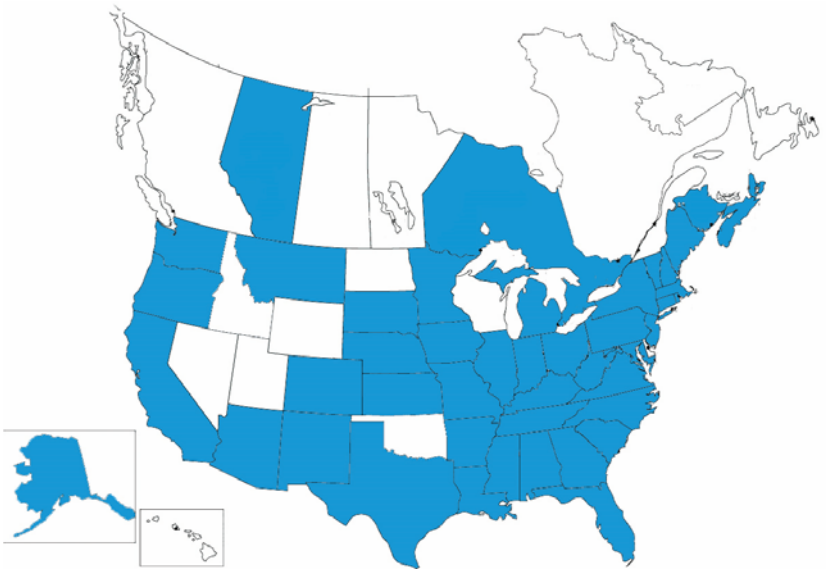
FY14 Sustainability Solutions

The University of Alabama

sightlines

Who Partners with Sightlines?

Robust membership includes colleges, universities, consortiums and state systems



Serving the Nation's Leading Institutions:

- **70% of the Top 20 Colleges***
- **75% of the Top 20 Universities***
- **33 Flagship State Universities**
- **13 of the 14 Big 10 Institutions**
- **9 of the 12 Ivy Plus Institutions**
- **7 of 12 Selective Liberal Arts Colleges**

* U.S. News 2015 Rankings

Sightlines is proud to announce that:

- 450 colleges and universities are Sightlines clients including over 325 ROPA members.
- 93% of ROPA members renewed in 2014
- We have clients in 41 states, the District of Columbia and four Canadian provinces
- More than 100 new institutions became Sightlines since 2013

Sightlines advises state systems in:

- Alaska
- California
- Connecticut
- Hawaii
- Maine
- Massachusetts
- Minnesota
- Mississippi
- Missouri
- Nebraska
- New Hampshire
- New Jersey
- Pennsylvania
- Texas
- West Virginia

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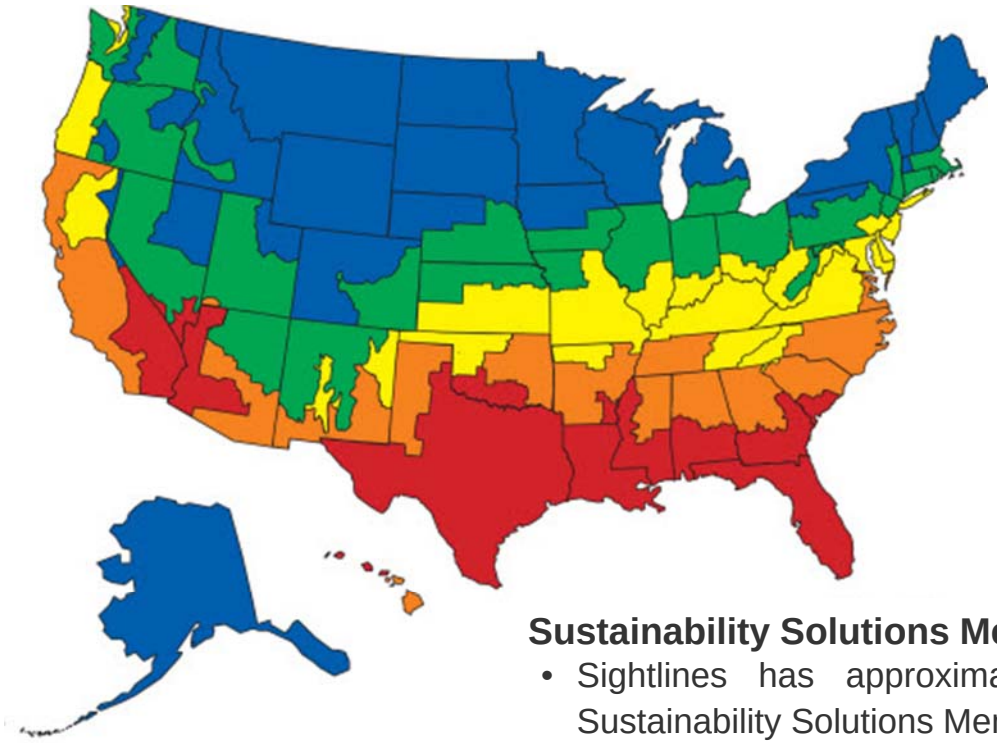
Peer Institutions for Alabama



Sustainability Solutions Members

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

Institution
Arizona State University
Clemson University
George Mason University
Michigan State University
The University of Dayton
University of Arkansas
University of Tennessee
Virginia Commonwealth University

Peer Group Based On

- Size
- Technical Complexity
- Climate Zone
- Campus setting

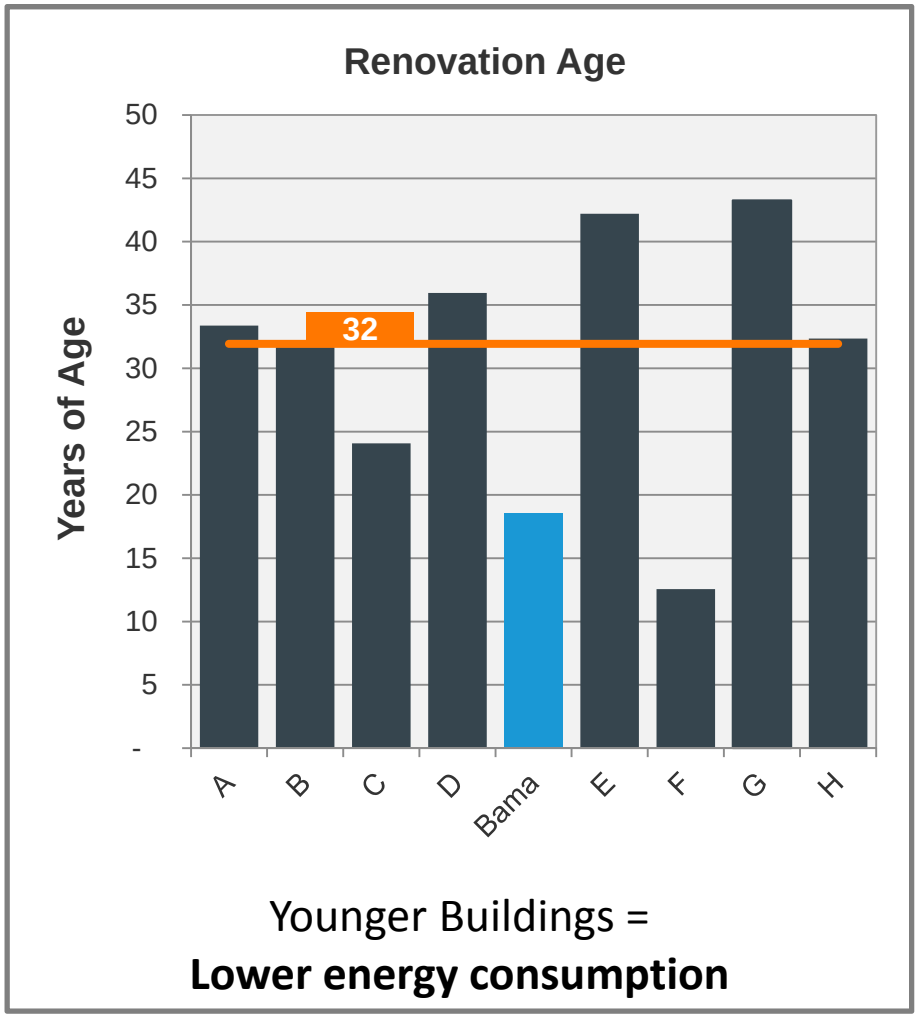
Key Points and Outline

- Alabama Profile
  - Alabama has grown significantly since the beginning of the analysis, in both space and population
- Emissions and Carbon Mitigation
  - Scope 2 emissions continues to make up a bulk majority of the total emissions at Alabama
  - A driving force of that is the eGrid and its carbon intensity
- Commuting
  - Gross commuting emissions has continued to grow since FY04 due to the increase in population
- Other Sources
  - There has been a significant increase in recycled content for Alabama
  - Directly financed air travel has been the main contributor to the decrease in total miles traveled

