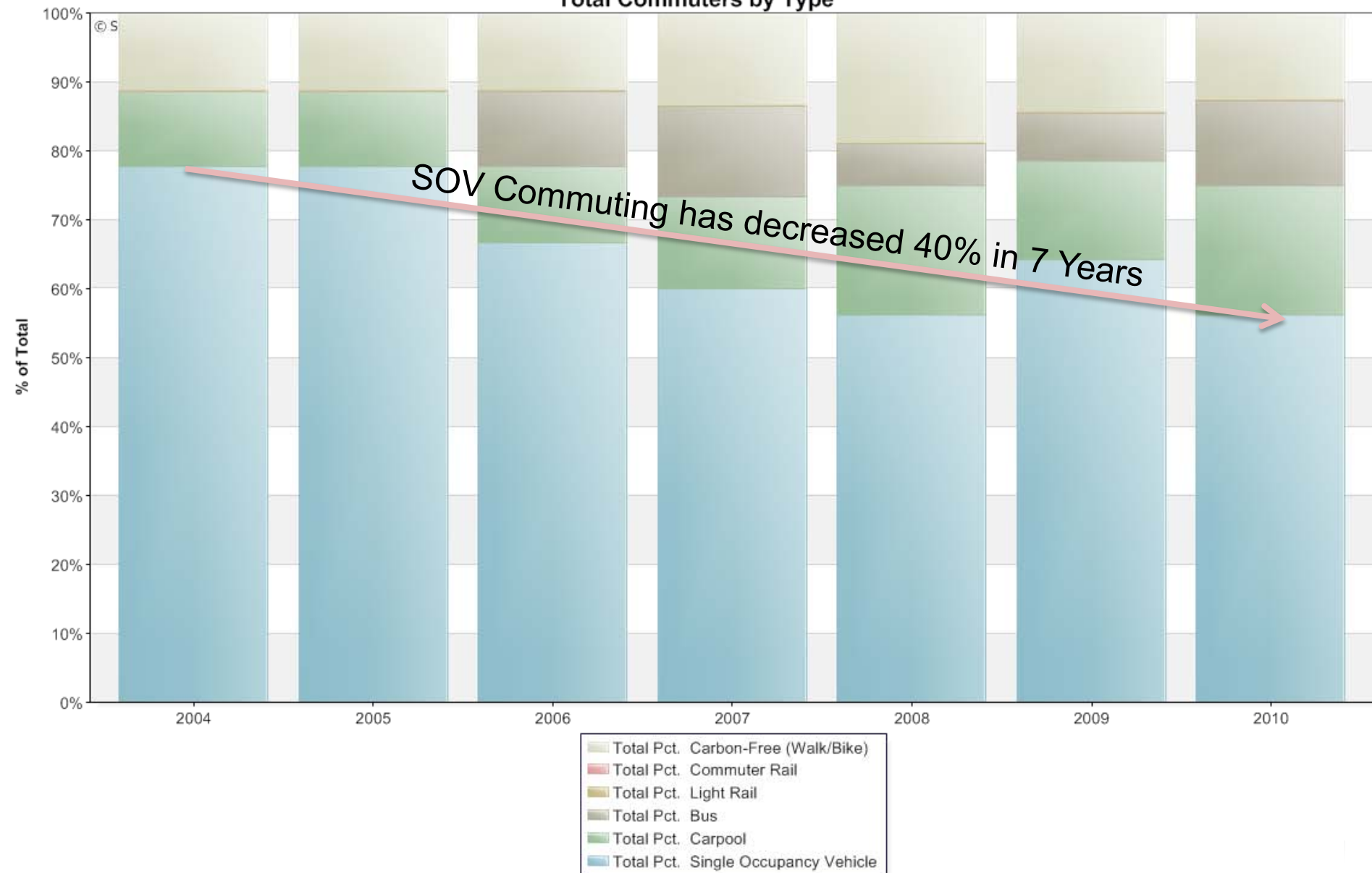
Total commuting emissions by commuter type

Significant decrease in commuters traveling in single occupancy vehicles.



