



Sightlines

Environmental Stewardship:

Measure, Monitor, Benchmark

Champlain College

February 17, 2009



The Presidents Climate Commitment



AMERICAN COLLEGE & UNIVERSITY
PRESIDENTS CLIMATE COMMITMENT

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The fight against global warming will shape the 21st century. Colleges and universities must exercise leadership in their communities and throughout society by modeling ways to eliminate global warming emissions, and by providing the knowledge and the educated graduates to achieve climate neutrality. Campuses that address the climate challenge by eliminating global warming emissions and by integrating sustainability

Number of signatories to date:

0608

Spotlight

Announcements:

[ACUPCC Carbon Offset Protocol launched!](#)

SAVE THE DATE: 2009 ACUPCC Climate Leadership Summit
Chicago, IL August 13-14, 2009

[ACUPCC 2007 Annual Report & Reporting Tool](#)

[Summary and Materials from the 2008 Climate Leadership Summit](#)

Recent Signatories:

Manhattanville College (NY)
Richard Berman, President

Pasadena City College (CA)
Paulette Perfumo, President

Manhattan College (NY)

Sightlines

The Presidents Climate Commitment

Status

Initiate the development of a comprehensive plan to achieve climate neutrality as soon as possible

1. Within two months of signing this document, create institutional structures to guide the development and implementation of the plan.
2. Within one year of signing this document, complete a comprehensive inventory of all greenhouse gas emissions (including emissions from electricity, heating, commuting and air travel) and update the inventory every other year.
3. Within two years of signing this document, develop an institutional action plan for becoming climate neutral.

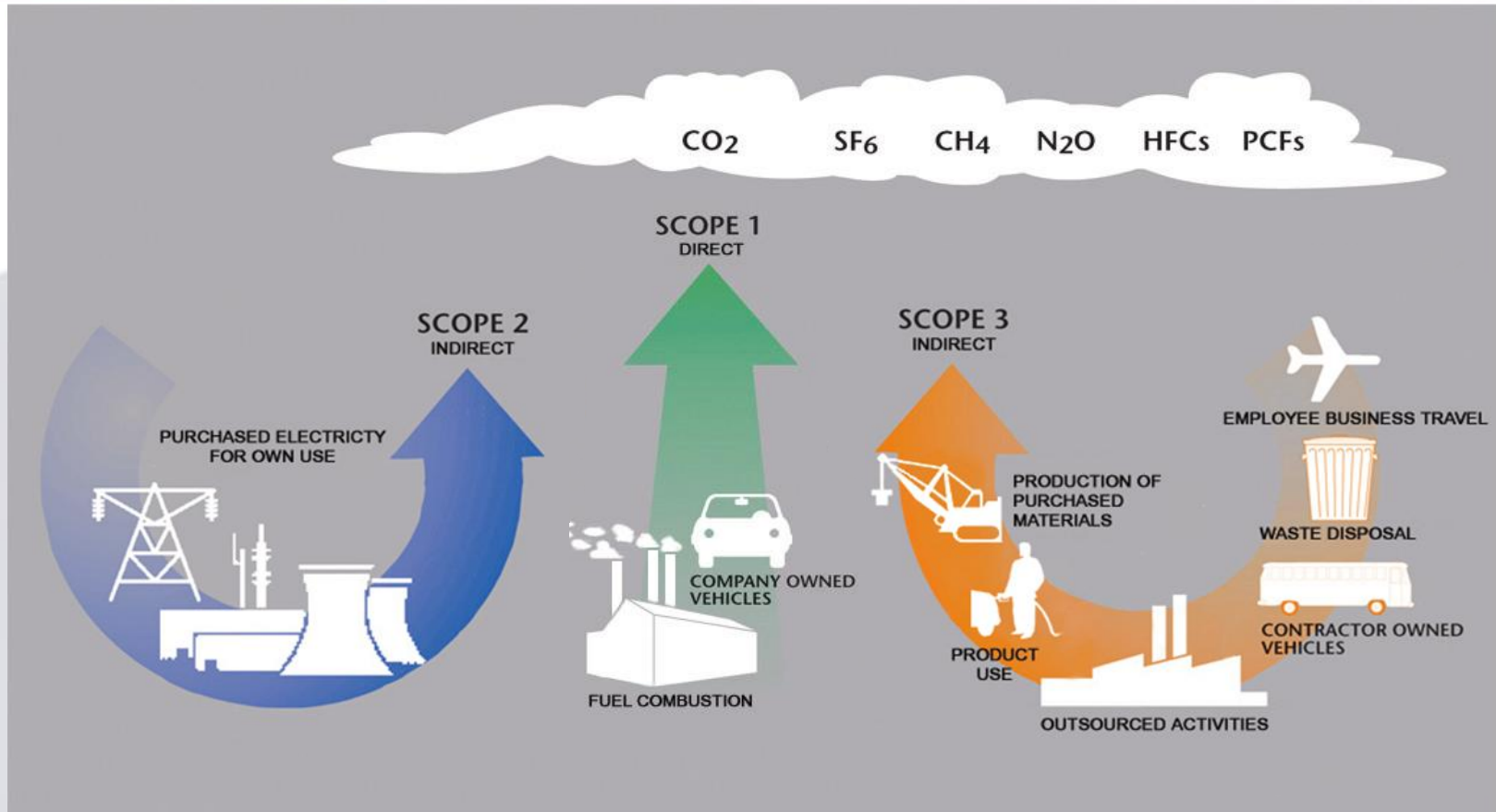
N/A

N/A

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Simplifying the Types of GHG Emissions

All Expressed as Metric Tons of Carbon Dioxide



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.

Sightlines

Greenhouse Gas (GHG) Emissions at Champlain College

Champlain's Space and Population

| Gross Square Footage | |
|------------------------|---------|
| Total Campus GSF | 485,731 |
| Total GSF in Footprint | 485,731 |

| Student Population | |
|-----------------------------|--------------|
| Total FTE Enrollment | 2,211 |

| Staff & Faculty Population | |
|----------------------------|-----|
| Faculty | 186 |
| Staff | 198 |
| Total Faculty & Staff | 384 |