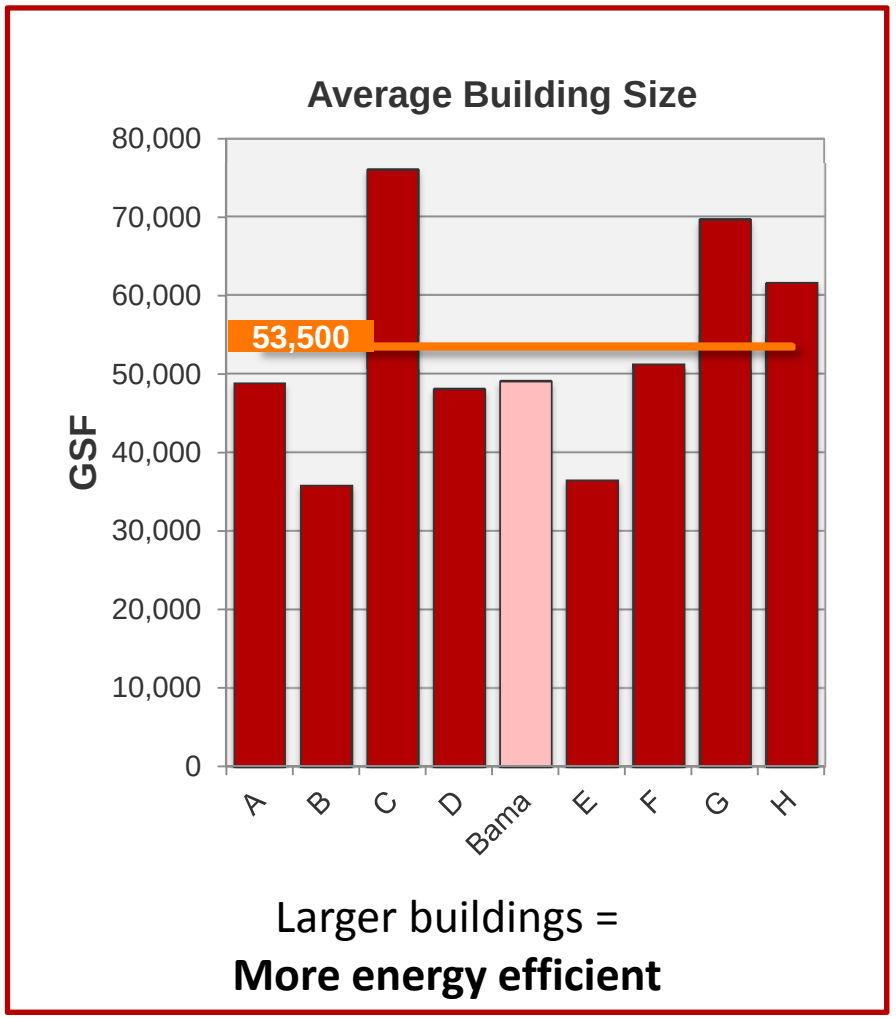
Alabama Profile

Campus Profile Impact on Energy Consumption

Factors that influence energy consumption on campus



Younger Buildings =
Lower energy consumption



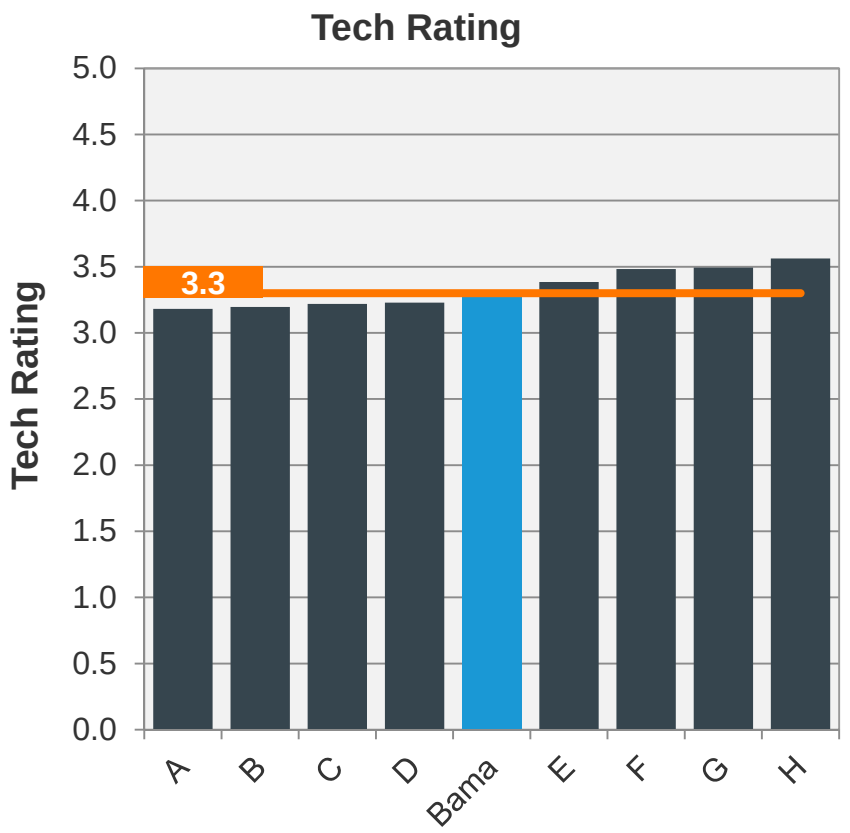
Larger buildings =
More energy efficient

Peers ordered by technical complexity

sightlines

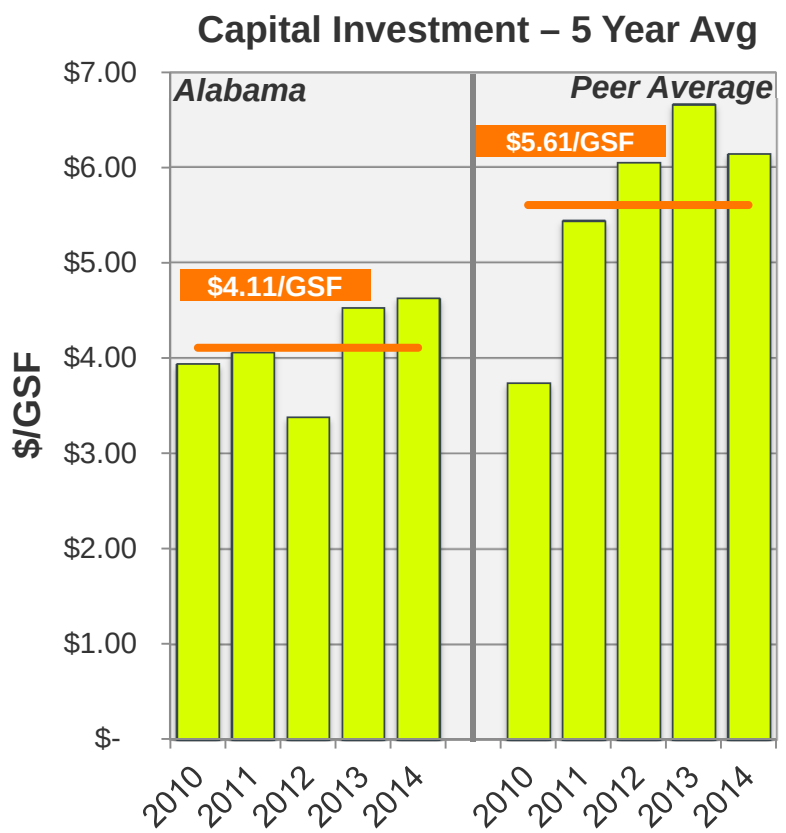
Campus Profile Impact on Energy Consumption

Factors that influence energy consumption on campus



Higher Tech Rating =

Higher energy consumption



Lower capital spending =

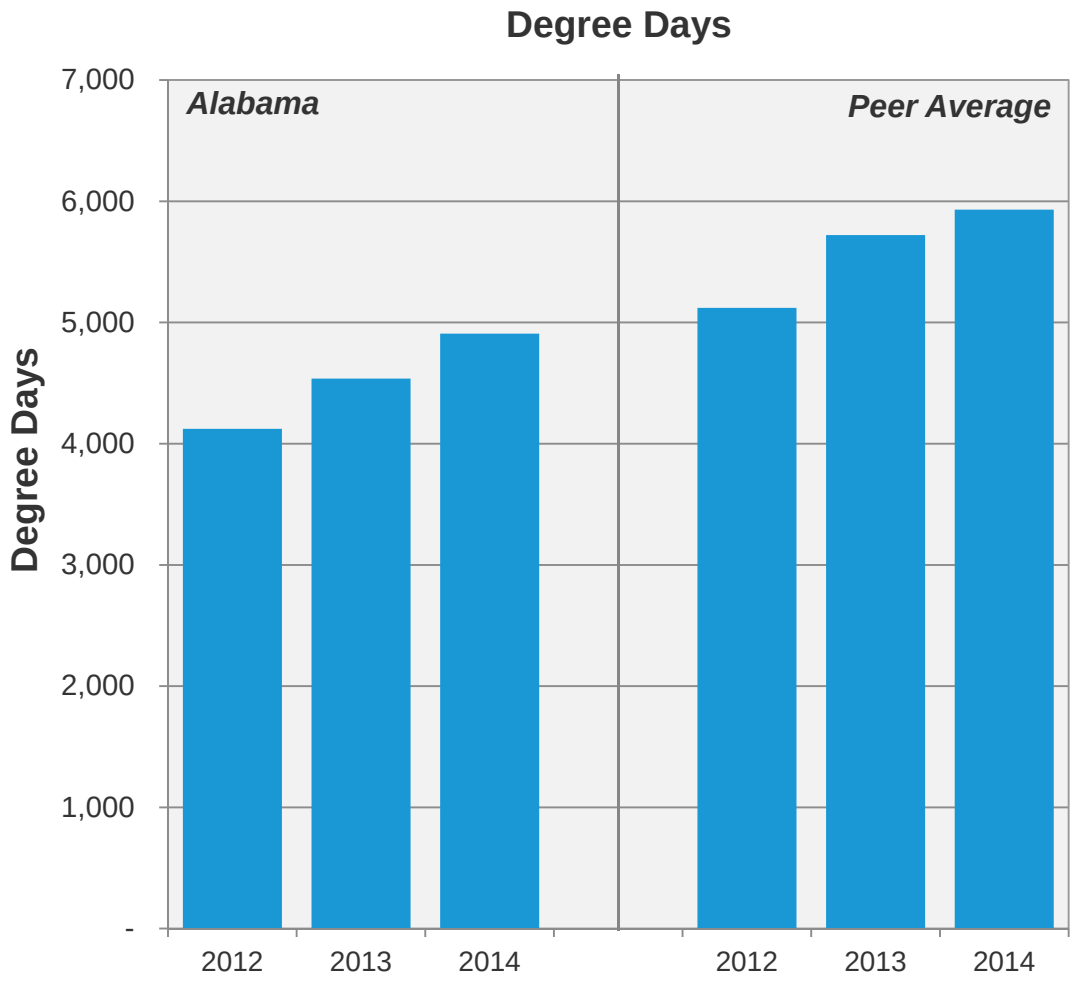
Less impact on energy opportunities

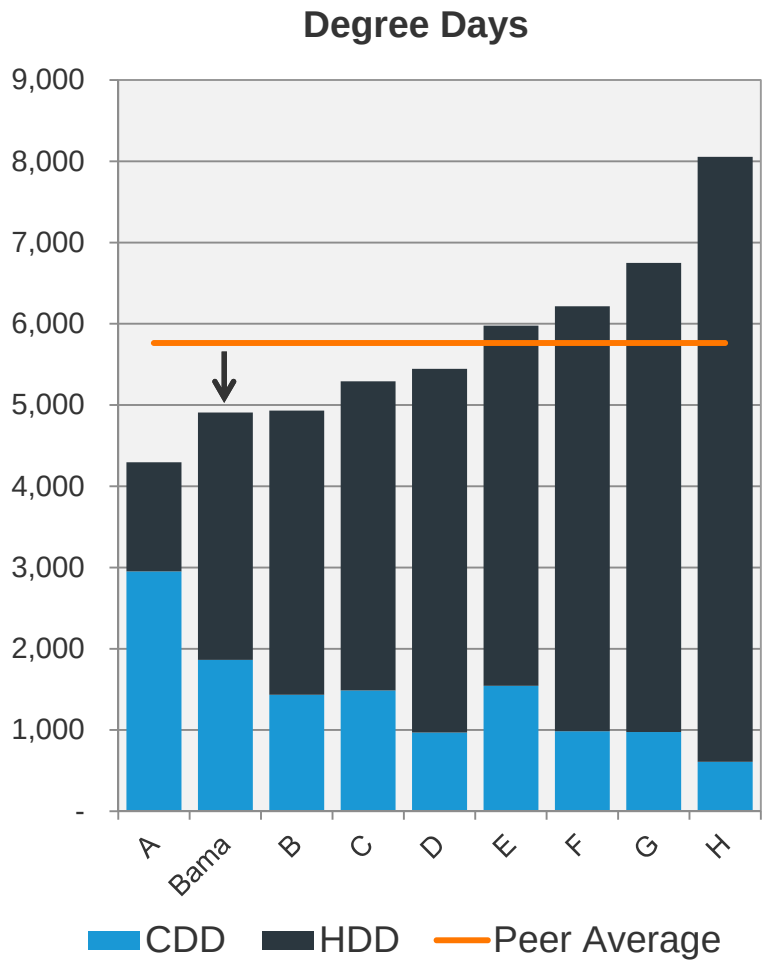
Peers ordered by technical complexity

sightlines

Degree Days Context

Similar heating and cooling degree day trending as peer institutions



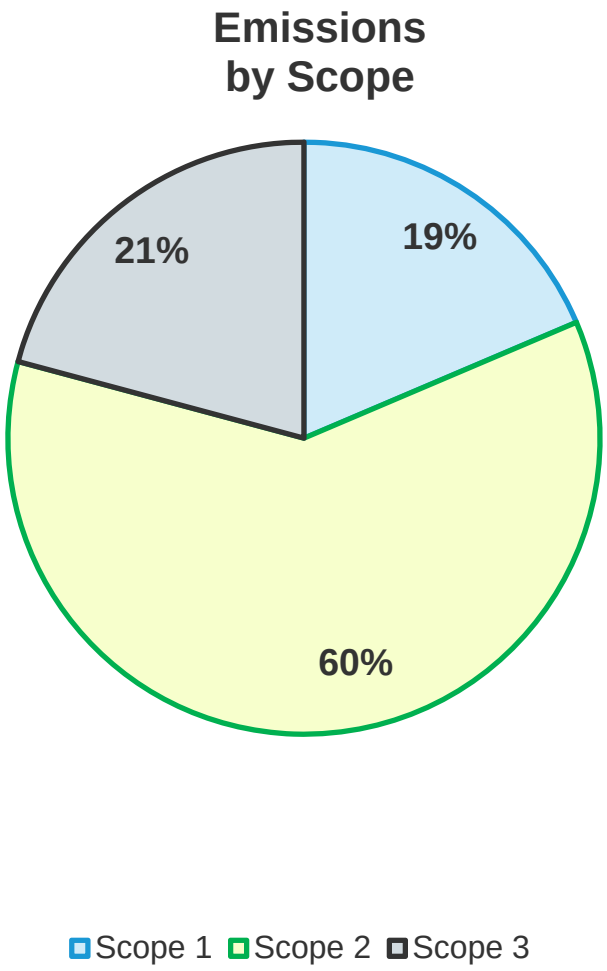


Institutions ordered by Total Degree Days

Emissions and Carbon Mitigation

Distribution of Emissions by Level of Control

FY2014 emissions by source and scope



Scope 1 – Direct GHGs

- On-Campus Stationary (Natural Gas; Fuel Oil)
- Vehicle Fleet
- Refrigerants
- Agriculture