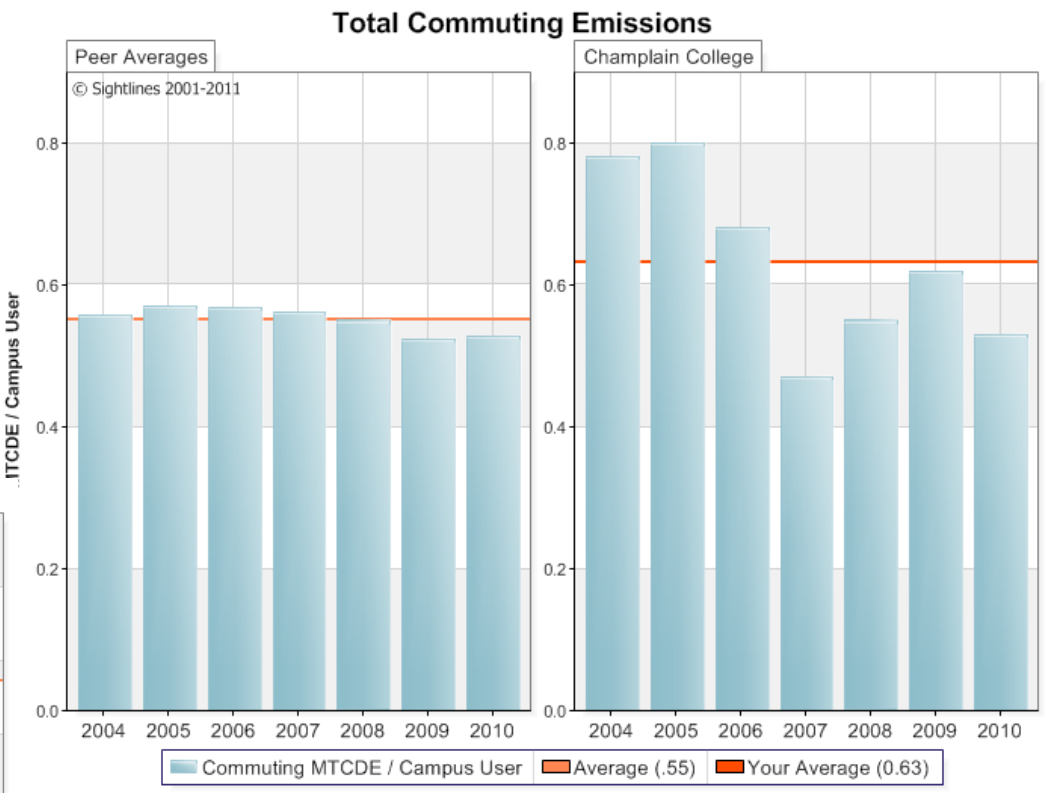
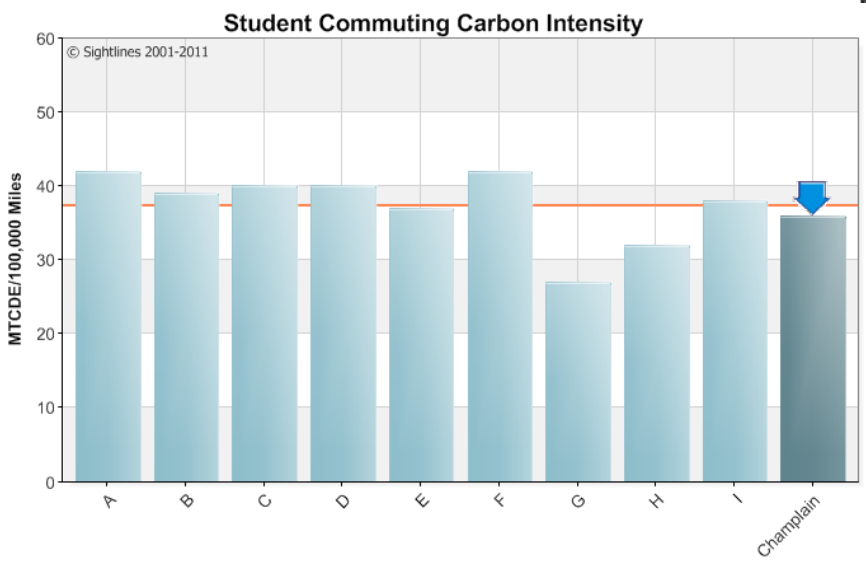
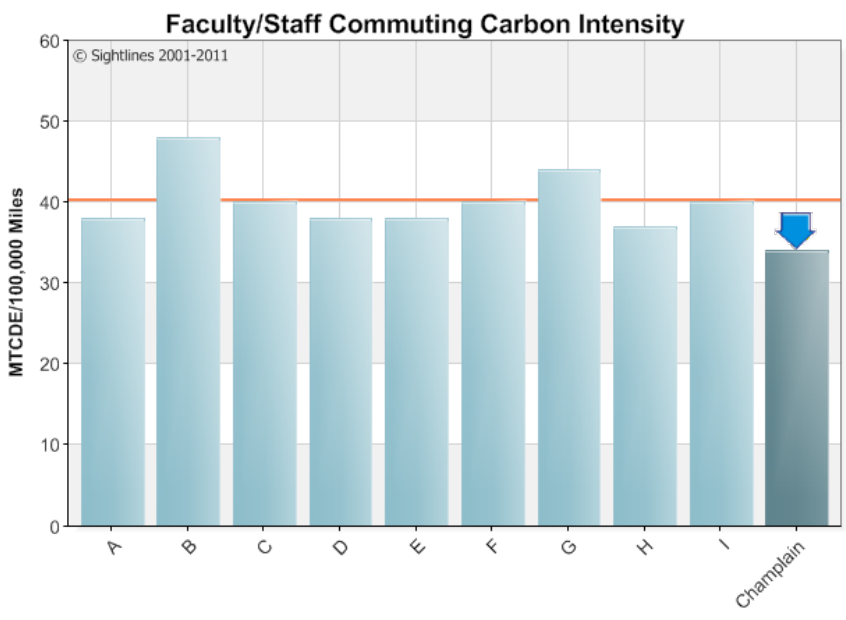
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Total Commuters by Type