Collected and Qualified Carbon Emissions at Champlain

Scope 1

- Natural Gas
- Fertilizer
- Refrigerants

Scope 2

- Purchased Electricity

Scope 3

- Faculty/Staff Commuting
- Student Commuting
- Student Air Travel
- Solid Waste

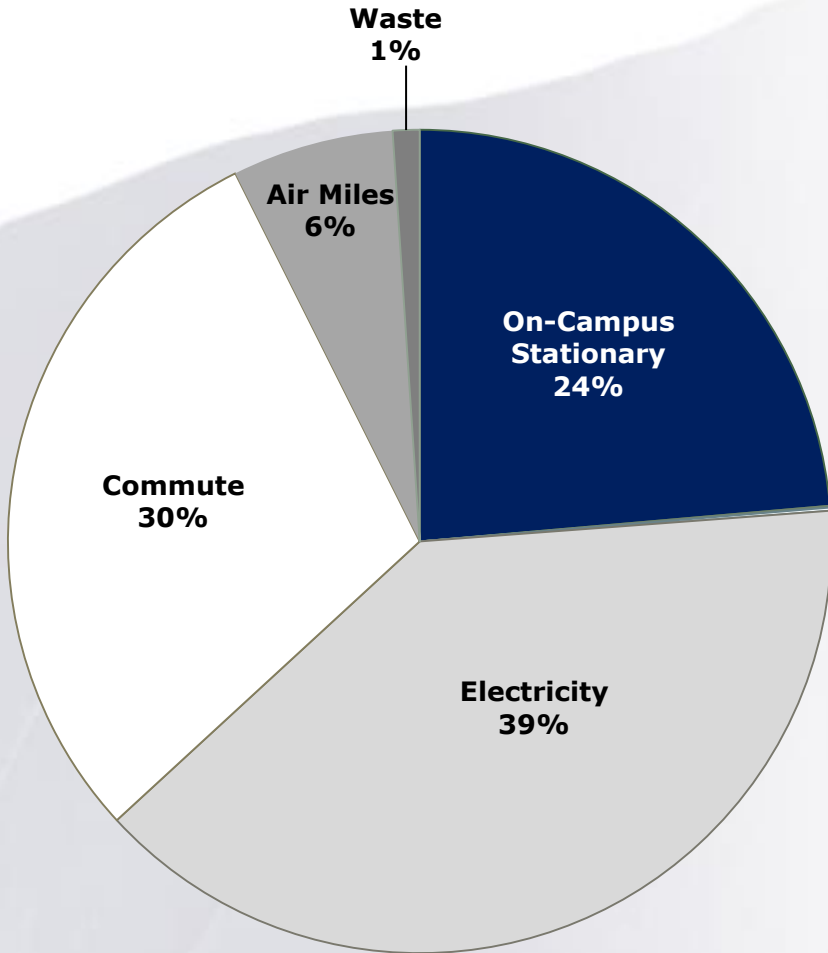
Offsets

- Compost

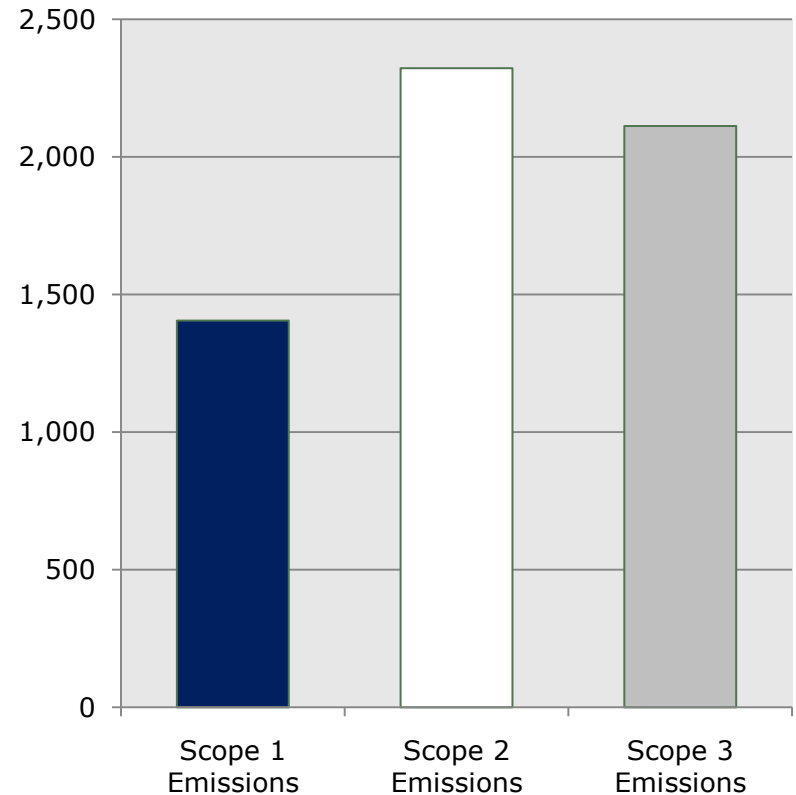
Total Carbon Emissions-Gross

5,900 MTeCO₂ in FY2008

Carbon Emissions by Type



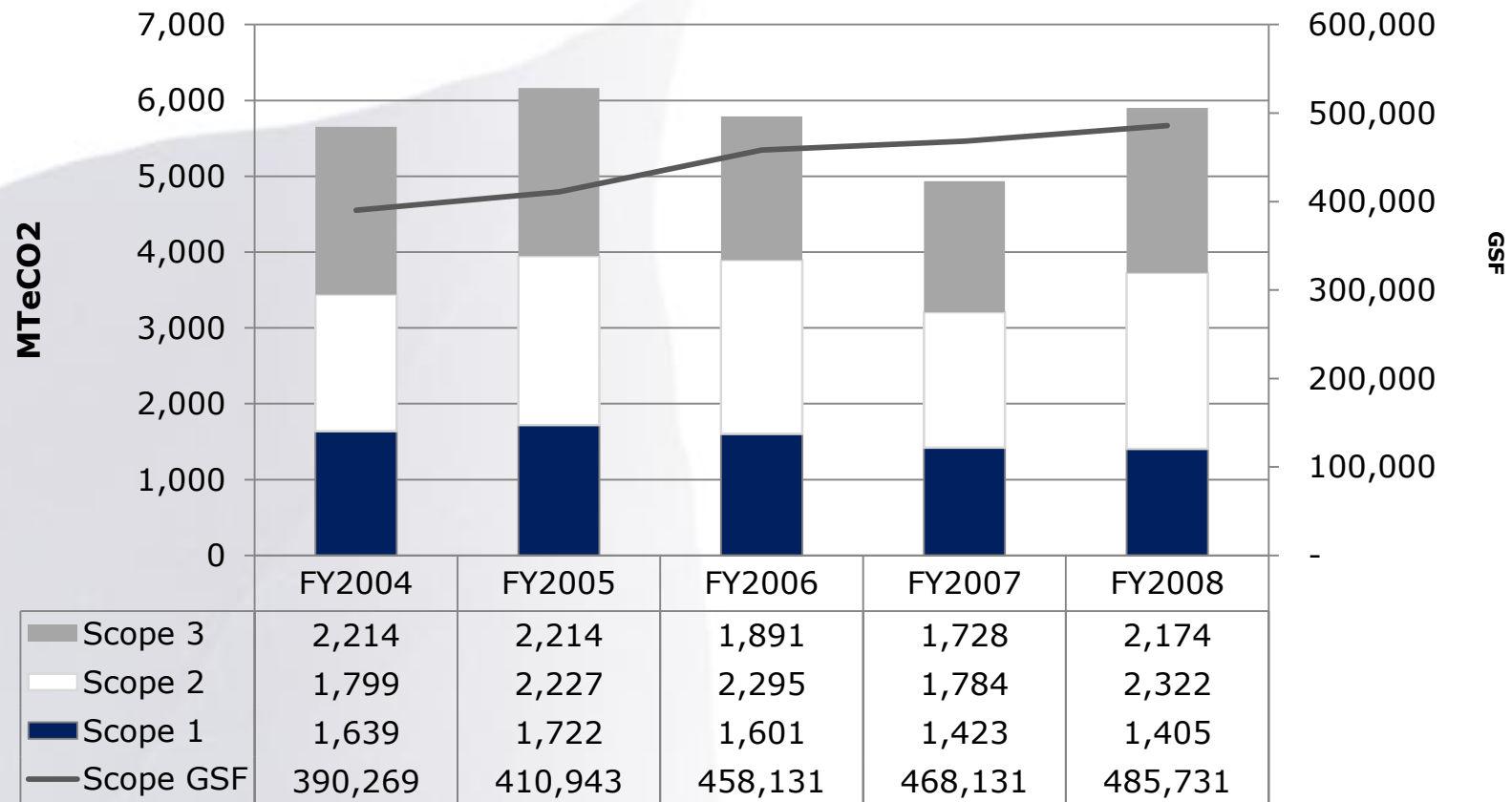
Carbon Emissions by Scope



*Agriculture and Refrigerants represent less than 1% of total emissions

Longitudinal Performance

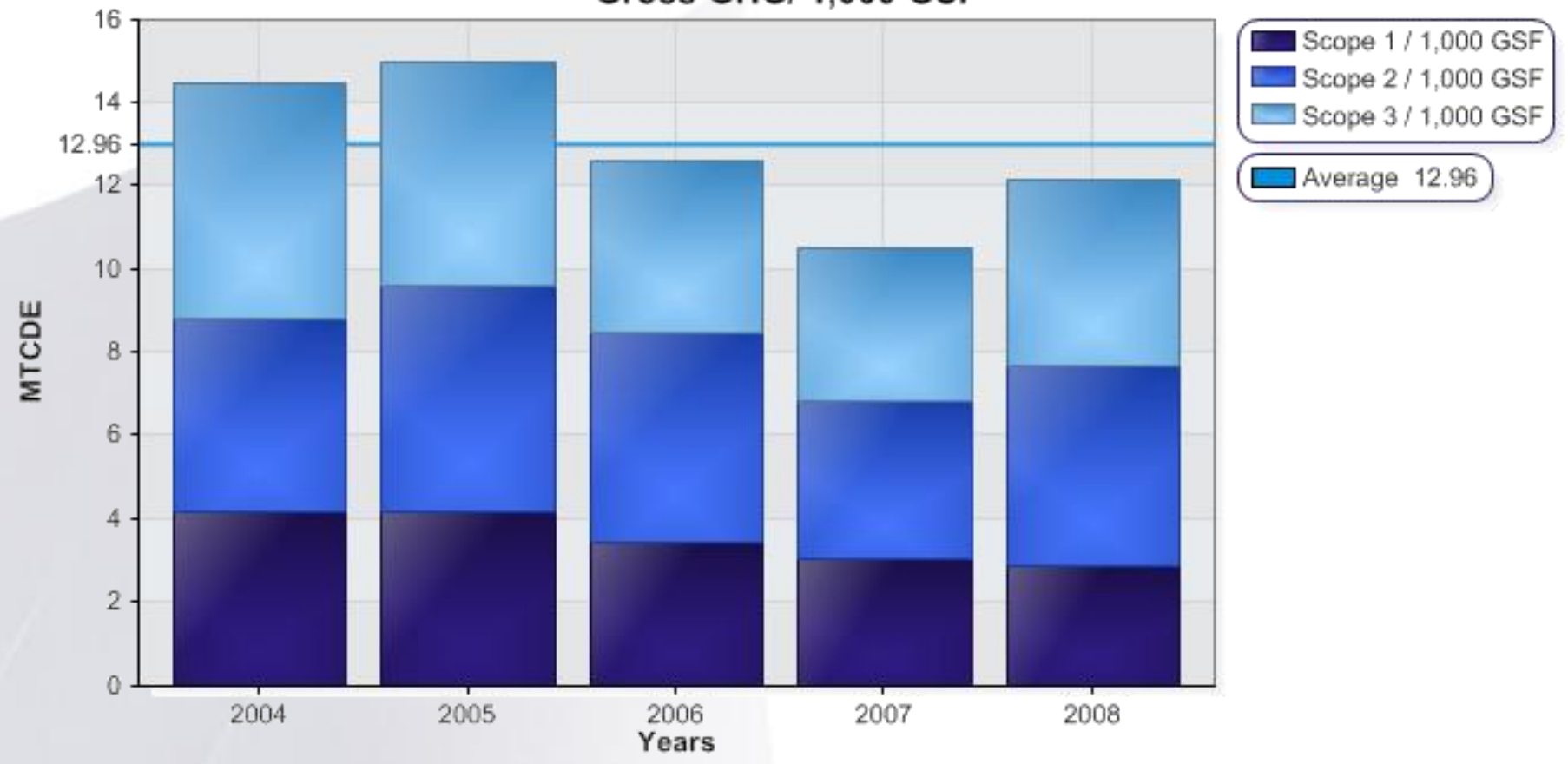
Average of 5,687 MTeCO₂/Year



Gross GHG/1,000 GSF

Average of 12.96 MTeCO₂/1,000 GSF

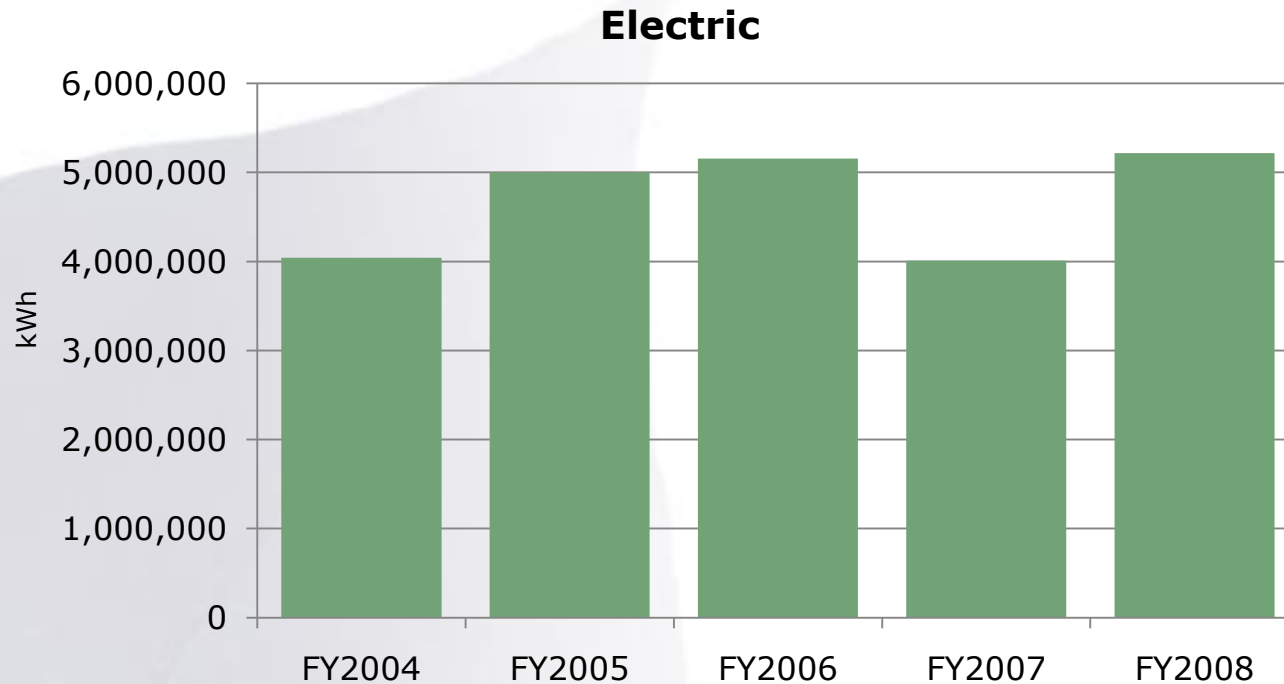
Gross GHG/ 1,000 GSF



Utilities – The Major Greenhouse Gas (GHG) Contributors at Champlain

Increasing Electric Consumption

Electricity - Scope 2



Electric Total Carbon Emissions: 2,322 MTeCO₂ - 39% of '08 Total

ROPA Peer Institutions

ROPA Energy Peer Institutions

Bennington College

Middlebury College

Siena College

Smith College

The College of Saint Rose

The Sage Colleges

Union College

University of Vermont

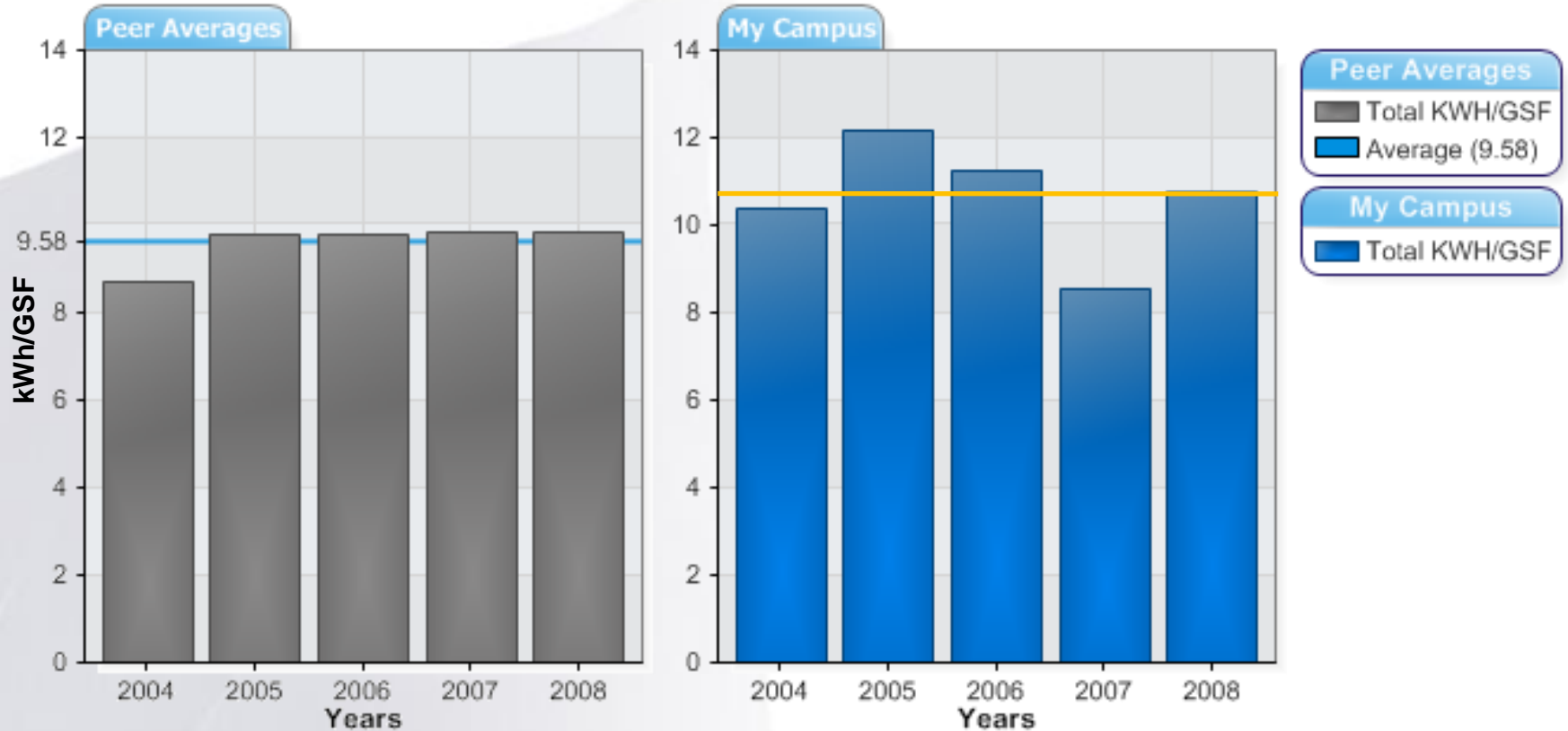
Williams College

Peer Group Based On

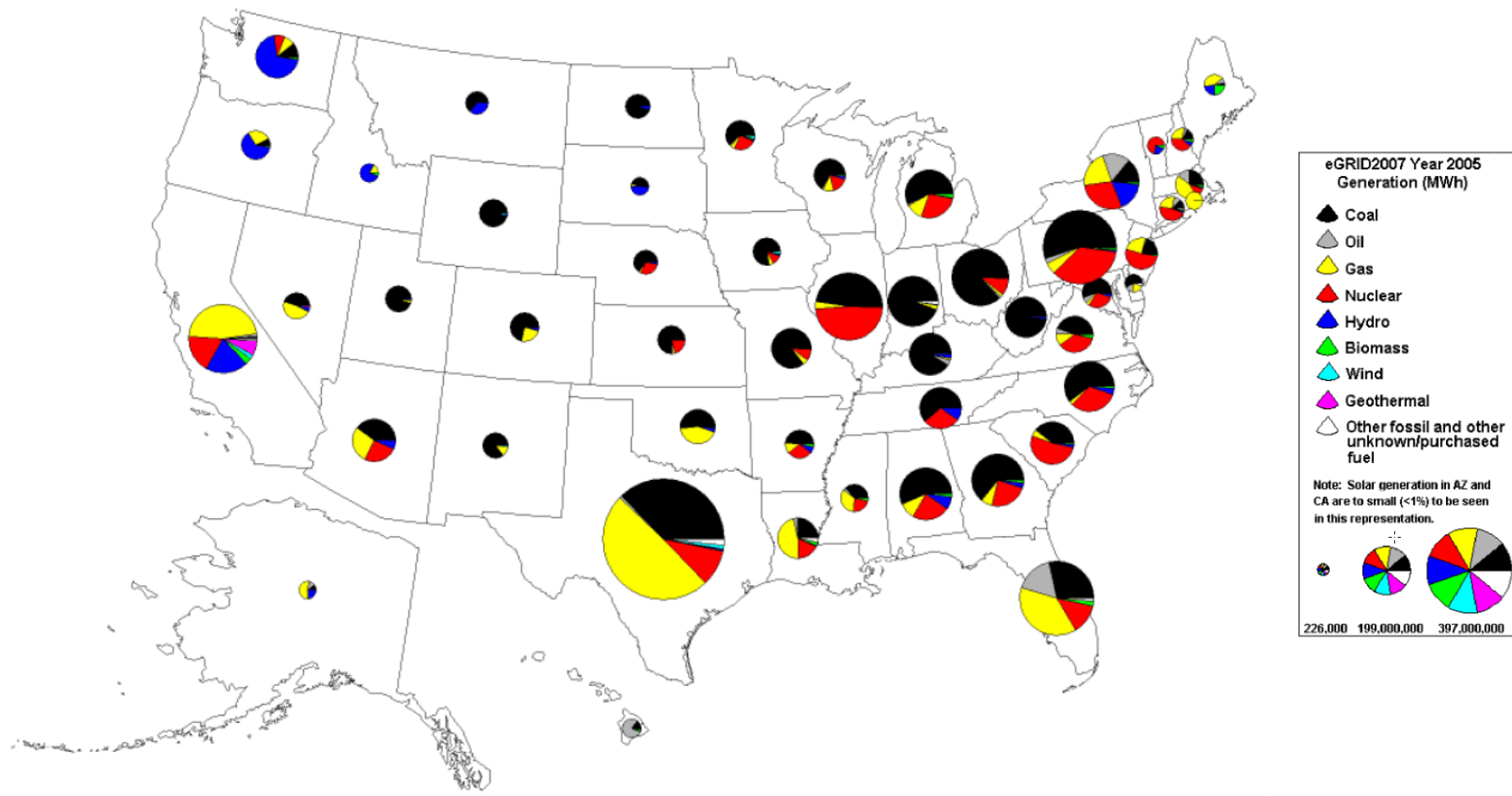
- Size
- Complexity
- Location
- Program