Scope 2 – Upstream GHGs

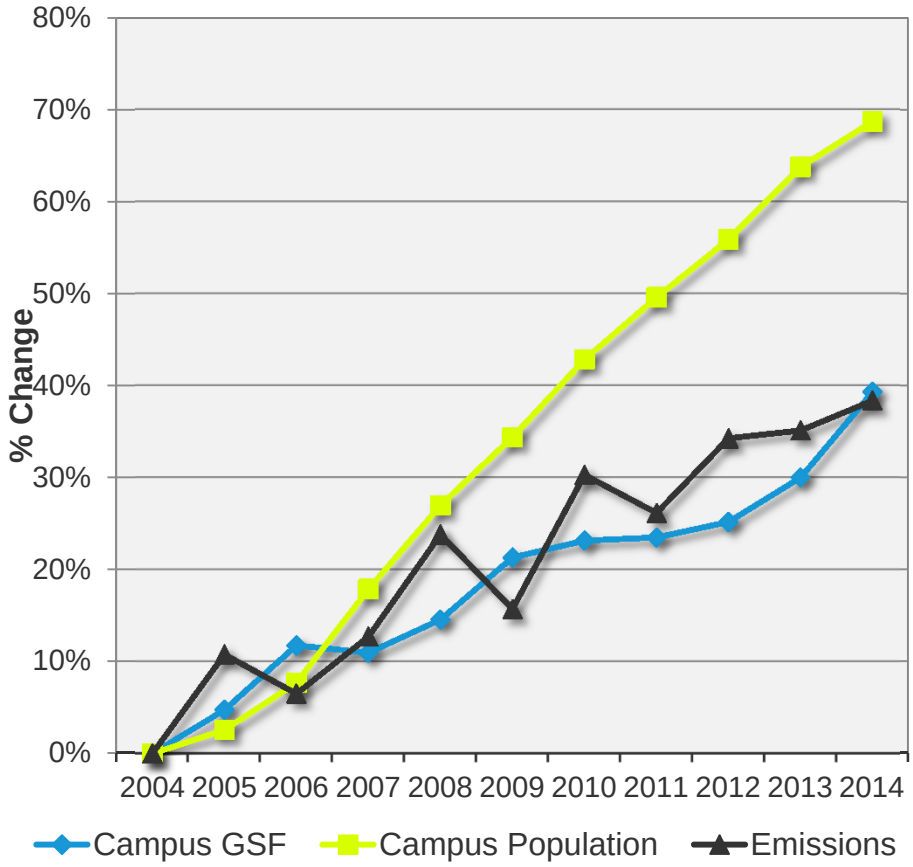
- Purchased Electricity

Scope 3 – Indirect GHGs

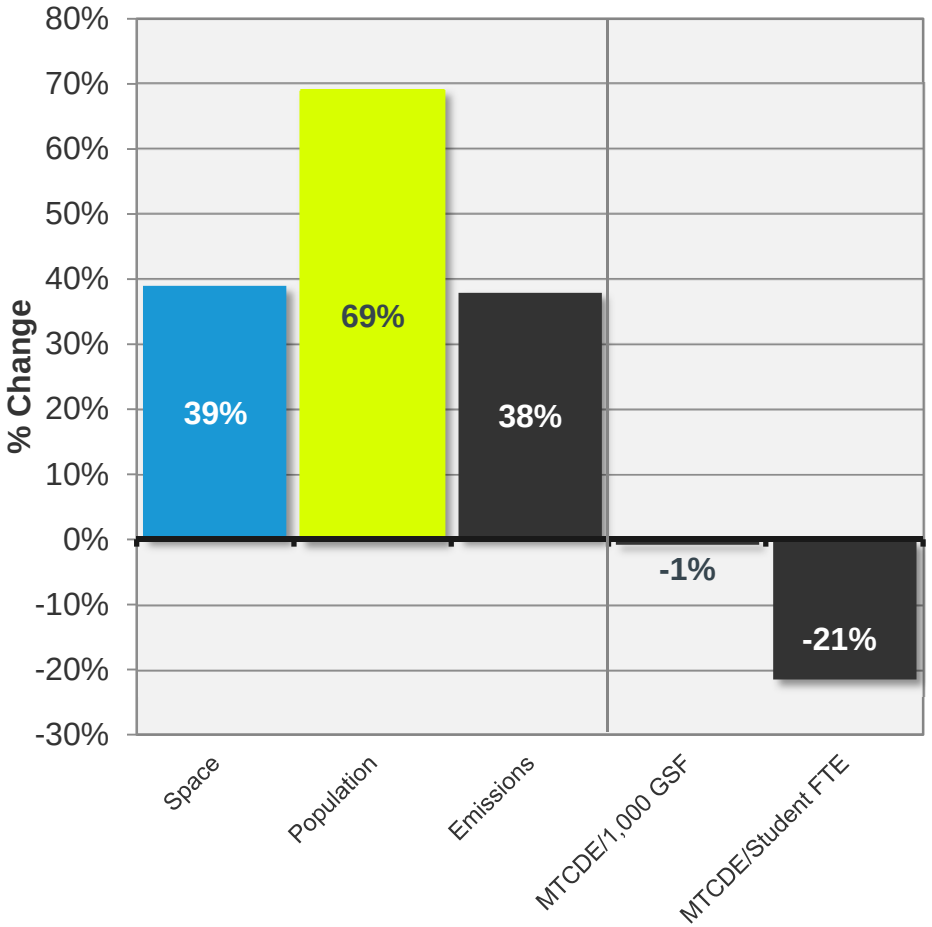
- Faculty/Staff/ Student Commuting
- Directly Financed Travel
- Study Abroad Travel
- Solid Waste
- Wastewater
- Paper Purchasing
- Transmission & Distribution Losses

Improvements Despite Growing Campus

Change in Emissions vs. Change in Campus Size and Population
Indexed to FY2004



Change in Space, Population, and Emissions
Indexed to FY2004



Campus GSF excludes Parking Garages

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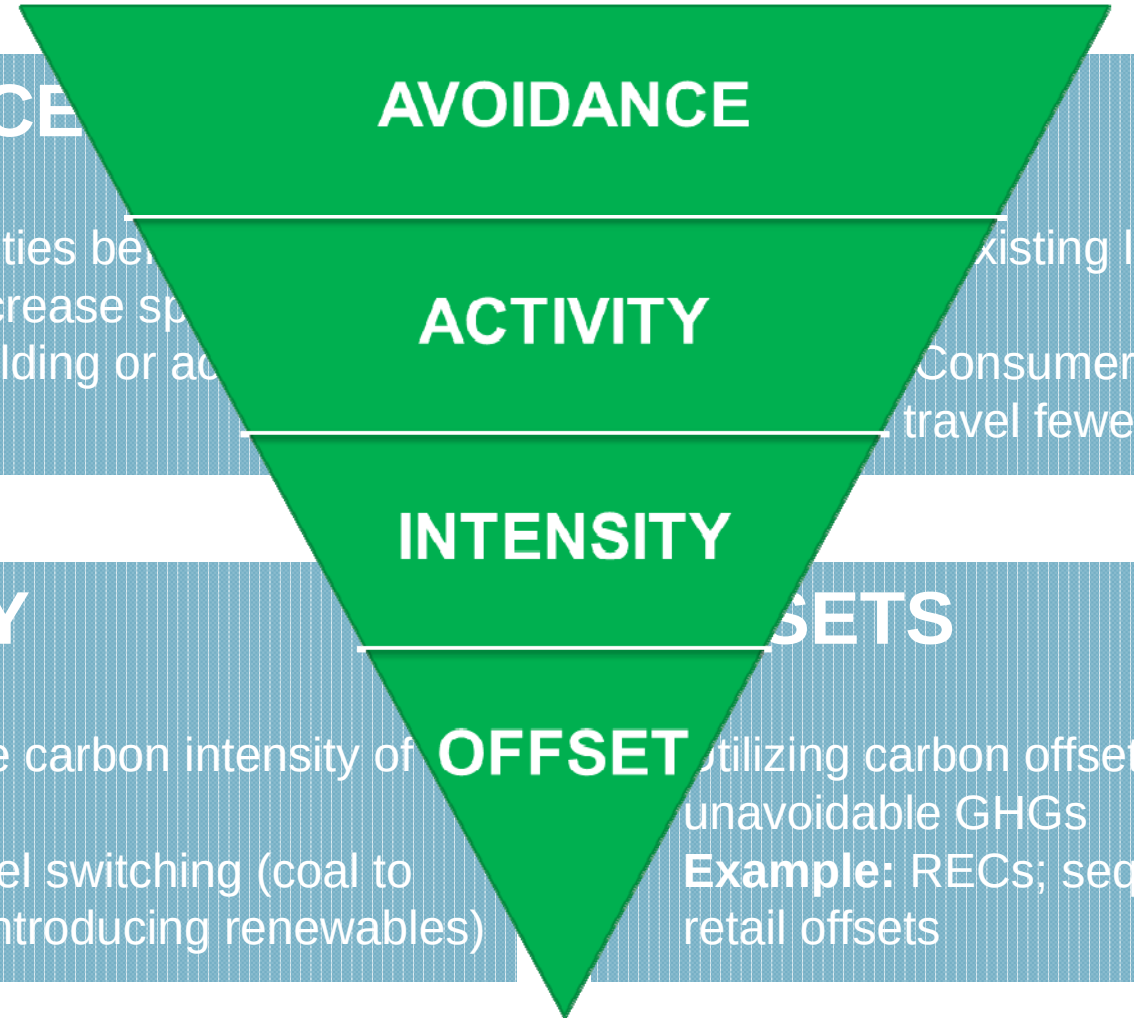
Carbon Mitigation Structure



AVOIDANCE

- Prevent activities be… …xisting level of an
- **Example:** Increase sp… instead of building or ac… …Consumer fewer BTUs of space … travel fewer miles