Faculty/Staff Commute using less carbon intense methods

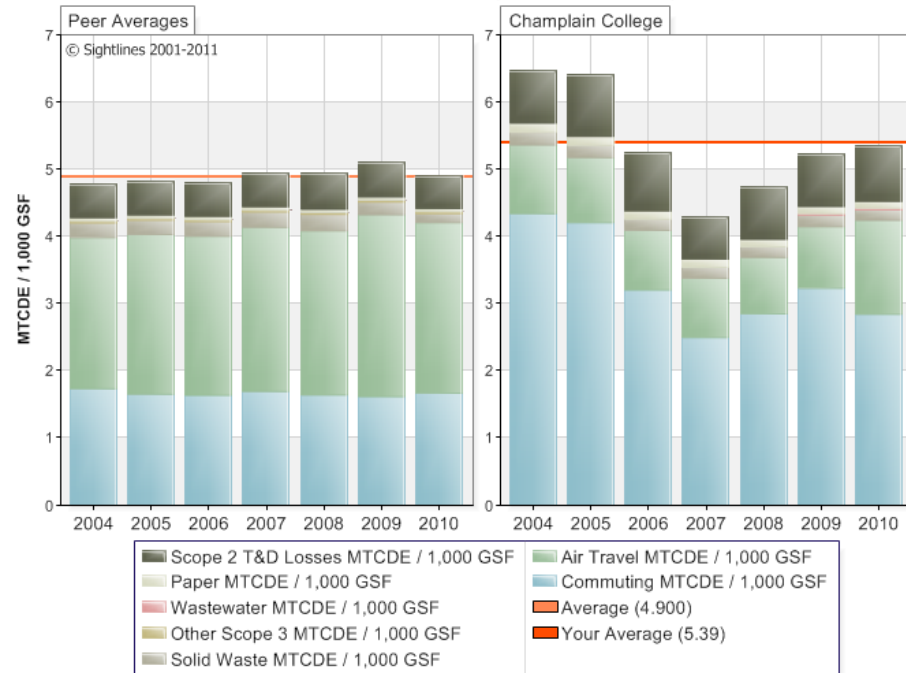
FY10 commuting emissions at peer average