Consuming More Electricity than Peers

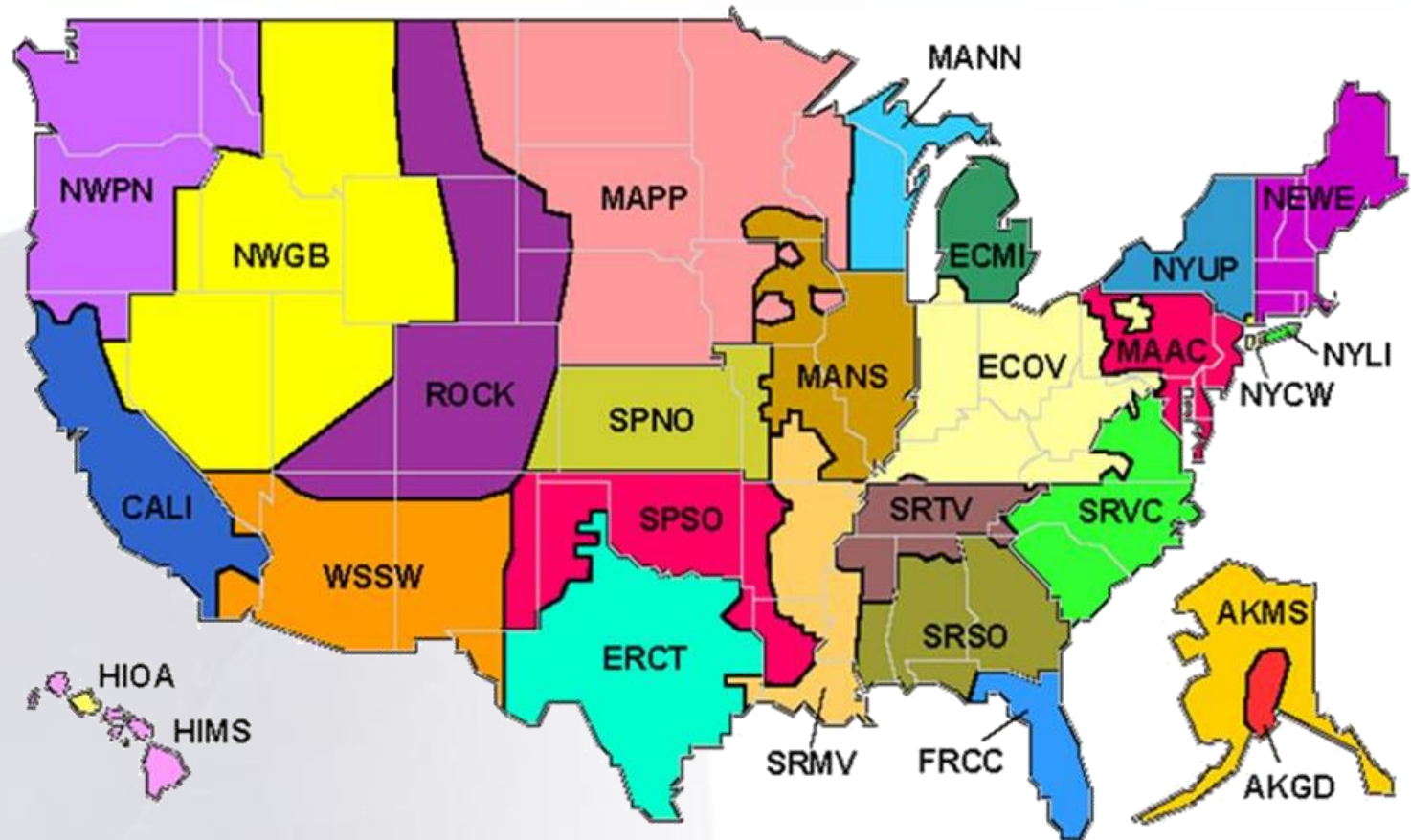
Electric Consumption



Electric Fuel Mix Varies Across the Country

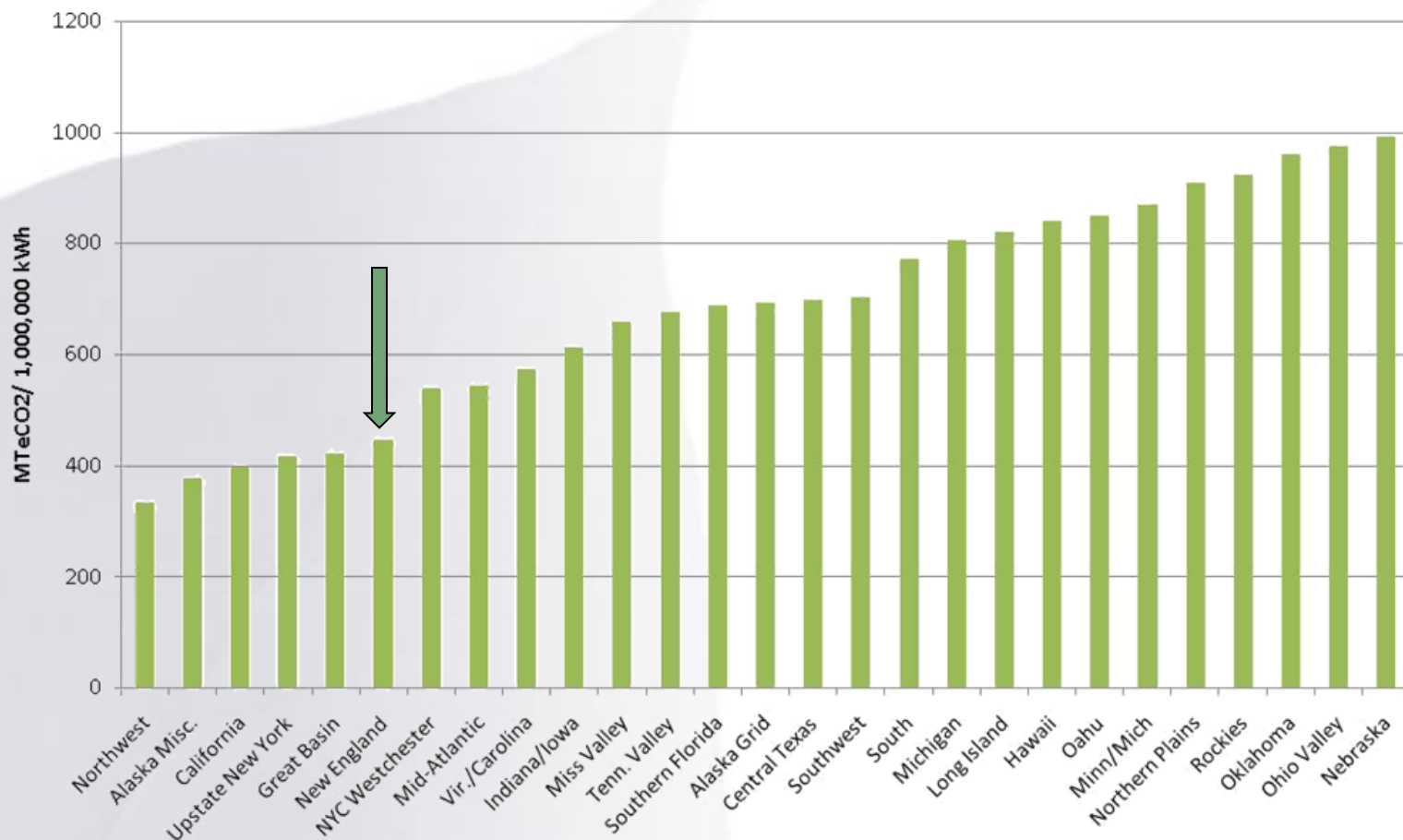


Carbon Emissions by Grid

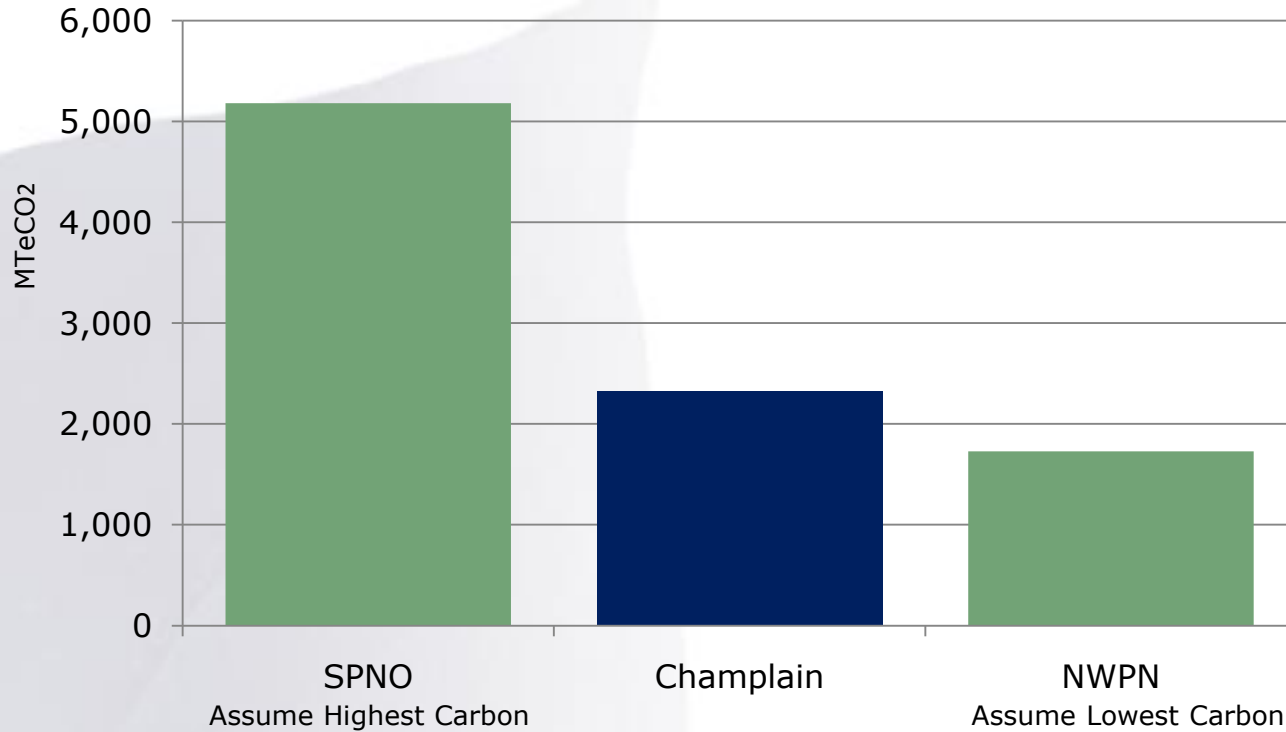


Champlain's Power Grid Reduces its Scope 2 Emissions

eCO2 Emissions by Power Grid Operator

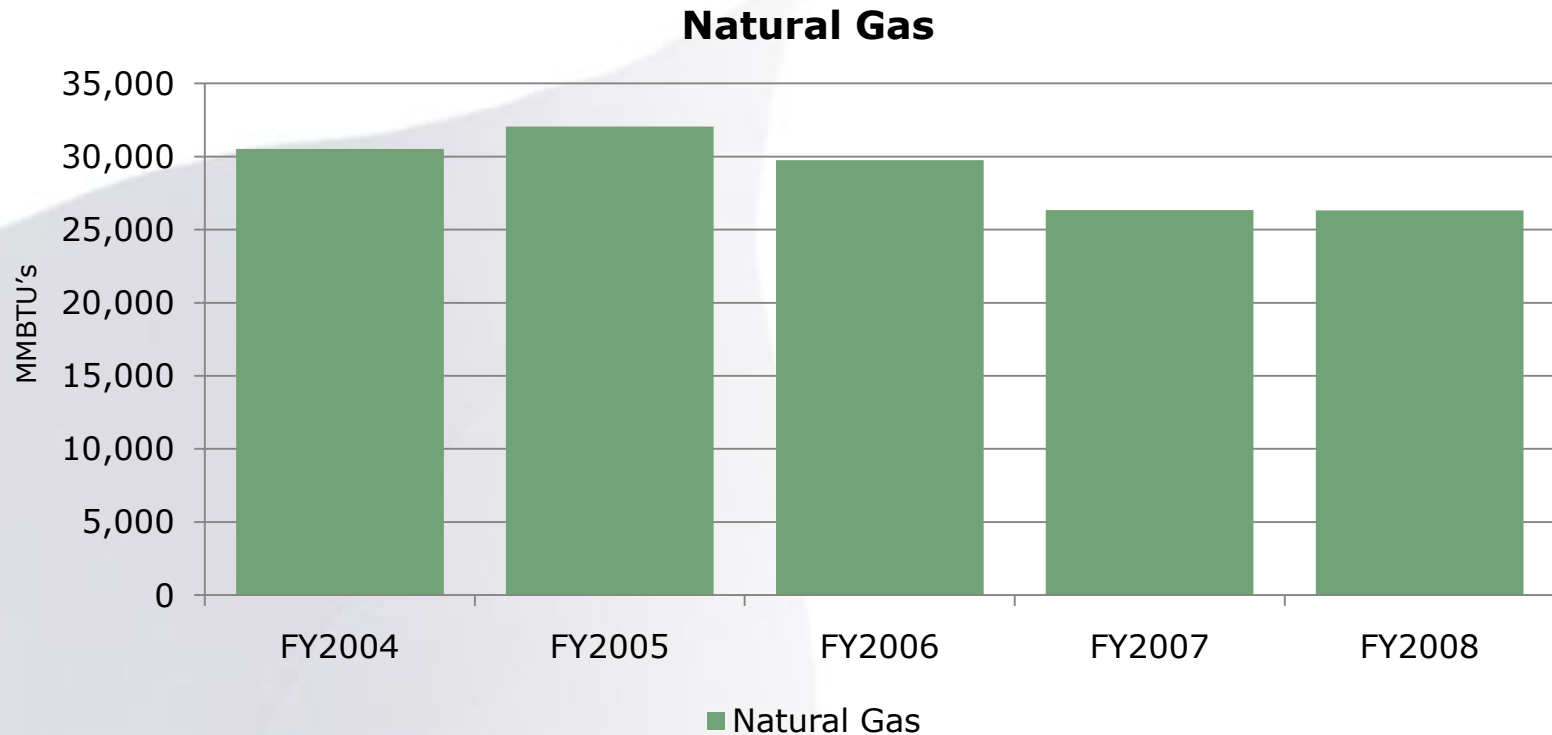


Impact of Regional Fuel Mix for Champlain



Consistent Decreases in Fossil Fuel Use

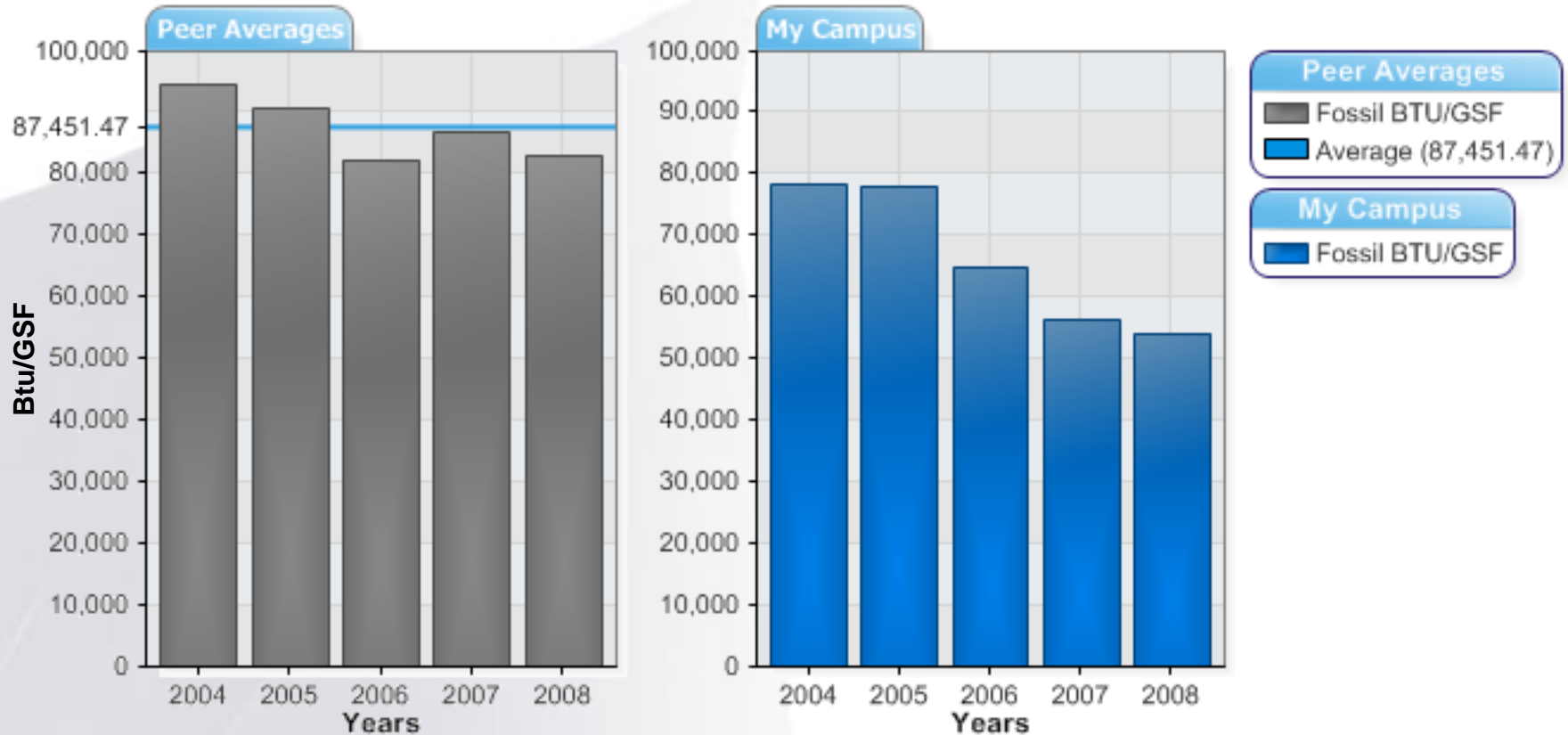
Natural Gas - Scope 1



Fossil Fuel Total Carbon Emissions: 1,394 MTeCO₂ - **24% of '08 Total**

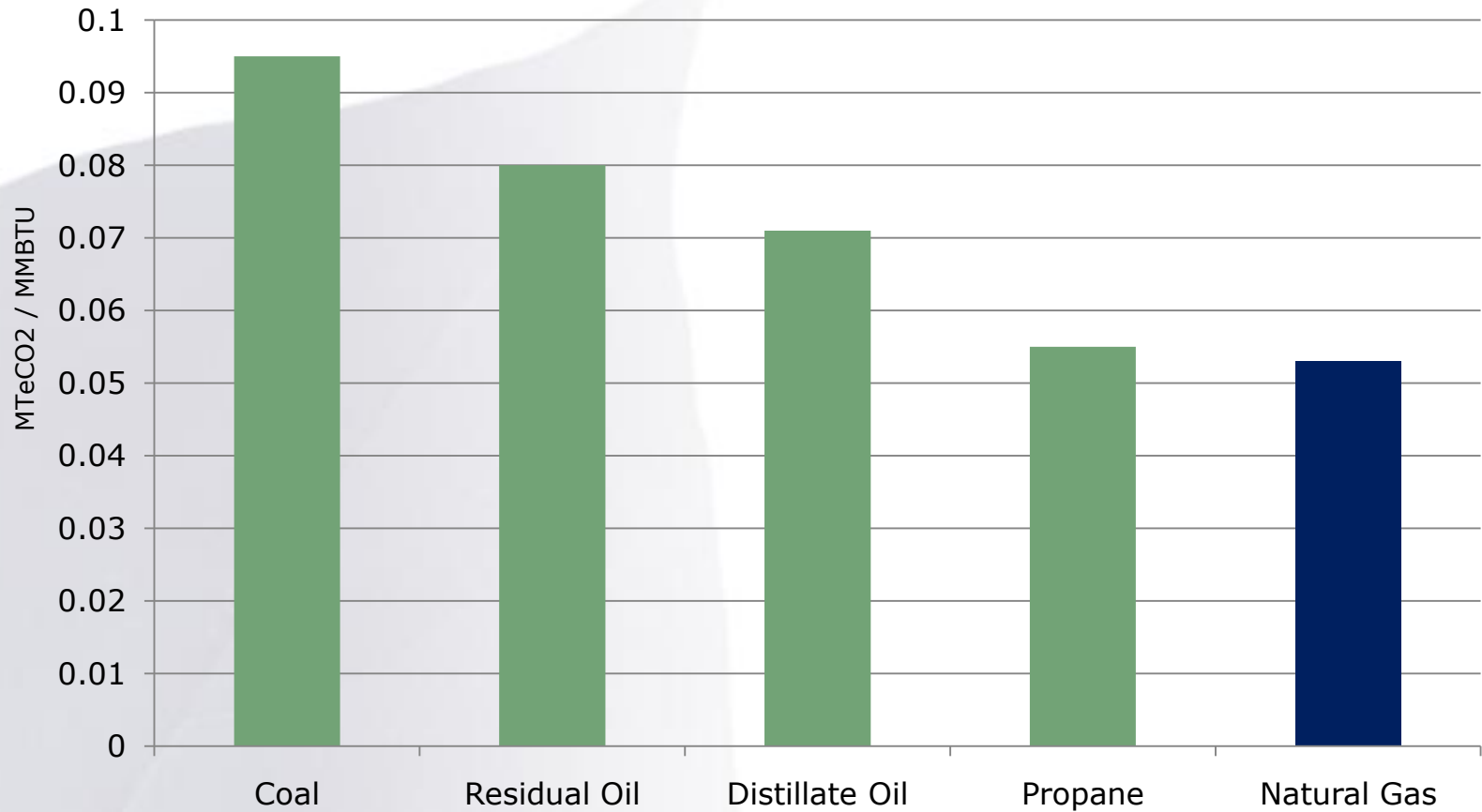
Fossil-Fuel Consumption Compared with ROPA Peers

Fossil Fuel Consumption



Natural Gas - Cleaner than Oil and Coal

MTeCO₂ of Commonly Used Fossil Fuels



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Other Greenhouse Gas (GHG) Contributors at Champlain