INTENSITY

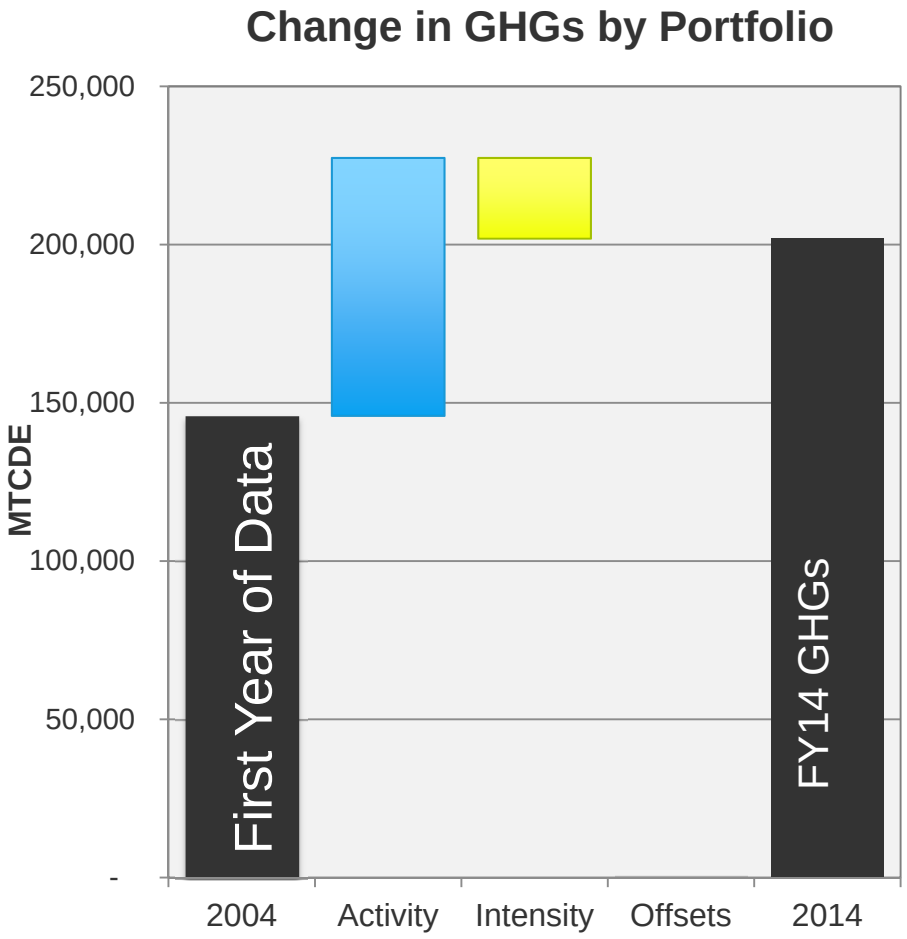
- Lessening the carbon intensity of activities
- **Example:** Fuel switching (coal to natural gas; introducing renewables)

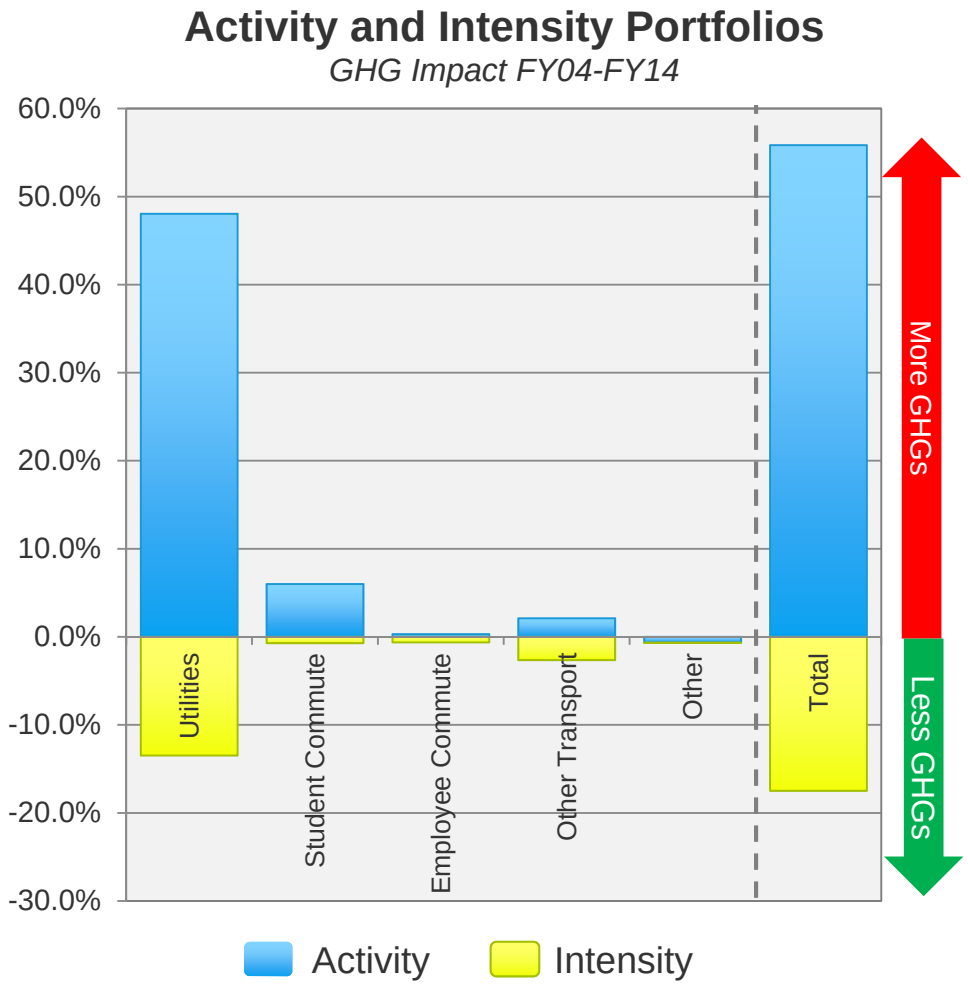
…SETS

- …tilizing carbon offsets to neutralize unavoidable GHGs
- **Example:** RECs; sequestration; retail offsets