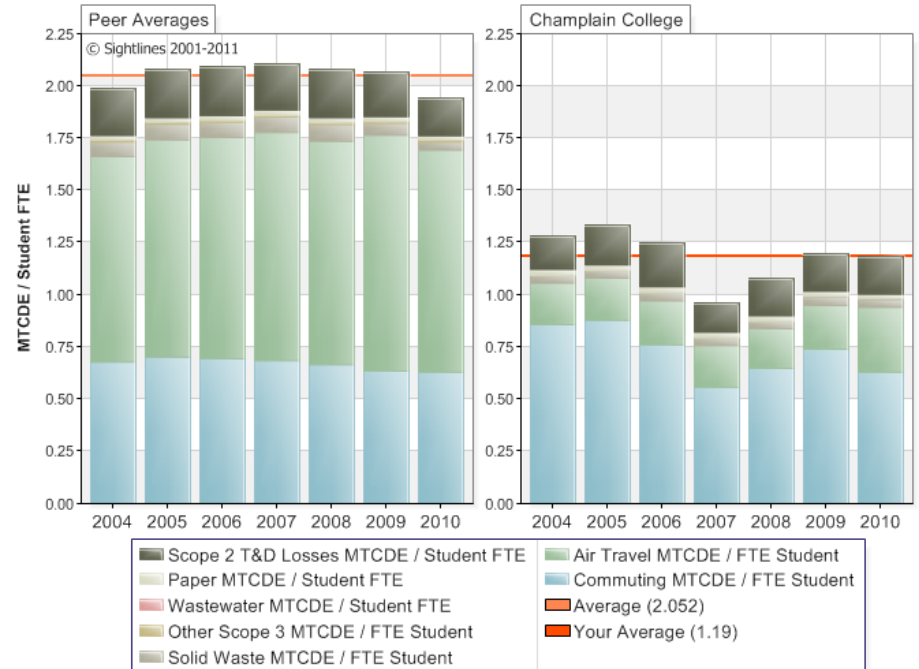
Scope 3 Summary



Scope 3 Emissions (per 1,000 GSF)



Scope 3 Emissions (per Student)