Other GHG Contributors at Champlain

| Source | '08 Units | MTeCO ₂ | % Total |
|--------------------------|-----------------------------------------------------------|--------------------|---------|
| Commuting | Faculty/Staff: 78,962 Gallons Students: 83,198 Gallons | 1,737 | 30% |
| Air Travel | Students: 481,750 Miles | 374 | 6% |
| Refrigerants | 8.5 Pounds | 7 | <1% |
| Solid Waste | 423 Short Tons | 62 | <1% |
| Agriculture - Fertilizer | 1,098 Pounds | 4 | <1% |

Students, Faculty and Staff Commuting

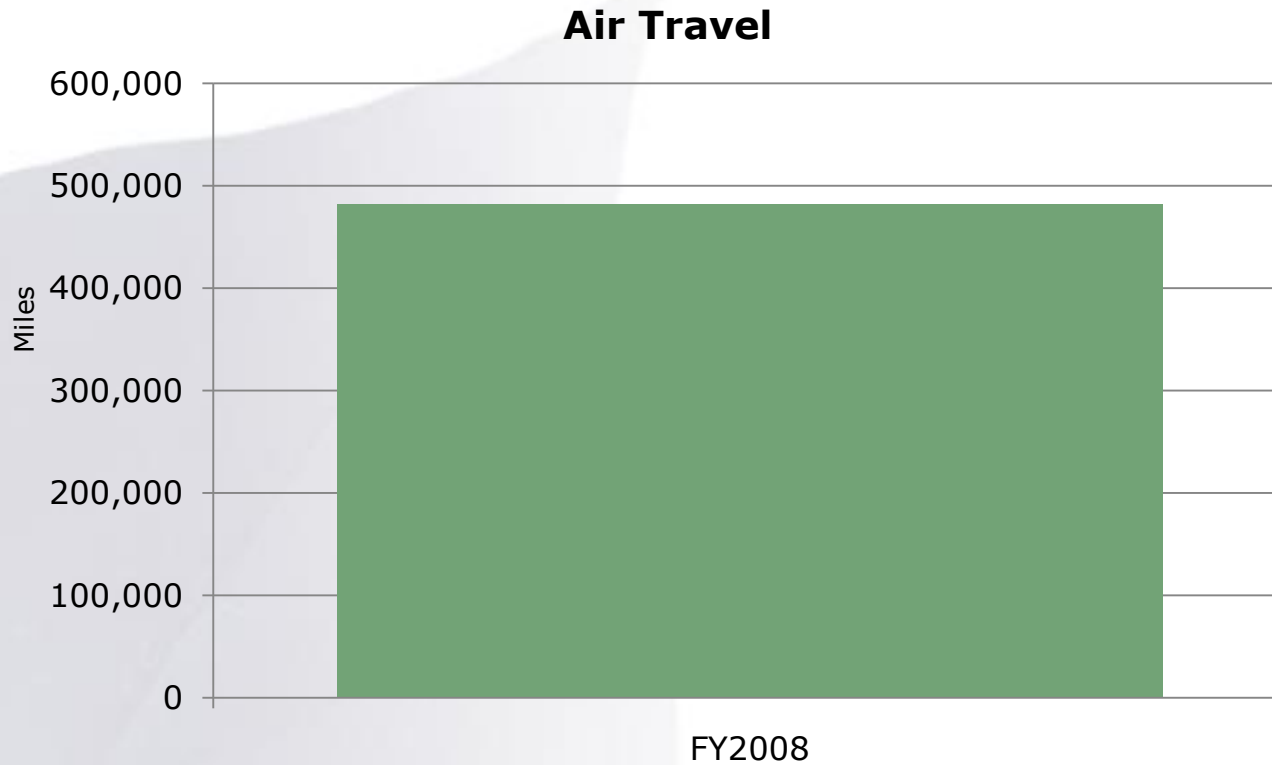
Current Assumptions

Sightlines recommends Champlain take a transportation survey in order to provide a more comprehensive representation of commuting trends

| | Students | Faculty | Staff |
|---------------------------------|----------|---------|-------|
| % Commuting by Personal Vehicle | 27% | 73% | 73% |
| % Driving Alone | 24% | 57% | 57% |
| % Driving Carpool | 3% | 16% | 16% |
| % Commuting by Bus | 13% | 8% | 8% |
| Trips/Day | 2 | 2 | 2 |
| Days/Year | 150 | 150 | 250 |
| Miles/Trip | 11 | 14 | 14 |

Student Study Abroad Travel

Air Travel– Scope 3

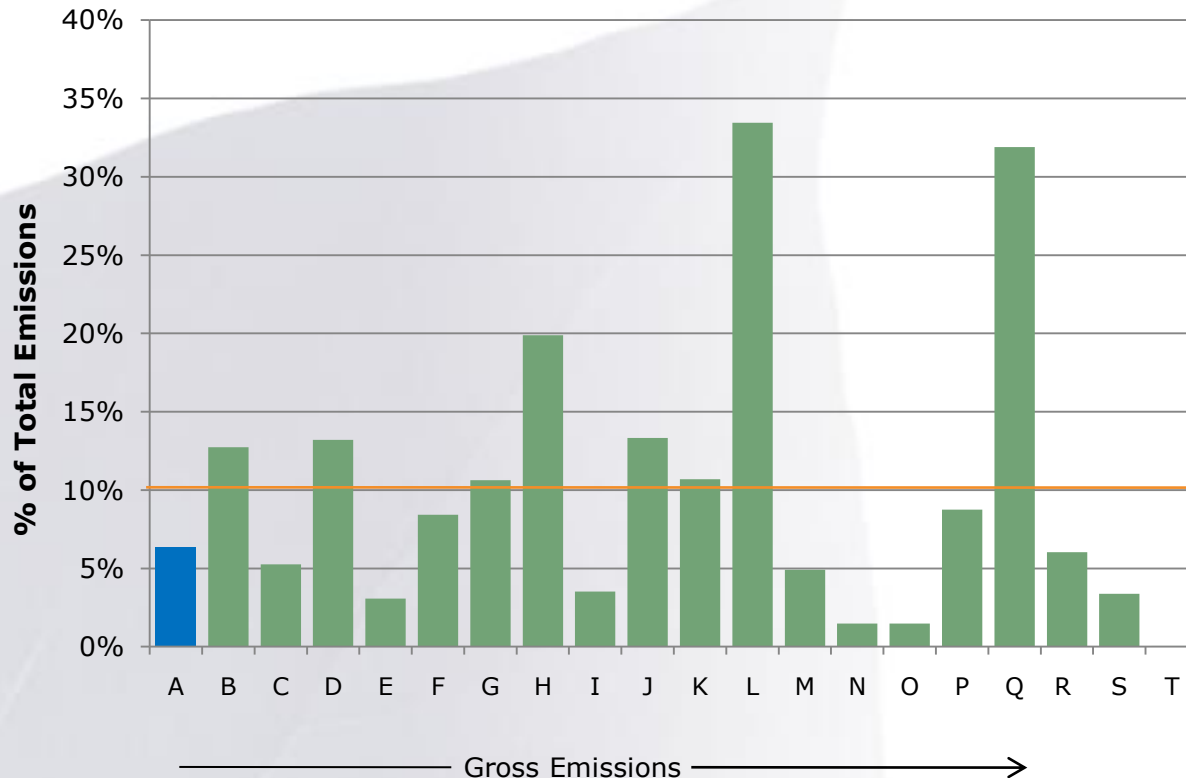


Total Carbon Emissions: 374 MTeCO₂ - **6% of '08 Total**

Air Travel as Percent of Total Emissions

Scope 3

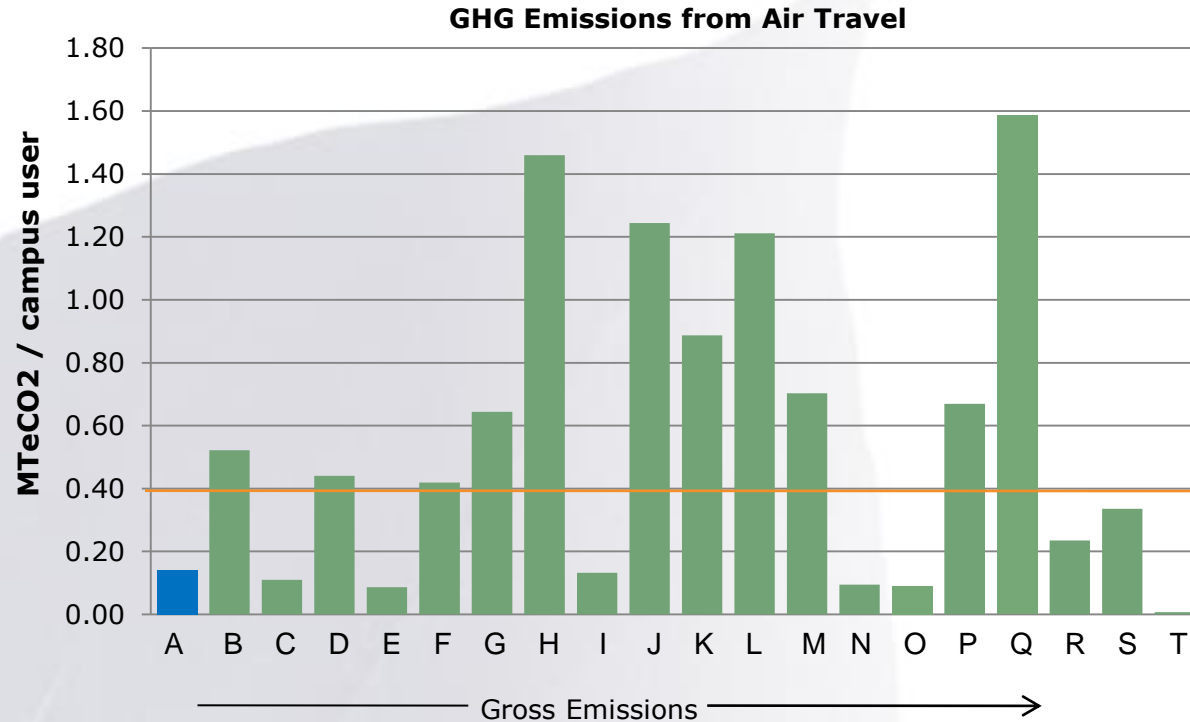
GHG Emissions from Air Travel



| Institutions |
|----------------------------------|
| Babson College |
| Bentley University |
| Gallaudet University |
| Hamilton College |
| Hamline University |
| Hampshire College |
| Le Moyne College |
| Oregon State University |
| Rowan University |
| Southern Methodist University |
| Southern Oregon University |
| Union College |
| University of Arkansas |
| University of Notre Dame |
| University of San Diego |
| Virginia Commonwealth University |
| Wesleyan University |
| Western Oregon University |

Air Travel Emissions per Campus User

Scope 3



| Institutions |
|----------------------------------|
| Babson College |
| Bentley University |
| Gallaudet University |
| Hamilton College |
| Hamline University |
| Hampshire College |
| Le Moyne College |
| Oregon State University |
| Rowan University |
| Southern Methodist University |
| Southern Oregon University |
| Union College |
| University of Arkansas |
| University of Notre Dame |
| University of San Diego |
| Virginia Commonwealth University |
| Wesleyan University |
| Western Oregon University |