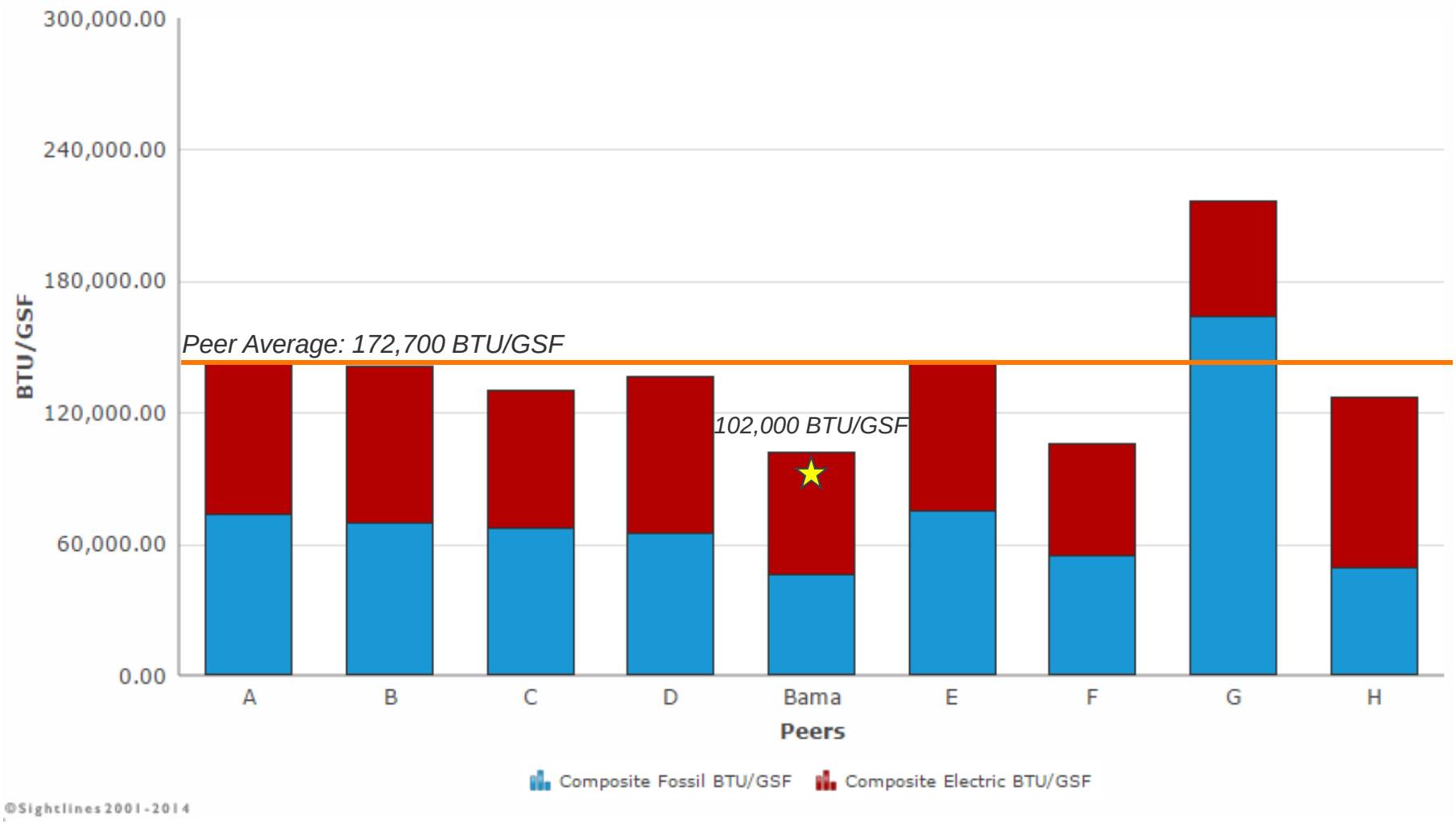
Activity and Intensity by Source

Tracking by source highlights impact of internal changes & external factors





Energy Consumption Compared to Peers

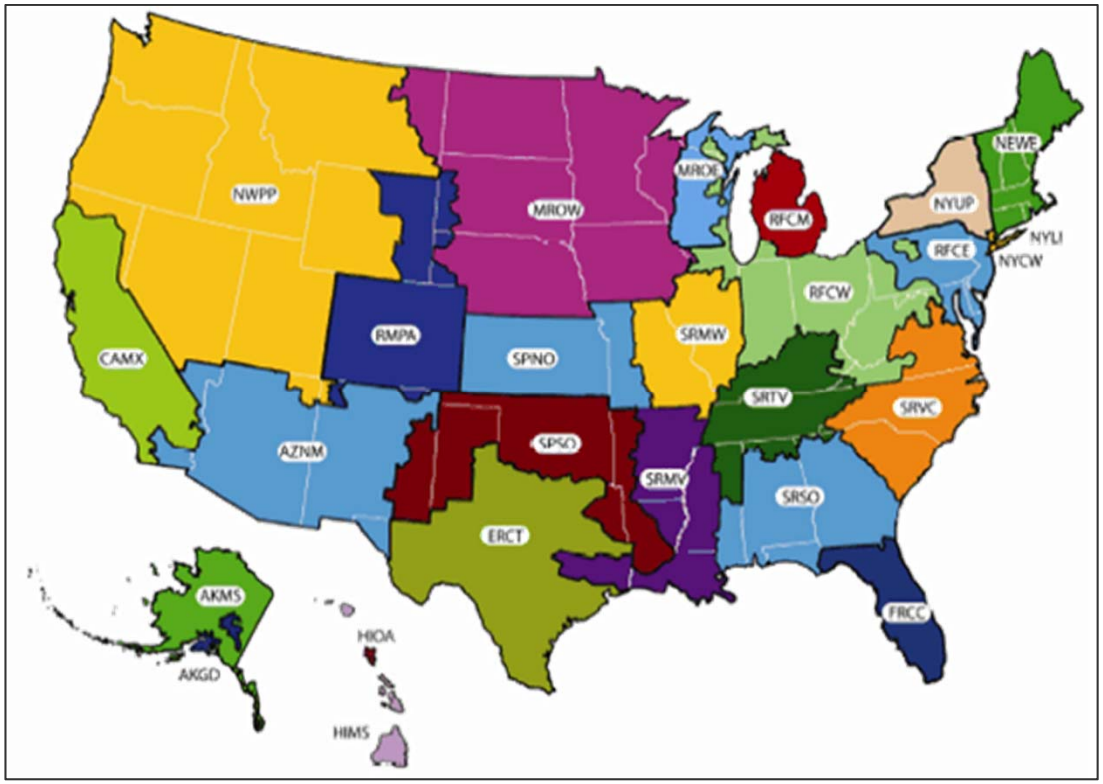


Peers ordered by Tech Rating

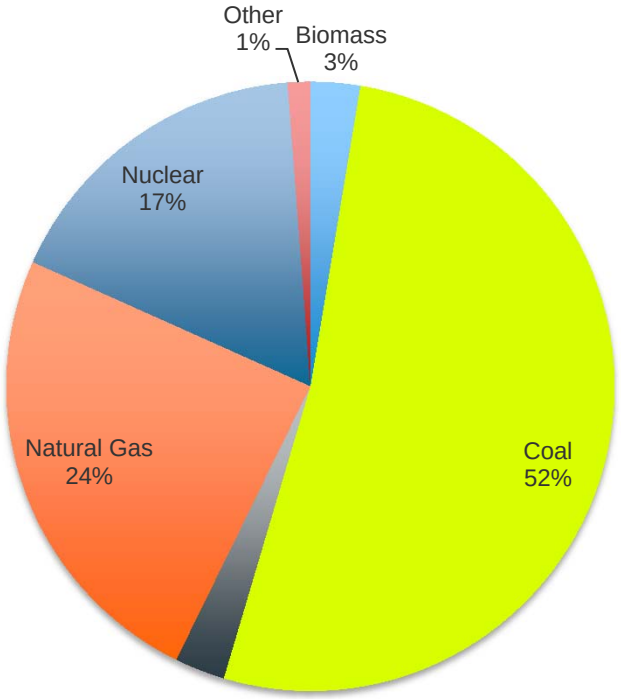
Carbon Intensity: Purchased Electricity

Carbon intensity of electricity is determined by eGRID sub-regions

USA eGRID Sub-Regions



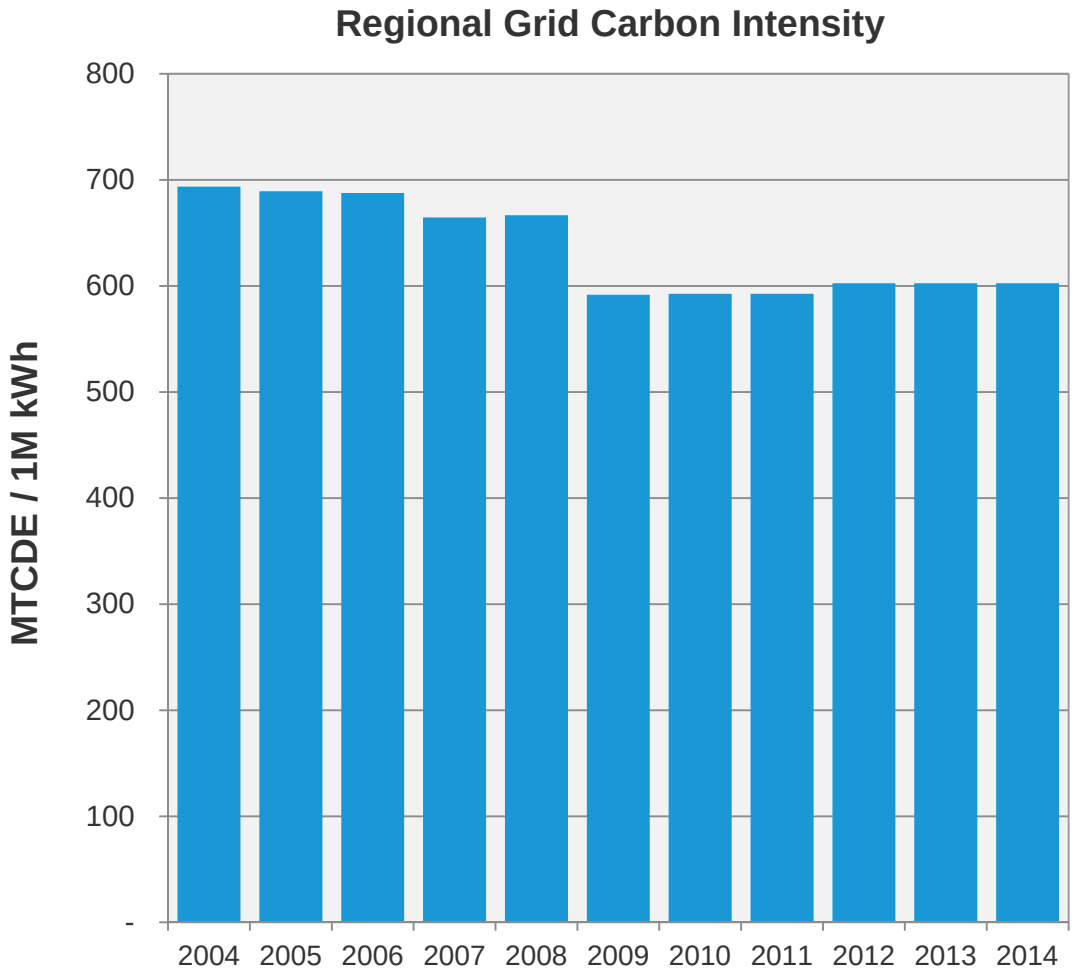
SRSO Fuel Sources: Purchased Electricity

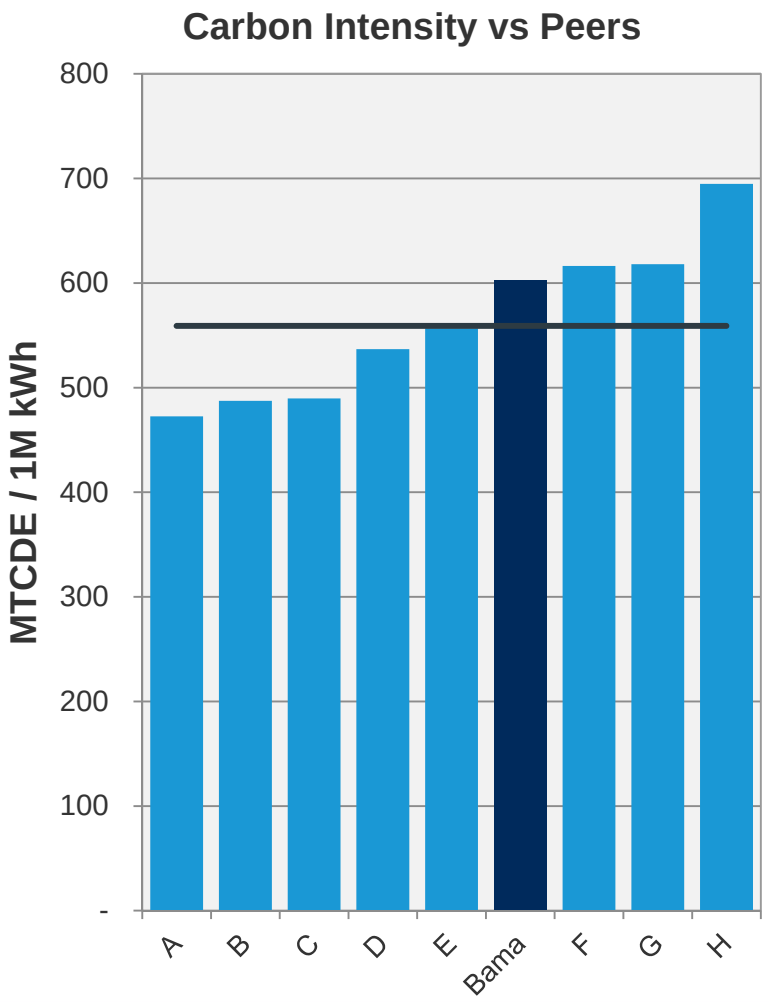


SRSO Carbon Intensity: 615 MTCDE / 1M kWh
National Average: 559 MTCDE / 1M kWh

Regional Grid Carbon Intensity

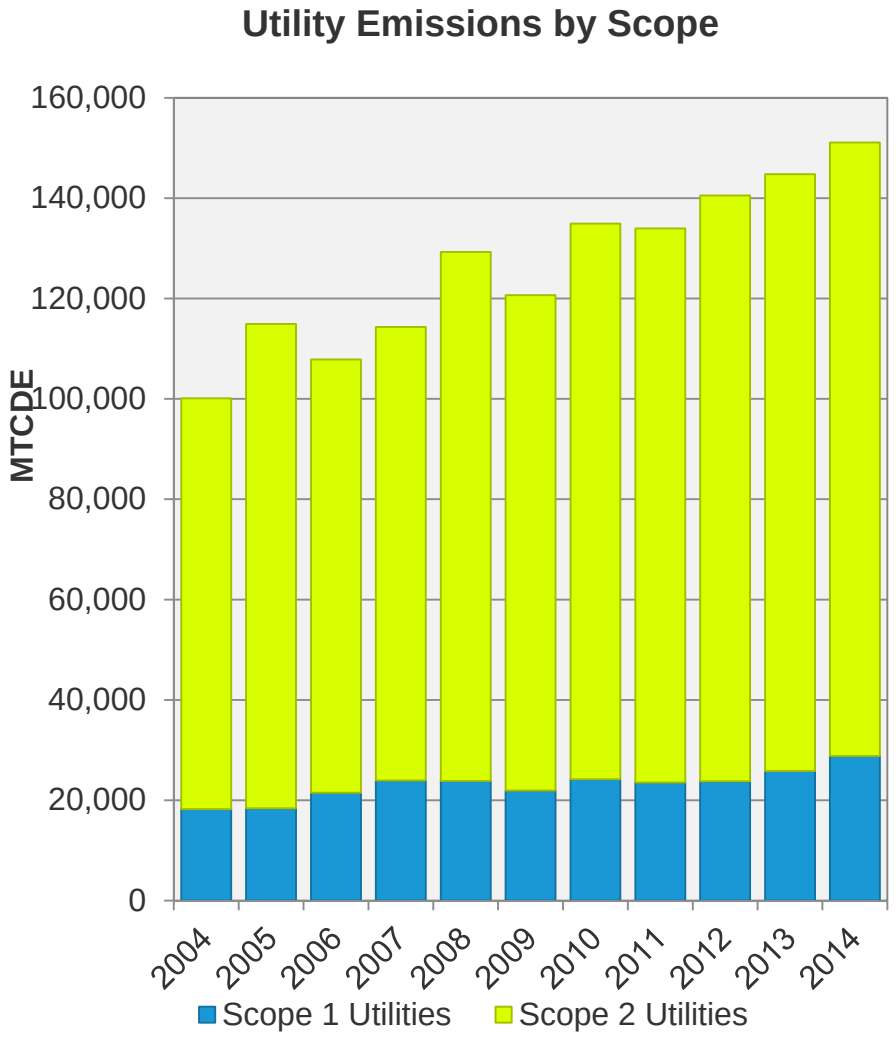
Bama has to face a “dirtier” grid than peers