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GHG Summary and Conclusions



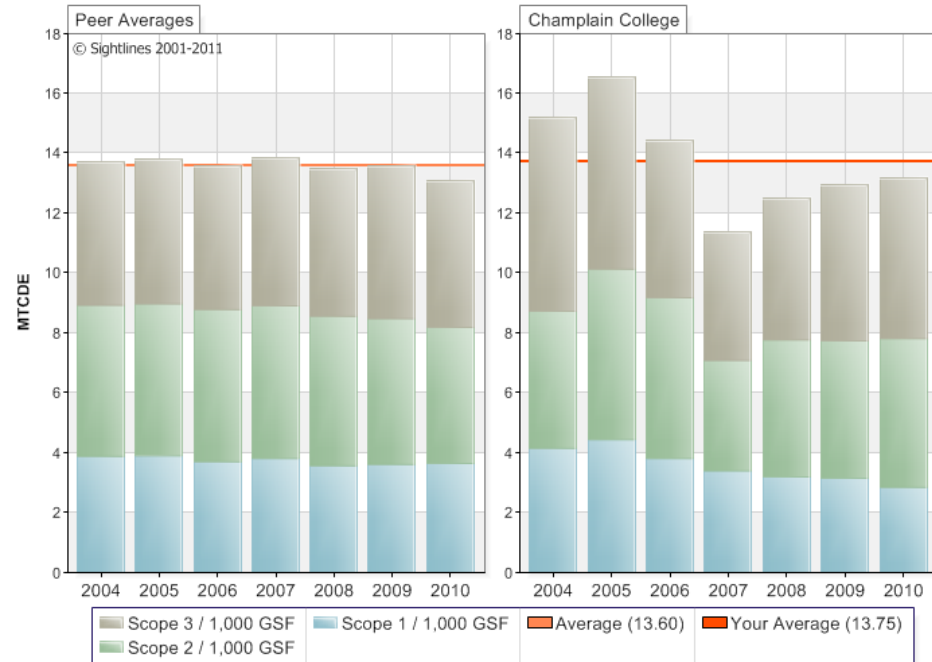
GHG Emission Summary

Half the emission of peers on a per student basis

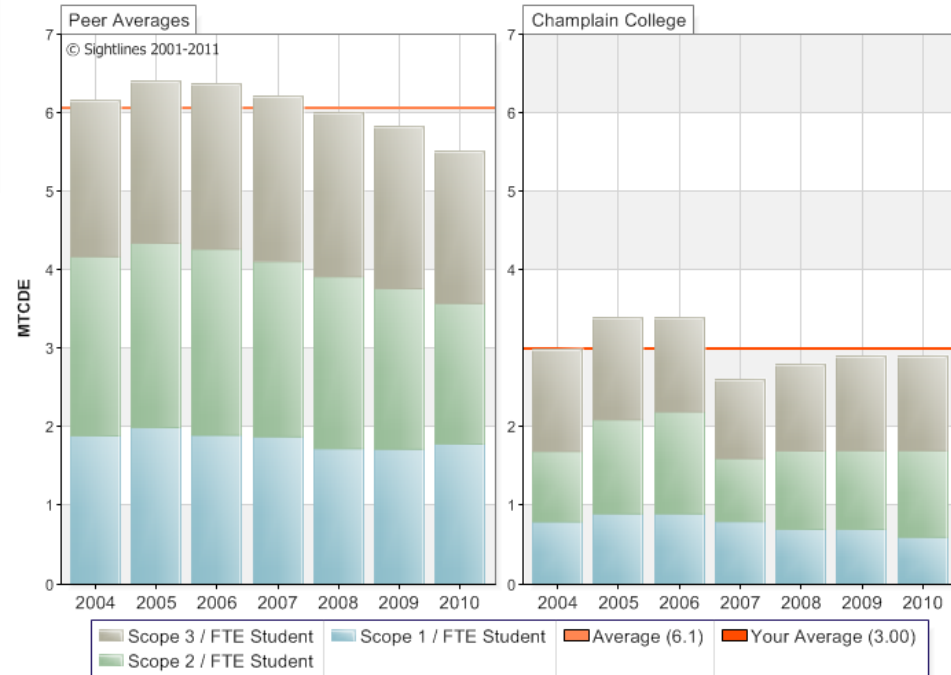


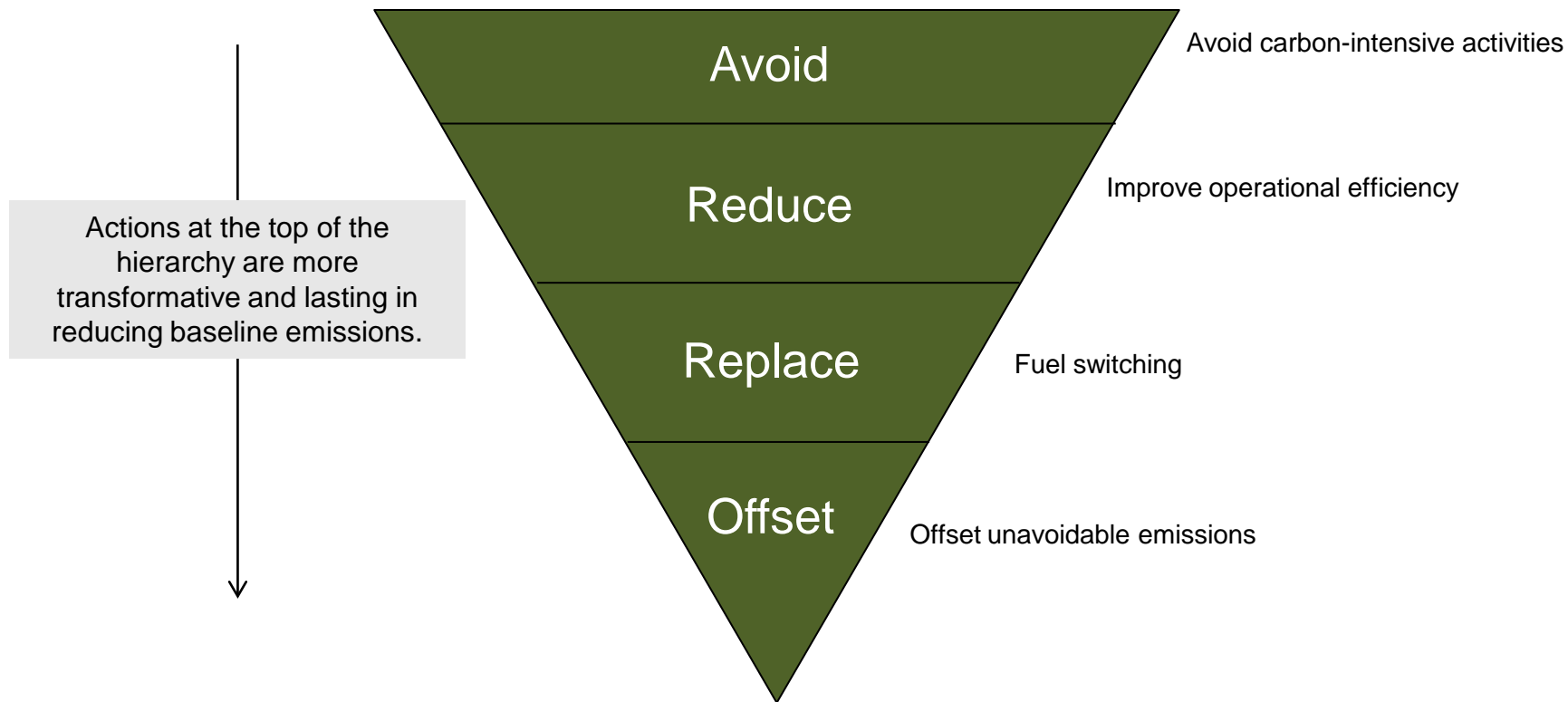
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Gross Emissions (per 1,000 GSF)



Gross Emissions (per Student)





Source: ACUPCC Voluntary Carbon Offset Protocol



Knowledge

Positive Trends

Improving operational efficiency of campus

Among lowest GHG/Student in national database

Eliminating use of Single-Occupancy Vehicle for Commuting

Opportunities

Focus future energy efforts on electricity

Begin tracking faculty/staff air travel to enhance inventory accuracy

Build offsets into the cost of commuting and studying abroad

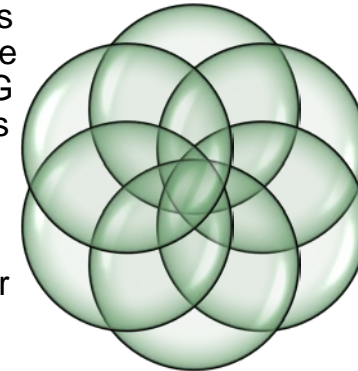


Action

Investigate ways to further engage students in GHG reduction efforts

Identify opportunities for on-campus renewables

Continue to overhaul electric-intensive building systems



Begin a voluntary pilot program for offsetting commuting and air travel

Continue building LEED buildings

Investigate Net Zero Energy Buildings (NZEB)

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Questions and Discussion