Lacking Comprehensive Solid Waste Data

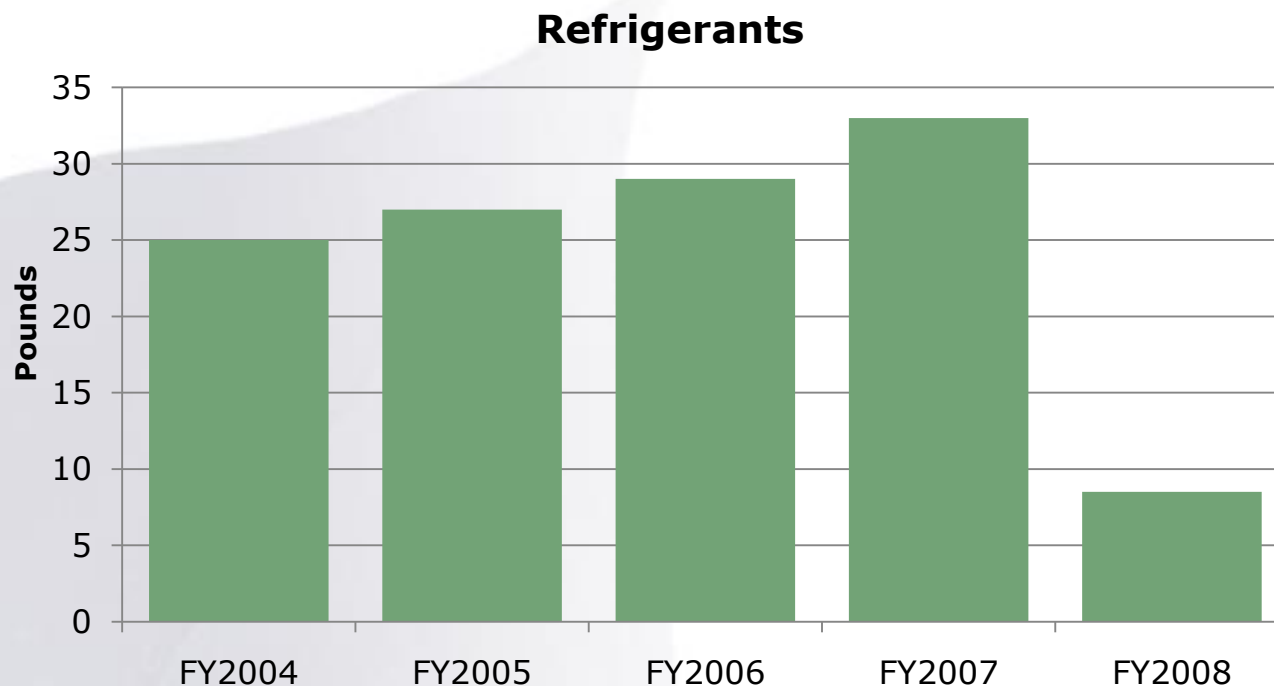
Solid Waste - Scope 3



Solid Waste Total Carbon Emissions: 62 MTeCO₂ - **1% of '08 Total**

Steep Drop in Refrigerant Use in FY08

Refrigerants (R-22, R-414B, R-410A) - Scope 1



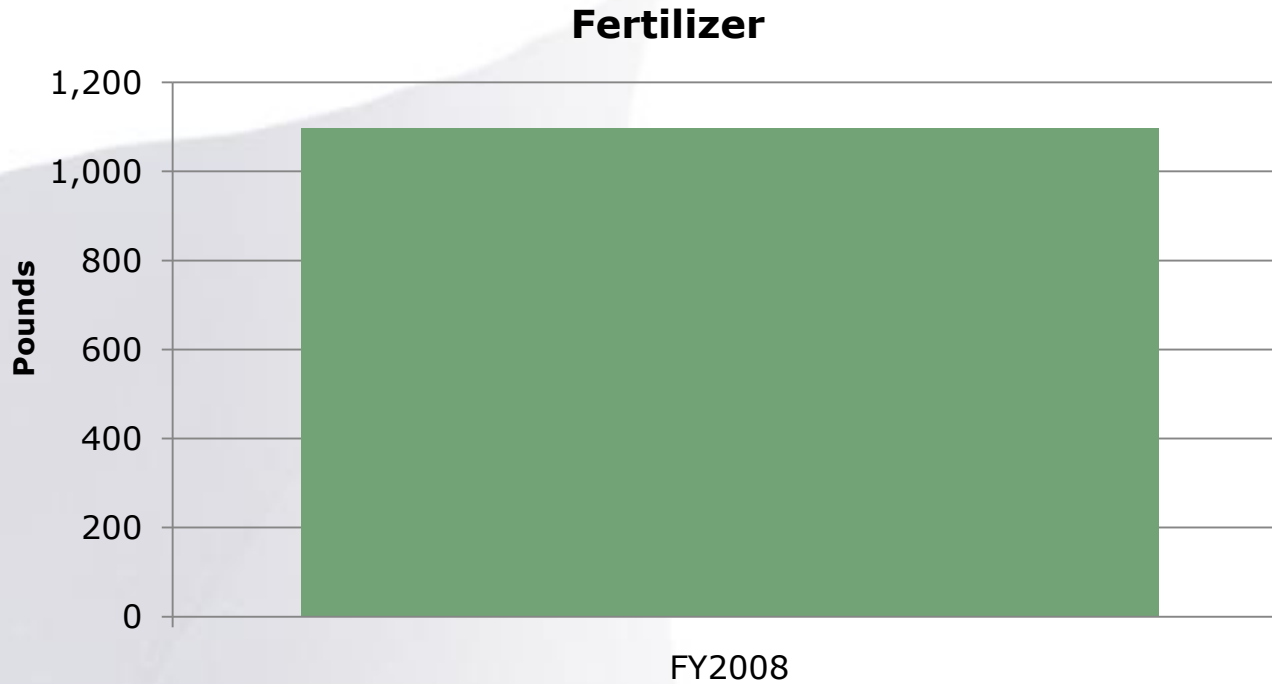
Refrigerants Total Carbon Emissions: 7 MTeCO₂ - <1% of '08 Total

**FY07 totals adjusted to GSF for previous years*

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Lacking Historical Fertilizer Data

Organic Fertilizer- Scope 1



Fertilizer Total Carbon Emissions: 4 MTeCO₂ - <1% of '08 Total

Offsets - Composting

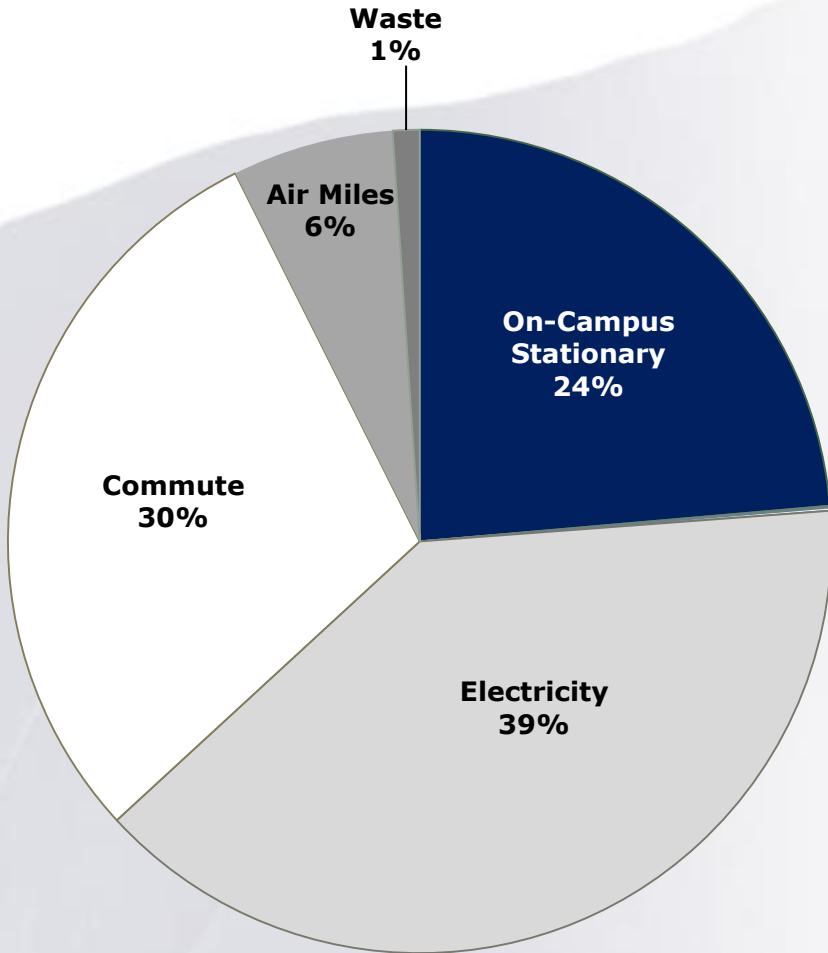
FY07-composted 100 tons; pulled forward as a placeholder

| Offset | Amount | MTeCO ₂ | % of Scope 3 Offset |
|---------|----------|--------------------|---------------------|
| Compost | 100 Tons | 18 | <1% |