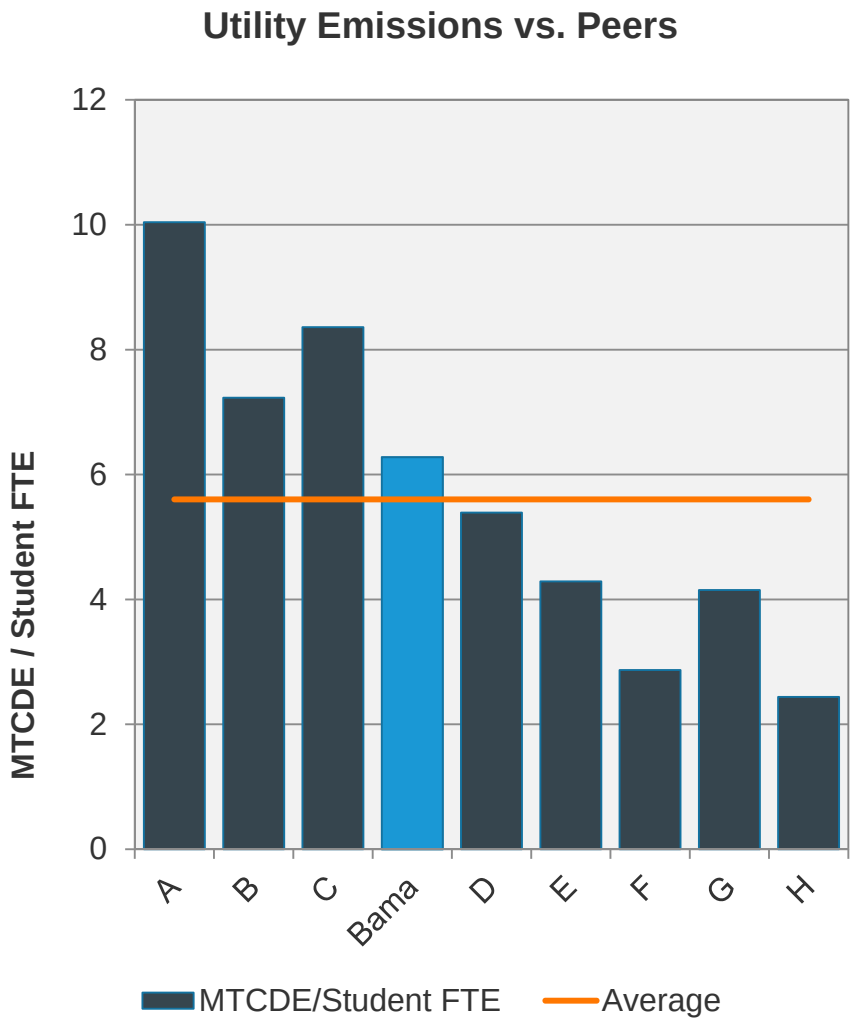




Utility Emissions

Although gross emissions increased, overall emissions per students remain consistent due to increase in student population





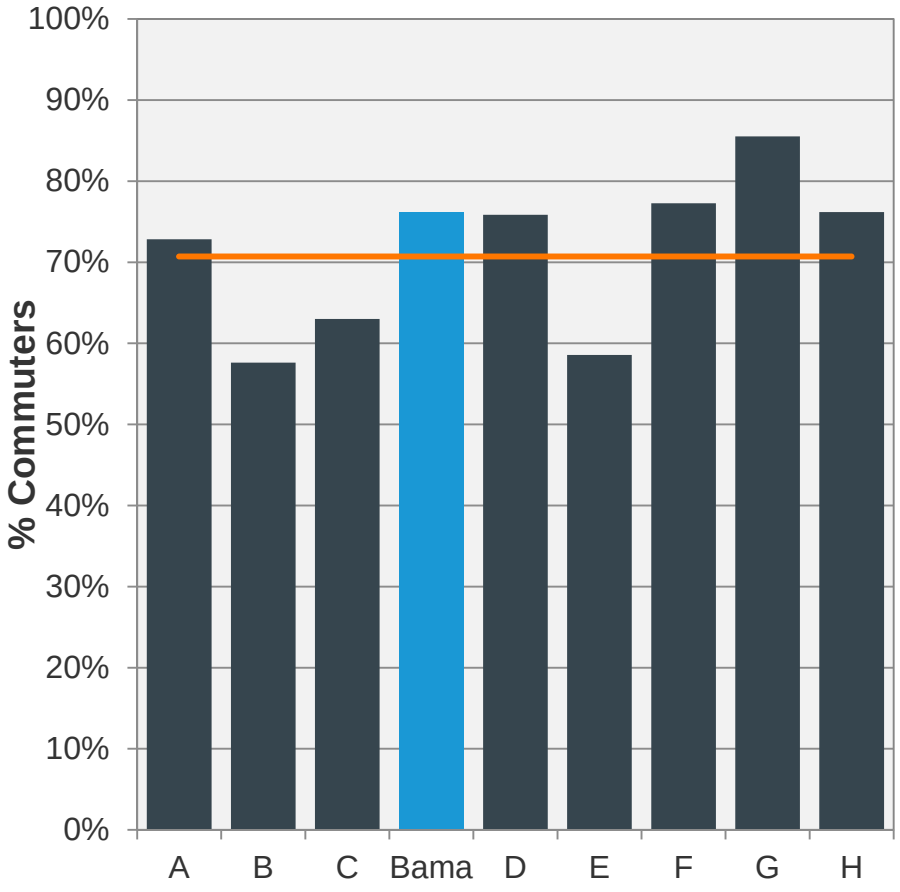
Peers ordered by Density Factor

Commuting

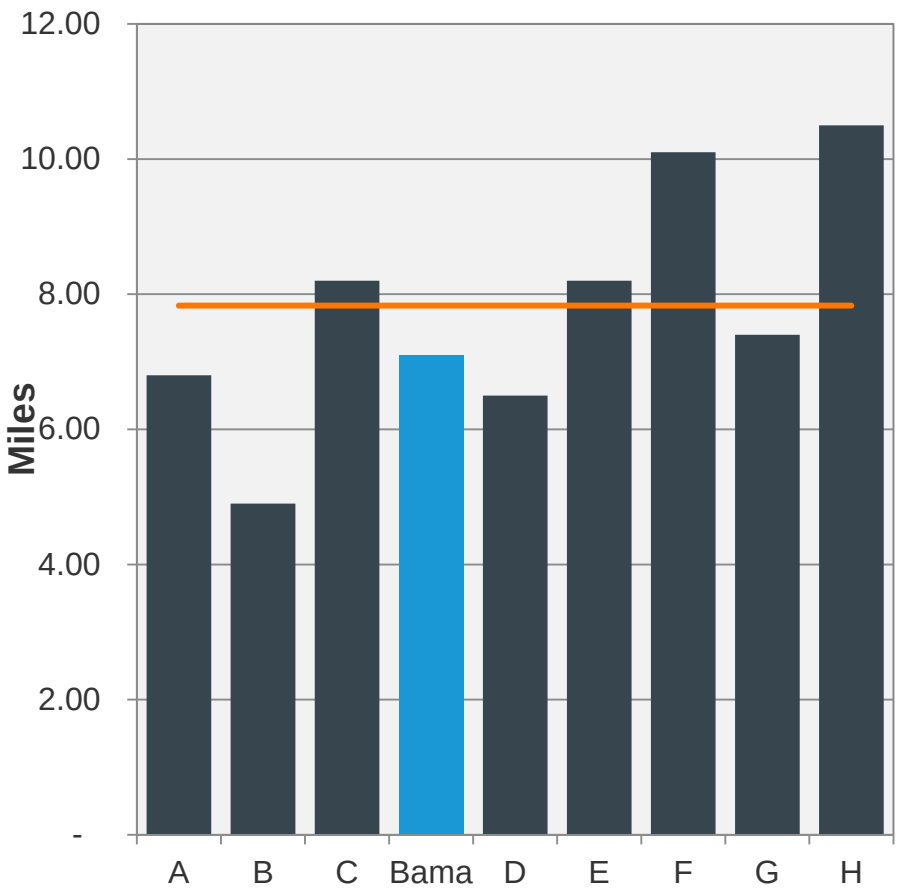
Alabama's Commuting Data Compared to Peers

Alabama has a higher percentage of commuters traveling a shorter distance to campus

Total Commuters (How Many?)



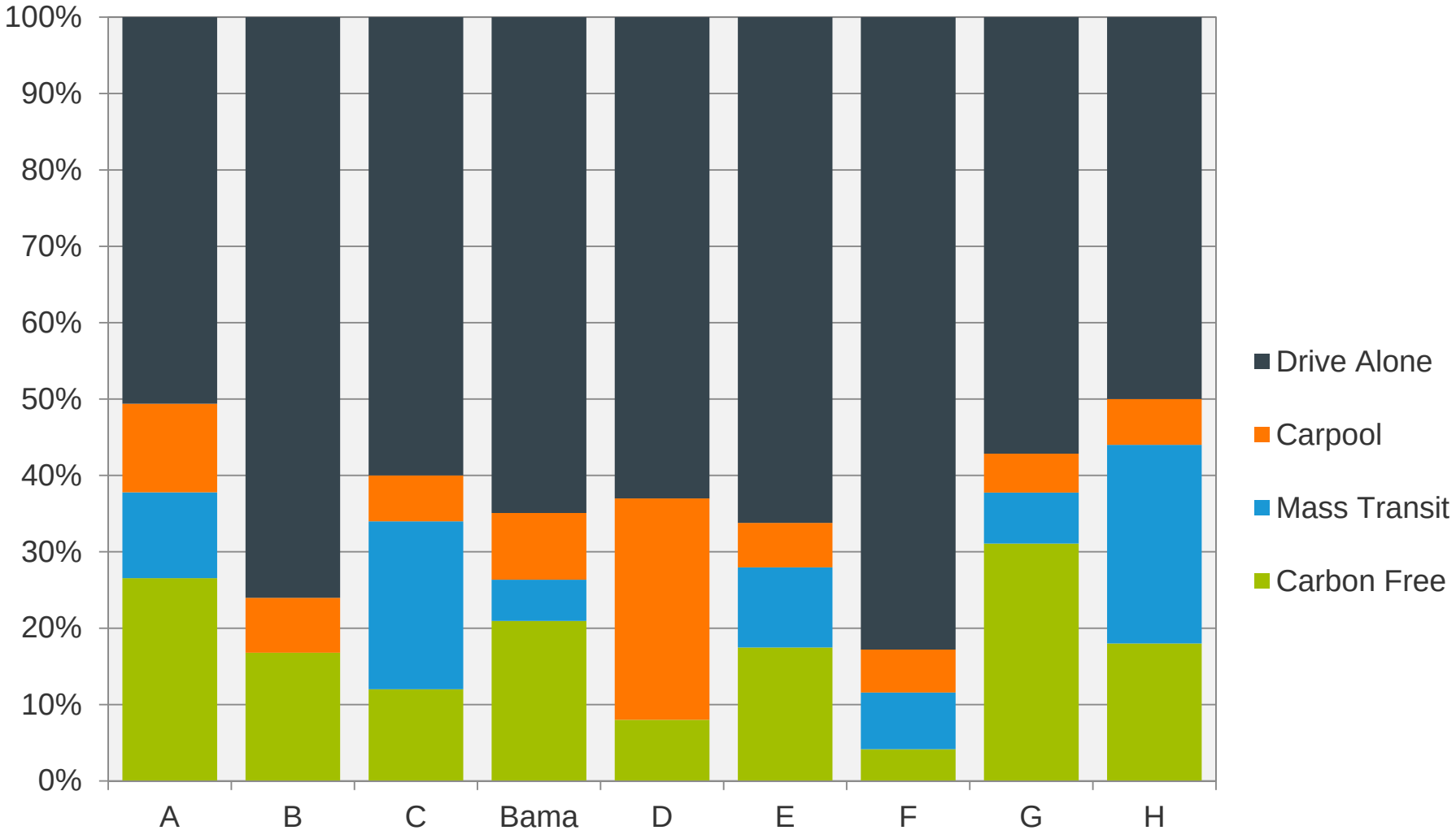
Average Trip Distance (How Far?)