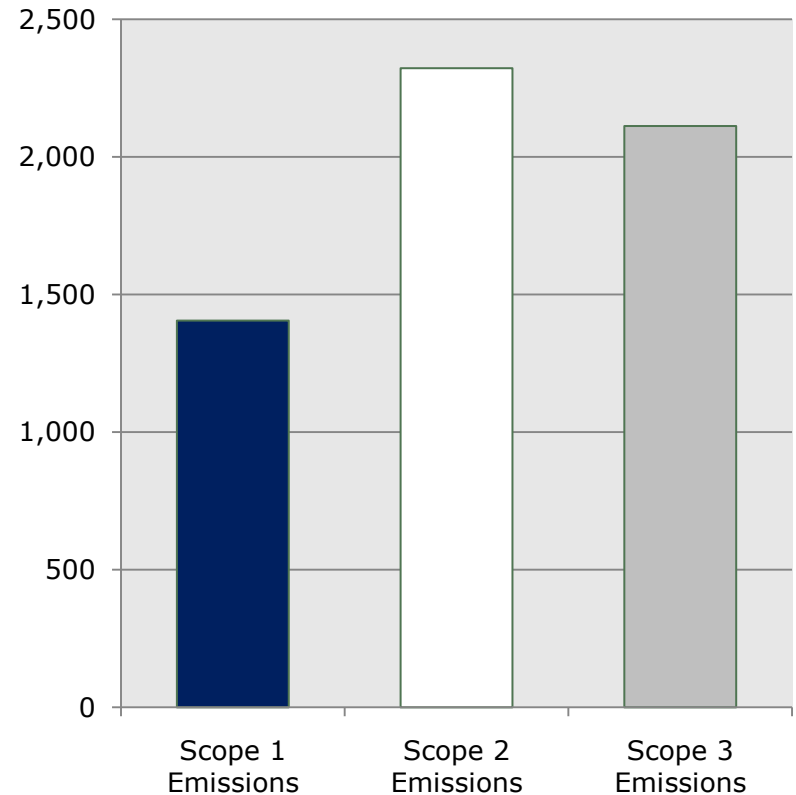
Total Carbon Emissions-Gross

5,900 MTeCO₂ in FY2008

Carbon Emissions by Type



Carbon Emissions by Scope

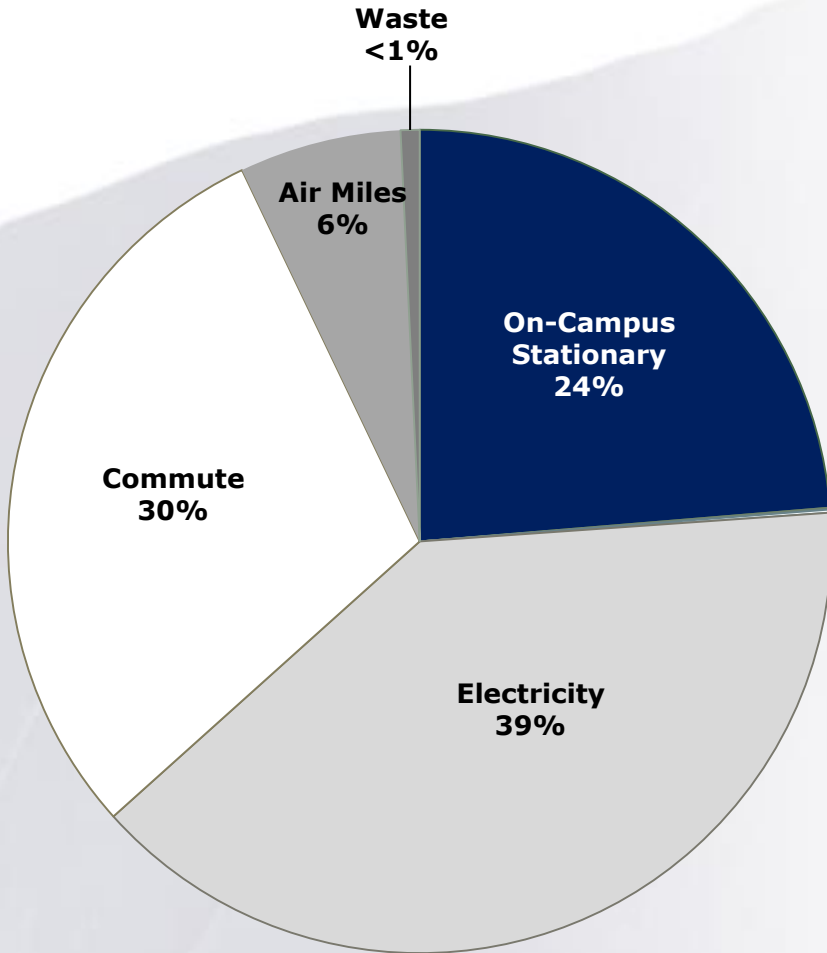


*Agriculture and Refrigerants represent less than 1% of total emissions

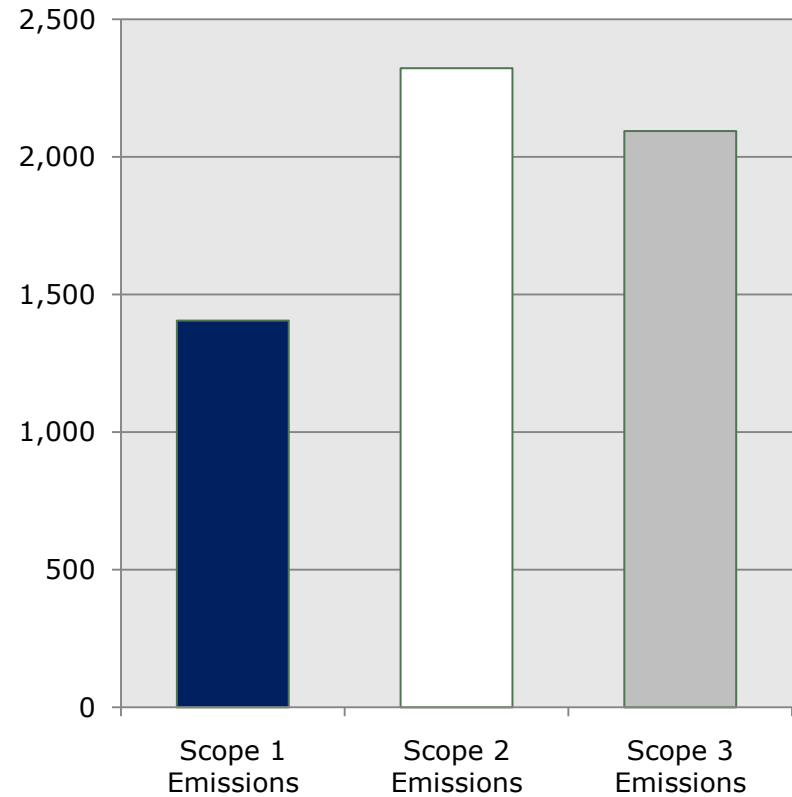
Total Carbon Emissions-Net

5,882 MTeCO₂ in FY2008

Carbon Emissions by Type



Carbon Emissions by Scope



*Agriculture and Refrigerants represent less than 1% of total emissions

Comparing Greenhouse Gas (GHG) Emissions

National Benchmark Institutions

| Institutions | |
|----------------------------------|----------------------------------------|
| Babson College | Rowan University |
| Bentley University | Santa Clara University |
| Bowdoin College | Seattle University |
| Carleton College | Southern Methodist University – Dallas |
| Clemson University | Southern Oregon University |
| Davidson College | St. Lawrence University |
| Eastern Oregon University | Texas A&M University |
| Eckerd College | Union College |
| Fitchburg State College | University of Arkansas |
| Gallaudet University | University of Dayton |
| Grinnell College | University of Denver |
| Hamilton College | University of Maryland - College Park |
| Hamline University | University of Notre Dame |
| Hampshire College | University of Oregon |
| Le Moyne College | University of Portland |
| Lewis & Clark College | University of Redlands |
| Loyola College in Maryland | University of San Diego |
| Loyola Marymount University | University of Vermont |
| Oregon Institute of Technology | Virginia Commonwealth University |
| Oregon State University | Washington and Lee University |
| Pacific Lutheran University | Wesleyan University |
| Portland State University | Western Oregon University |
| Rensselaer Polytechnic Institute | Williams College |

To be Added Soon:

- Michigan State University
- Mount Holyoke College
- Nova Southeastern University
- The University of Alabama
- St. Mary's College of CA
- University of San Francisco
- Vassar College