Institutions ordered by Density Factor

sightlines

Distribution of Mode

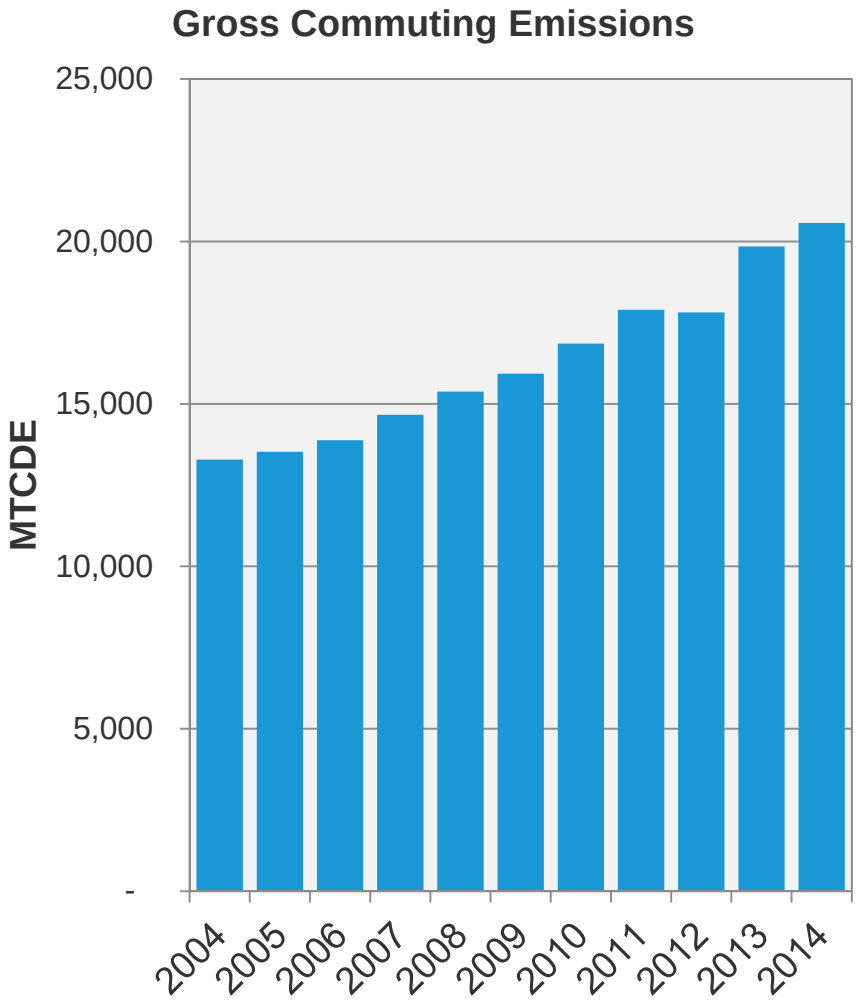


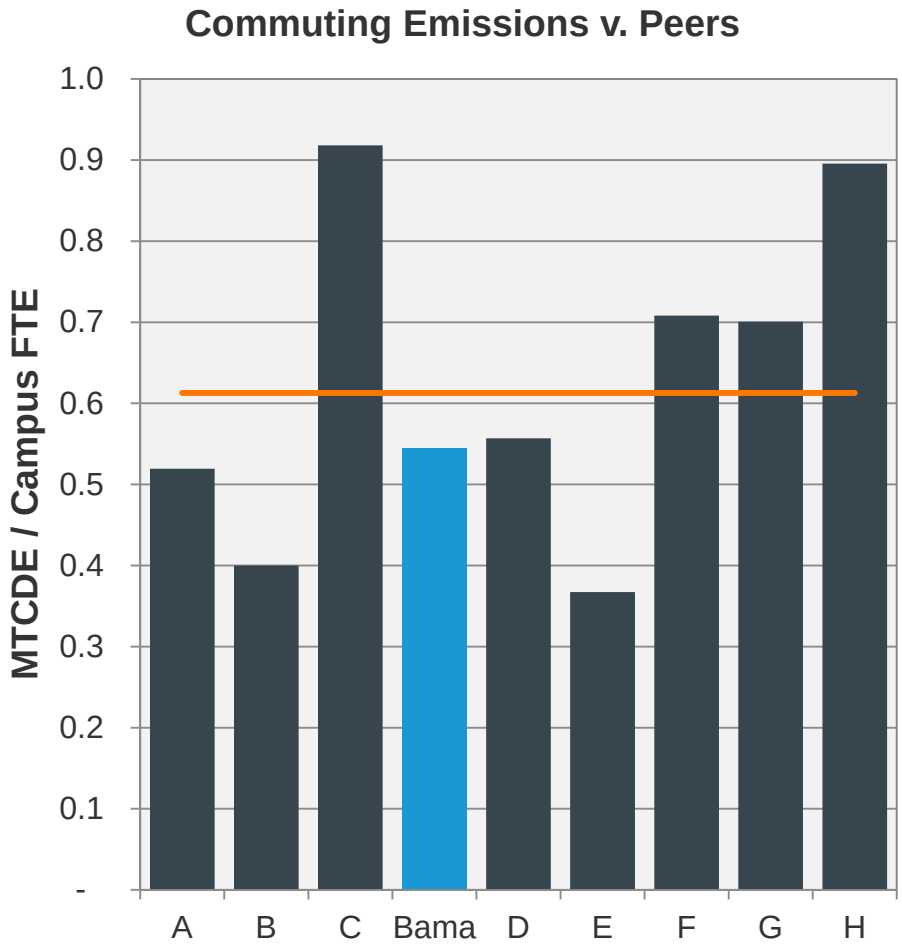
Institutions ordered by Density Factor

sightlines

Commuting: Peer Context

Increase in total population results in increase in commuting emissions





Institutions ordered by Density Factor
Database Average: 0.58 MTCDE/Campus User

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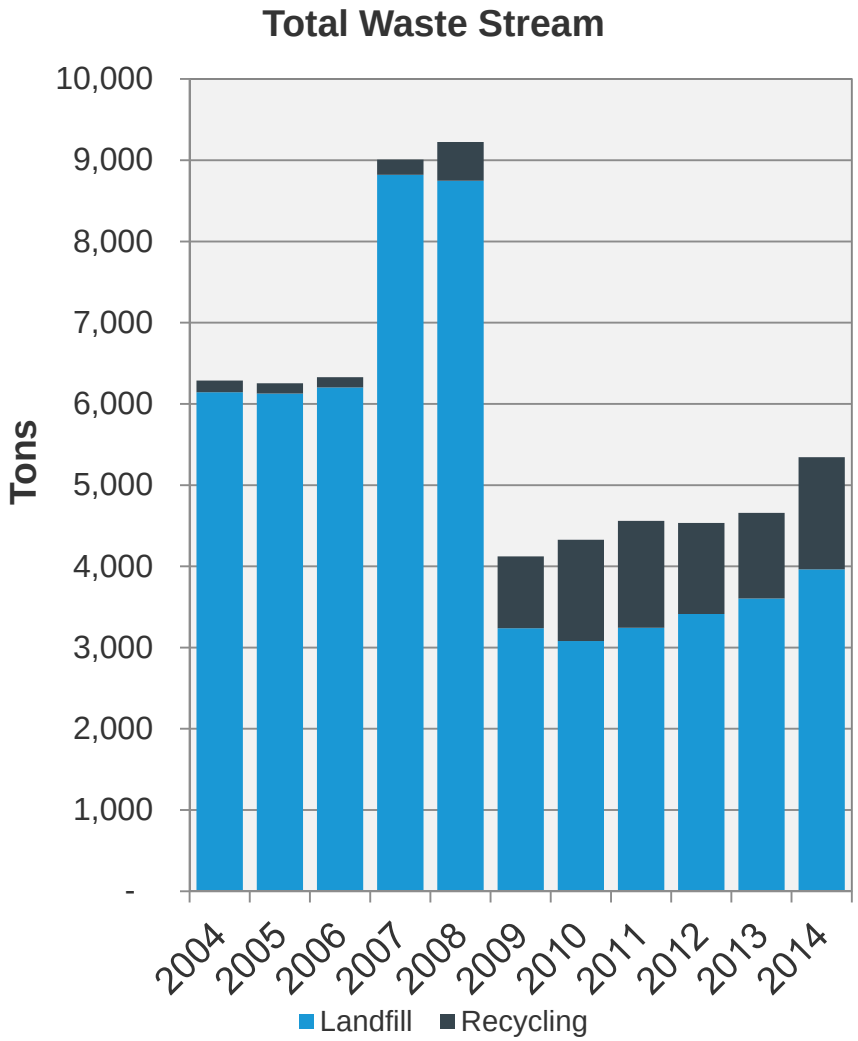
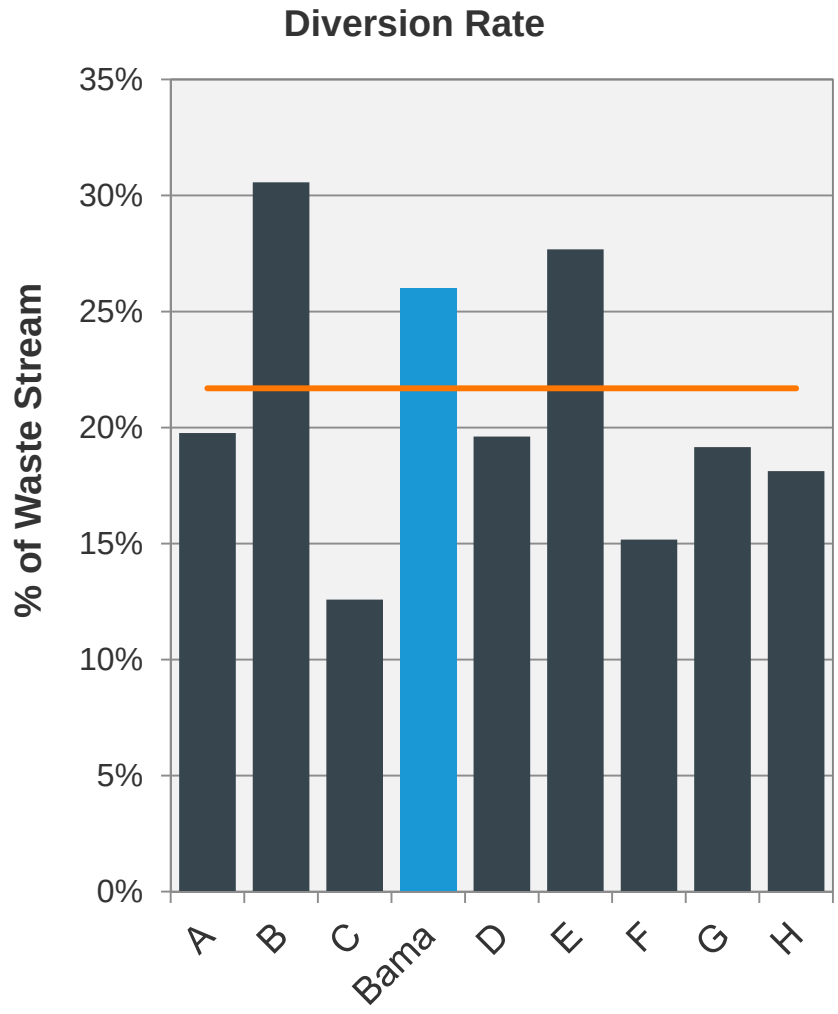
Other Sources

Waste & Diversion



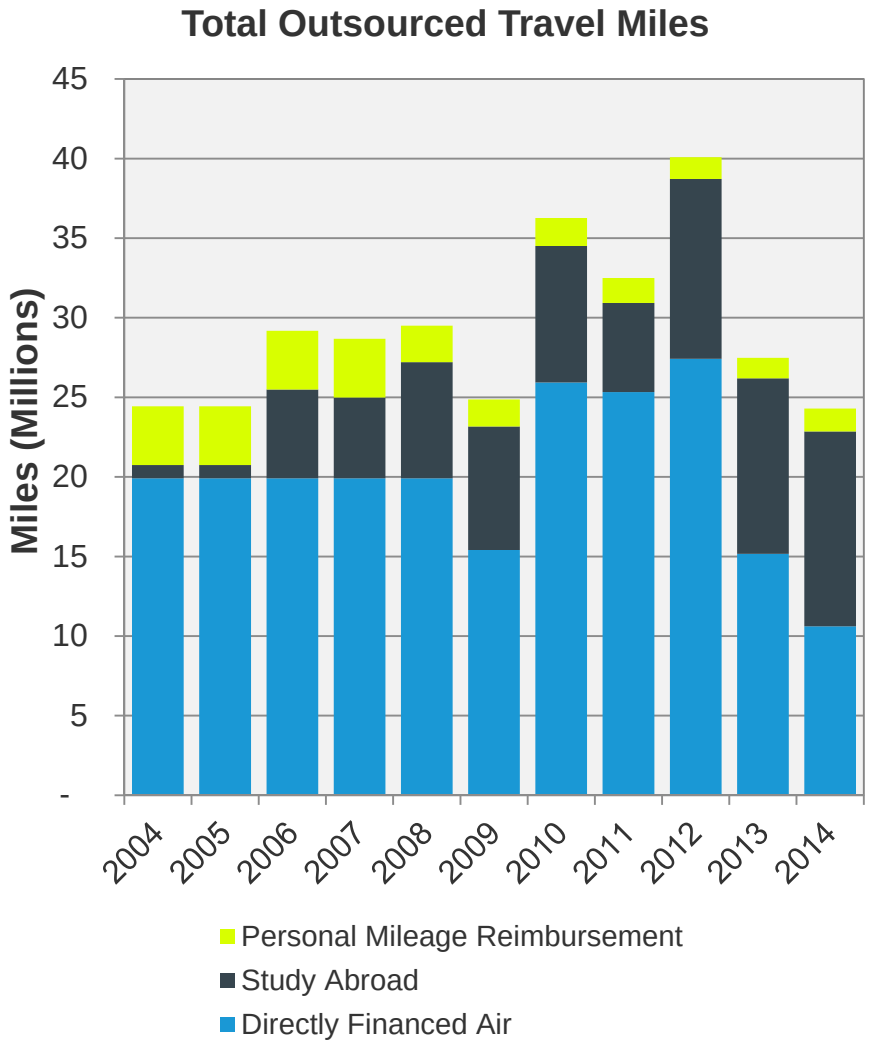


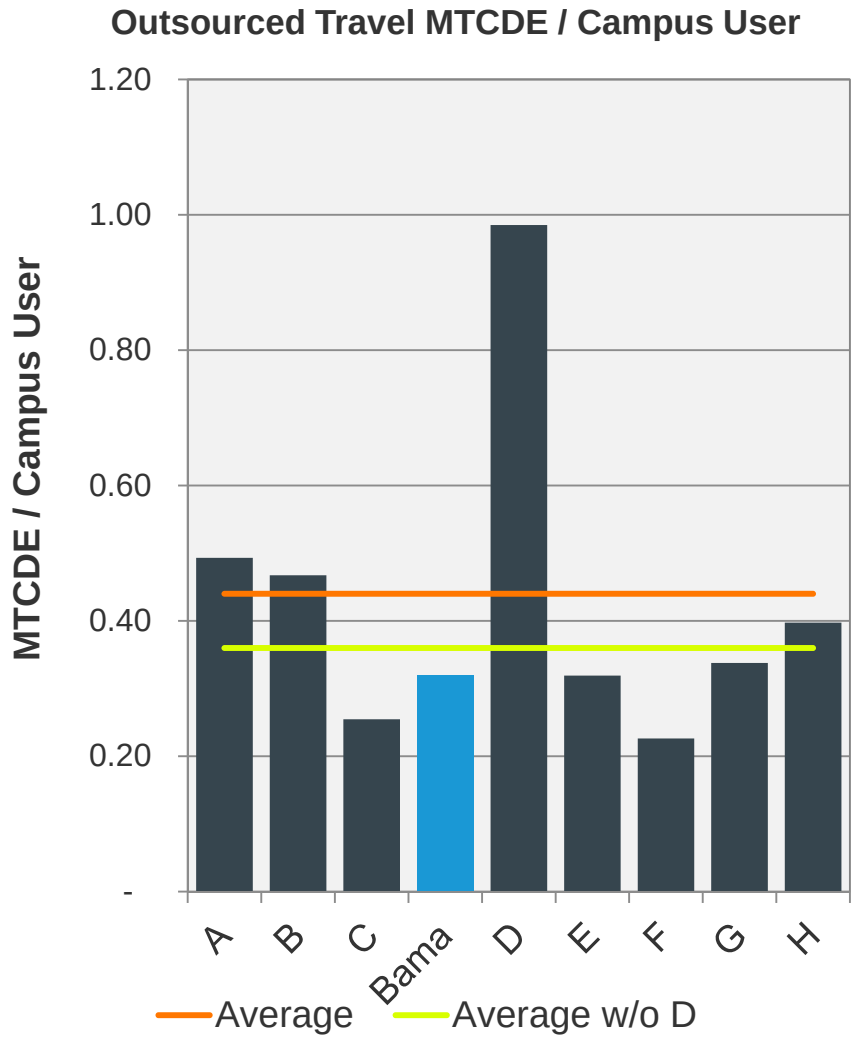
Institutions ordered by Density Factor

sightlines

Travel at Alabama Compared to Peers

Total miles have decreased, outsourced travel emissions remain below peers



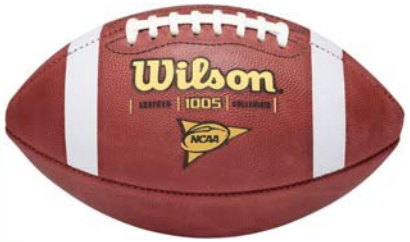


Institutions ordered by Density Factor

sightlines

Perception vs Performance

The University of Alabama



"Green" Schools

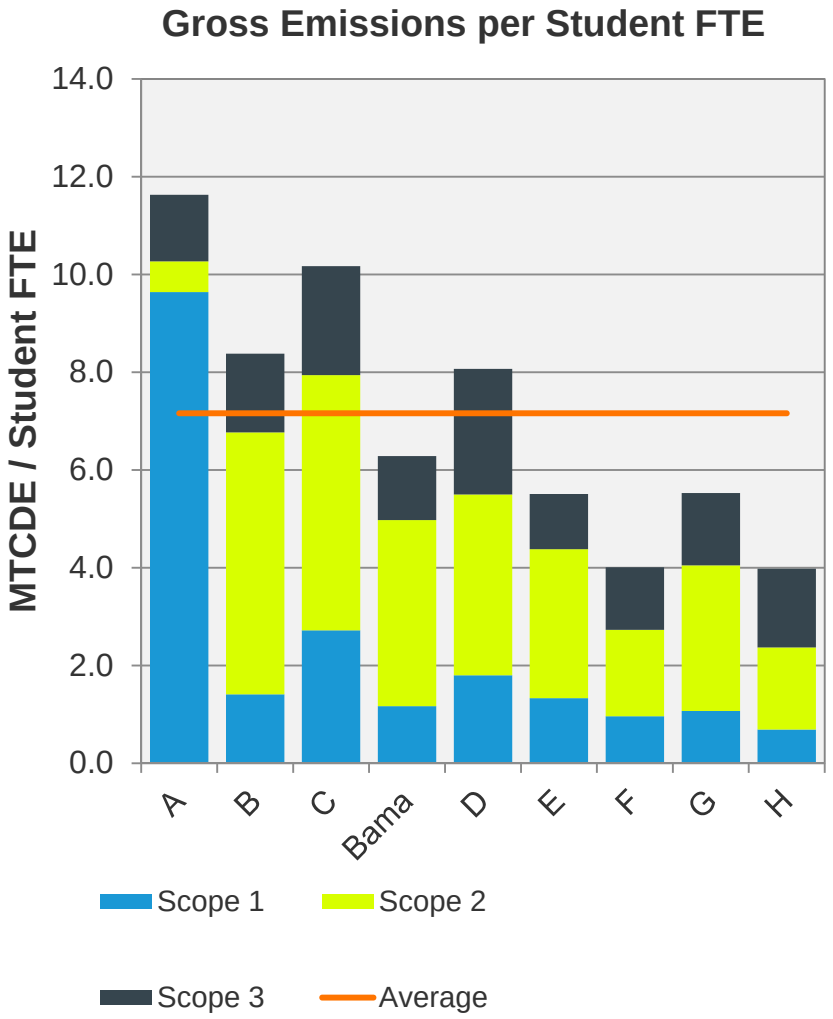
- American University
- Arizona State University
- George Mason University
- The Richard Stockton College of NJ
- Tufts University
- University of Denver
- University of San Francisco
- University of Vermont
- Wesleyan University

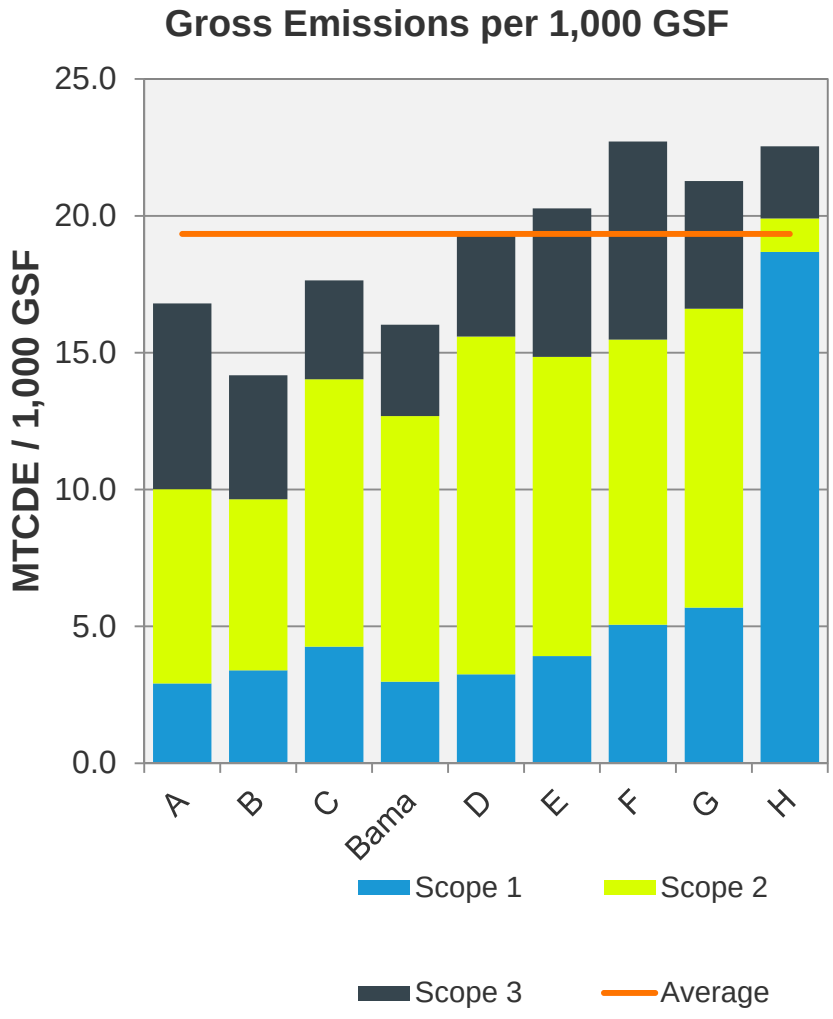
	Alabama	"Green" Schools Avg.	% Difference
BTU/GSF	102,000	117,190	-14%
GHG(MTCDE)/GSF(1,000)	16.02	15.98	-
GHG(MTCDE)/Student	6.3	5.5	14%
Waste Pounds/Student	210	184	13%
Gallons of Water/Student	9,266	8,350	10%

Summary and Conclusions

Alabama Continues to Outperform Peers

Both per student and per 1,000 GSF below peer levels





Institutions ordered by Density Factor

sightlines

Conclusions

- Alabama Profile
  - As the student population has continued to grow, gross emissions are spread over a larger audience, resulting in strong performances in these metrics.

- Emissions and Carbon Mitigation
  - Scope 2 emissions have been the driving factors when it comes to overall emissions growth. It is possible ways to mitigate these growing emissions through avoidance, renewable energies, or purchasing RECs.
  - As Alabama continues to grow, it is important to keep in mind the emissions goals on campus and incorporate that within newly constructed space. Emissions on a gross square foot basis has remained consistent. There are opportunities to implement new initiatives within these spaces.
  - As renovations are completed on campus, Alabama should coordinate capital infusions with sustainability practices. If there is a project to replace a boiler in existing space, these are great opportunities to invest in energy efficient systems, especially when looking at heating and cooling.

Questions & Discussion