Peer Institutions

GreenLine Institutions

St. Lawrence University

Bowdoin College

Williams College

Wesleyan College

Bentley University

Babson College

Union College

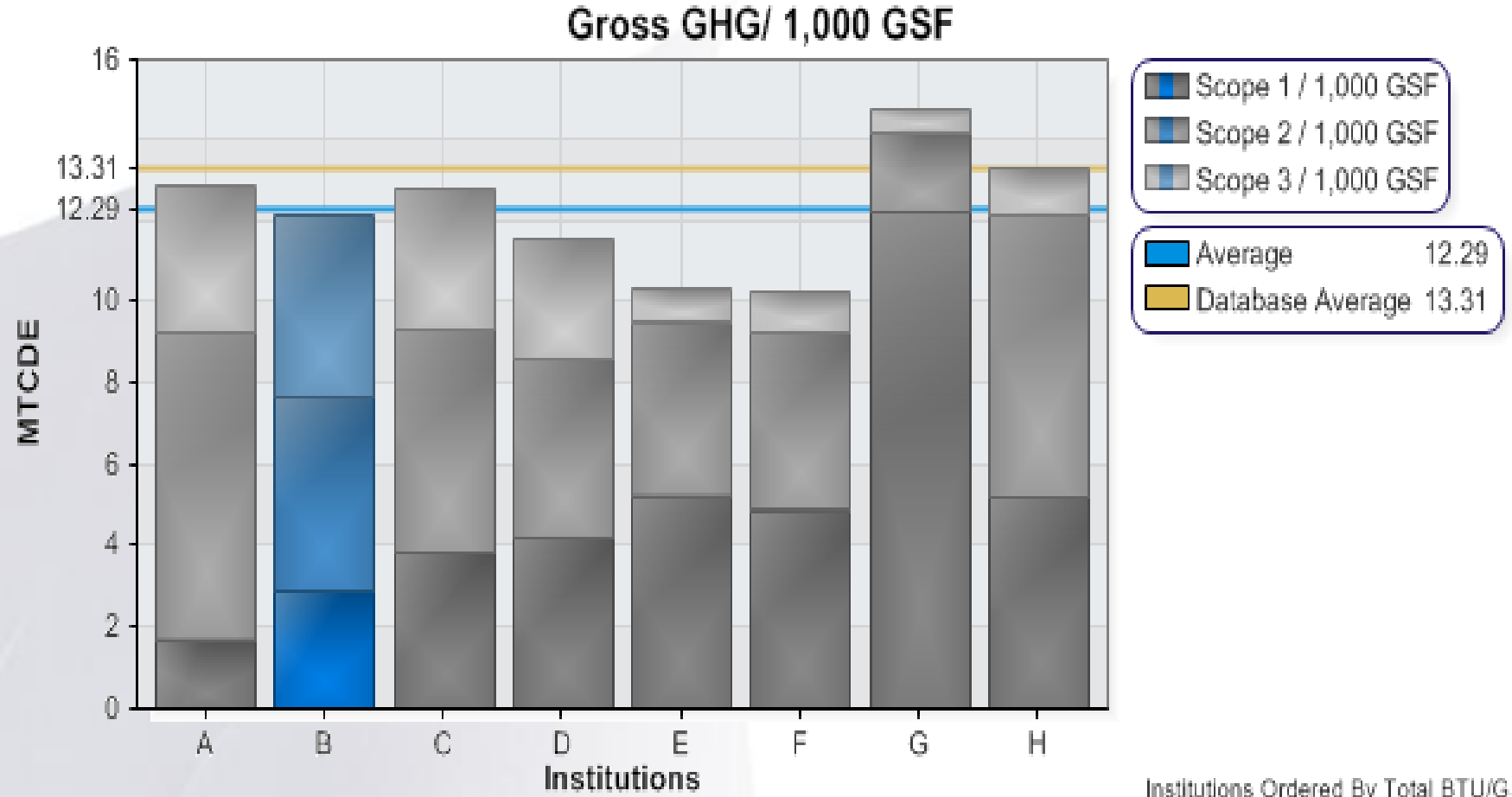
Rensselaer Polytechnic Institute

Peer Group Based On

- Size
- Complexity
- Location
- Program

Gross Emissions/1,000 GSF

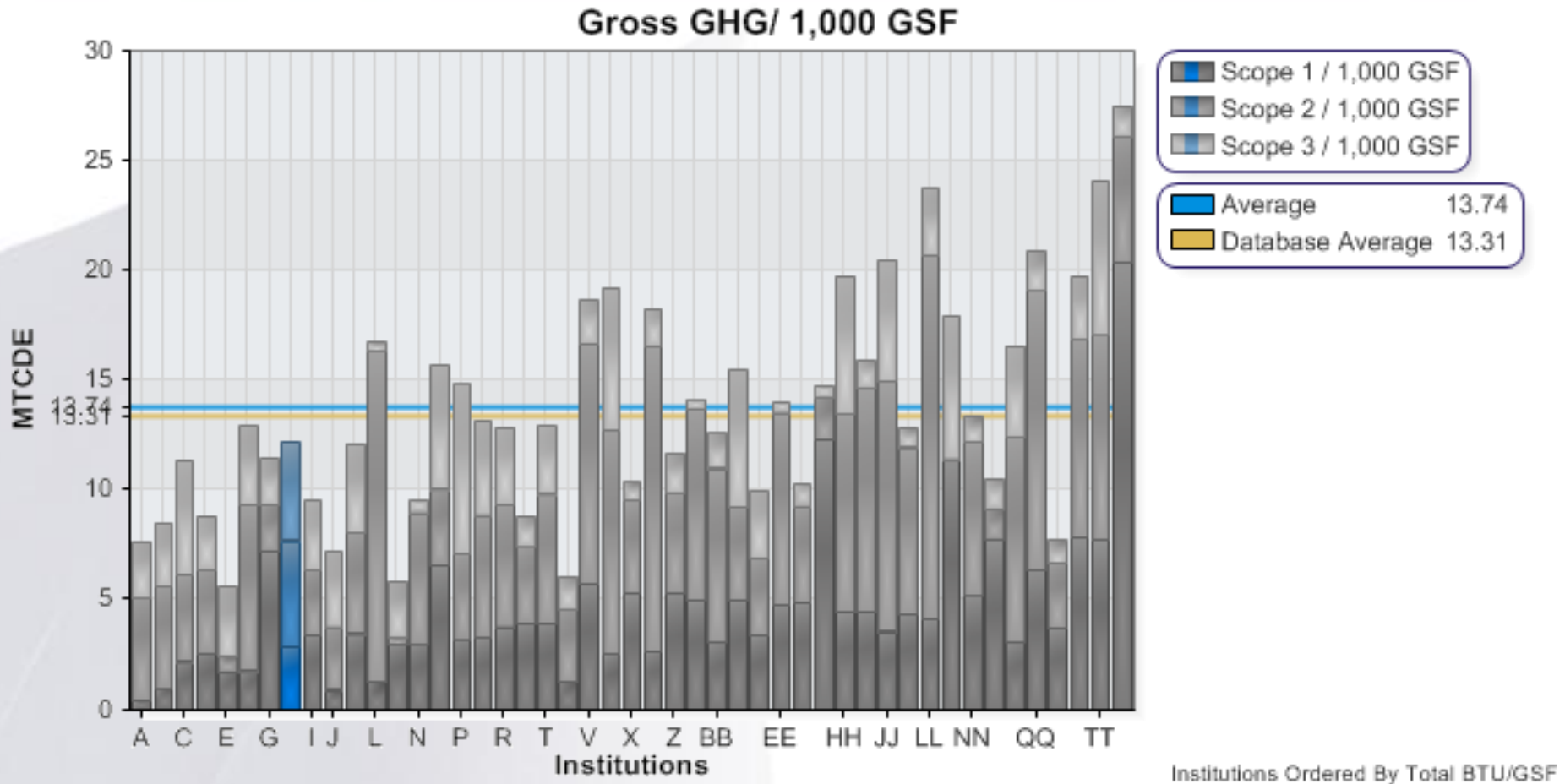
Peer Group



Institutions Ordered By Total BTU/GSF



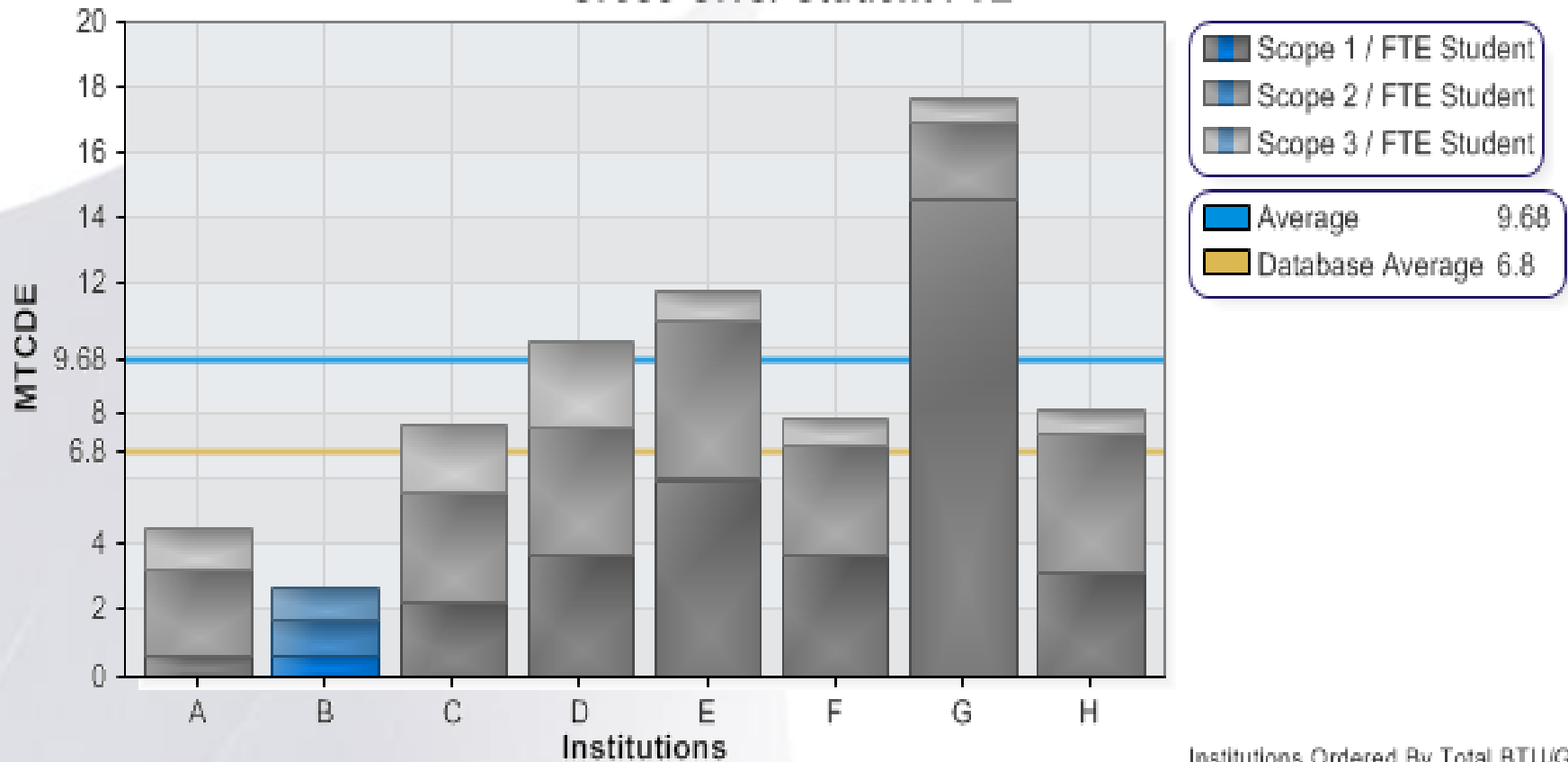
Gross Emissions/1,000 GSF Nationwide



Gross GHG/Student FTE

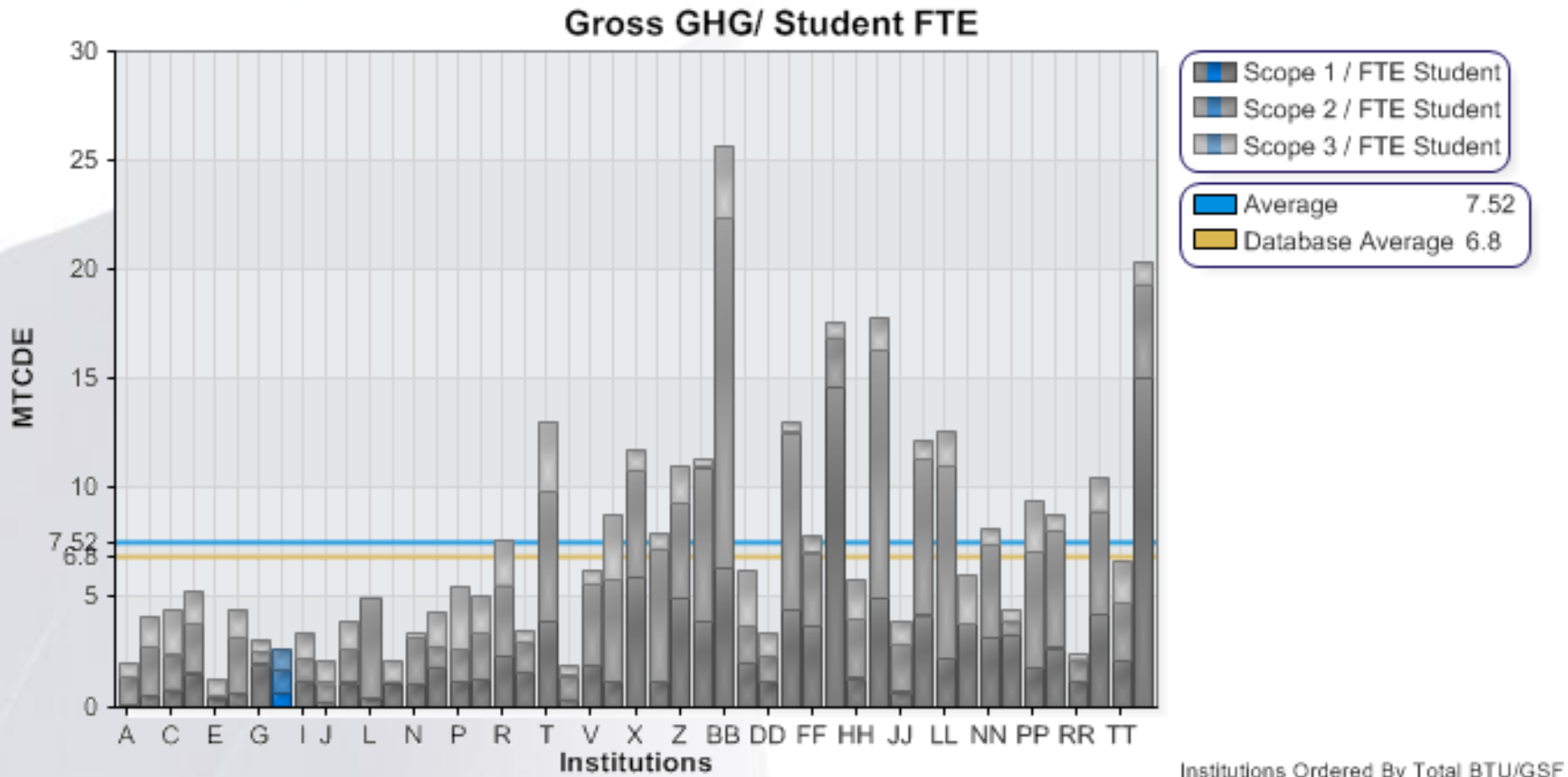
Peer Group

Gross GHG/ Student FTE



Institutions Ordered By Total BTU/GSF

Gross GHG/Student FTE Nationwide

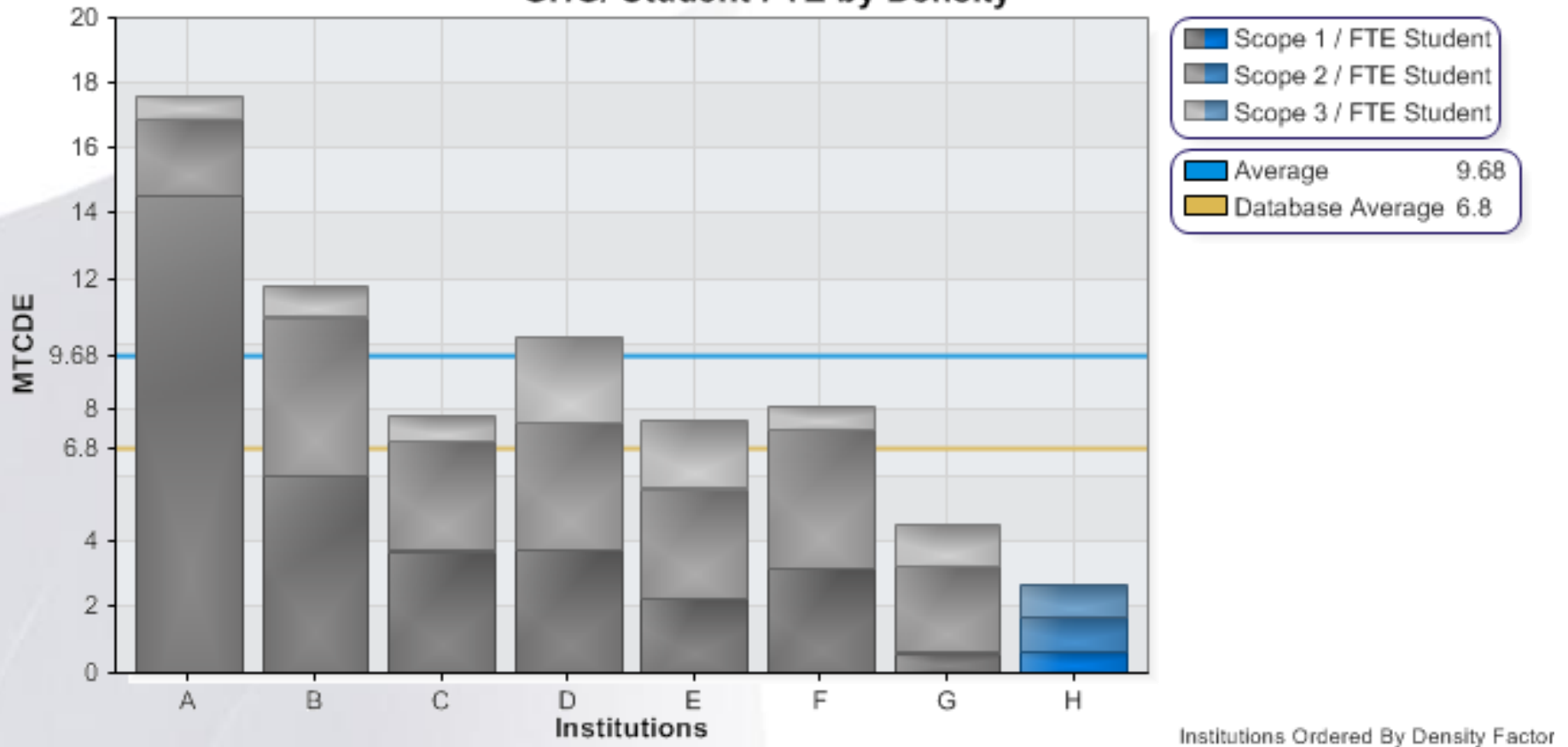


Institutions Ordered By Total BTU/GSF

GHG/Student FTE by Density

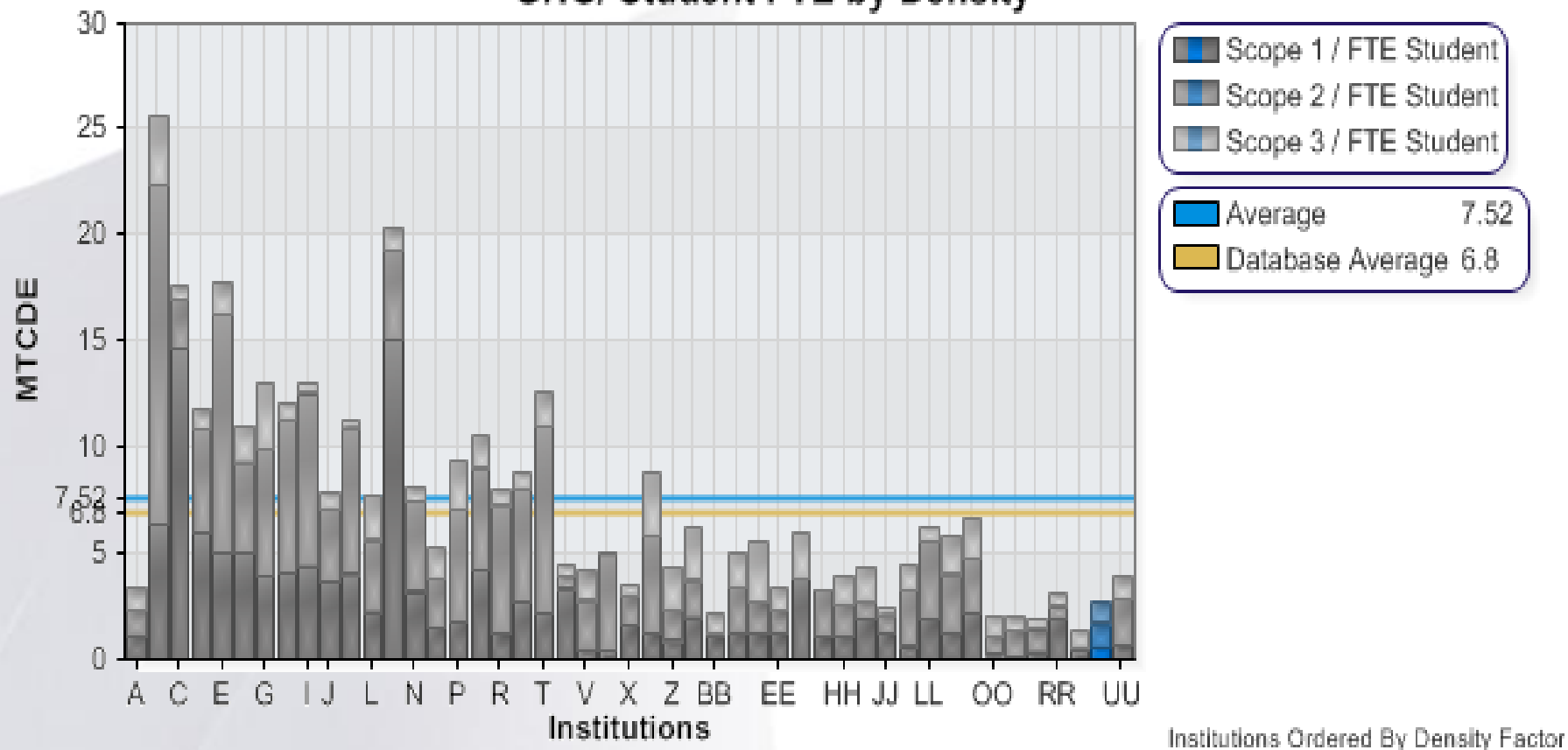
Peer Group

GHG/ Student FTE by Density



GHG/Student FTE by Density Nationwide

GHG/ Student FTE by Density



Institutions Ordered By Density Factor

Concluding Thoughts

- Centralize the tracking of emissions sources identified in this analysis
- Establish institutional framework to begin tracking faculty/staff air travel and fleet fuel consumption
- Roll-out transportation survey to campus users to increase accuracy of commuting emissions
- Utilize carbon-modeling tool during FY09 renewal for future infrastructure investments on campus
- Develop intermediate emissions reduction targets that are in line with the strategic direction of the College

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Questions & Discussion