

16 July 2013



FY2012 Go Green Final Presentation

The University of Alabama

Presented by: Tom Gugert and Kevan Will

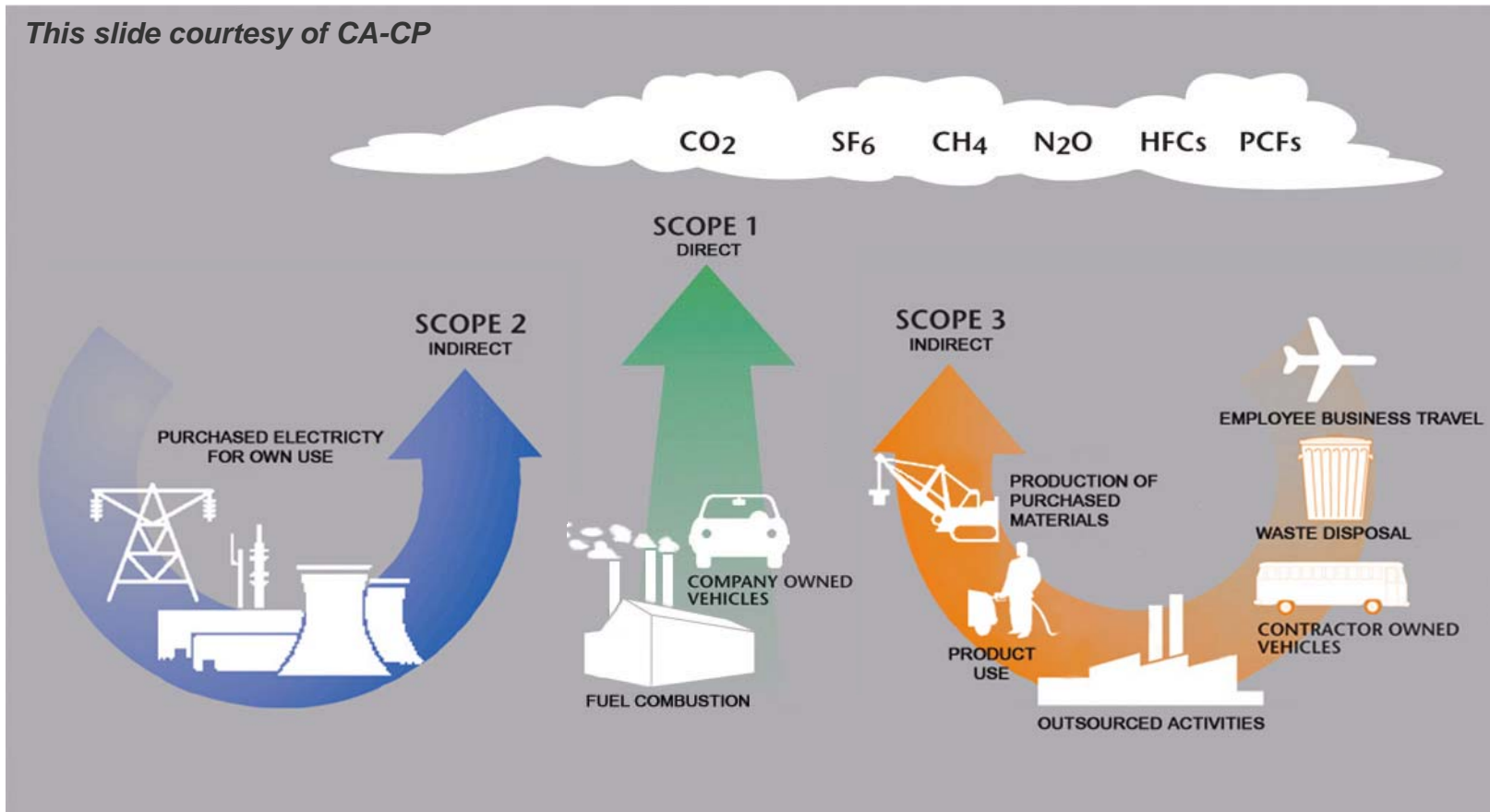


Simplifying GHG sources into scopes



All expressed as metric tons of carbon dioxide

This slide courtesy of CA-CP



Scope 2: Emissions from utility production not at the institution

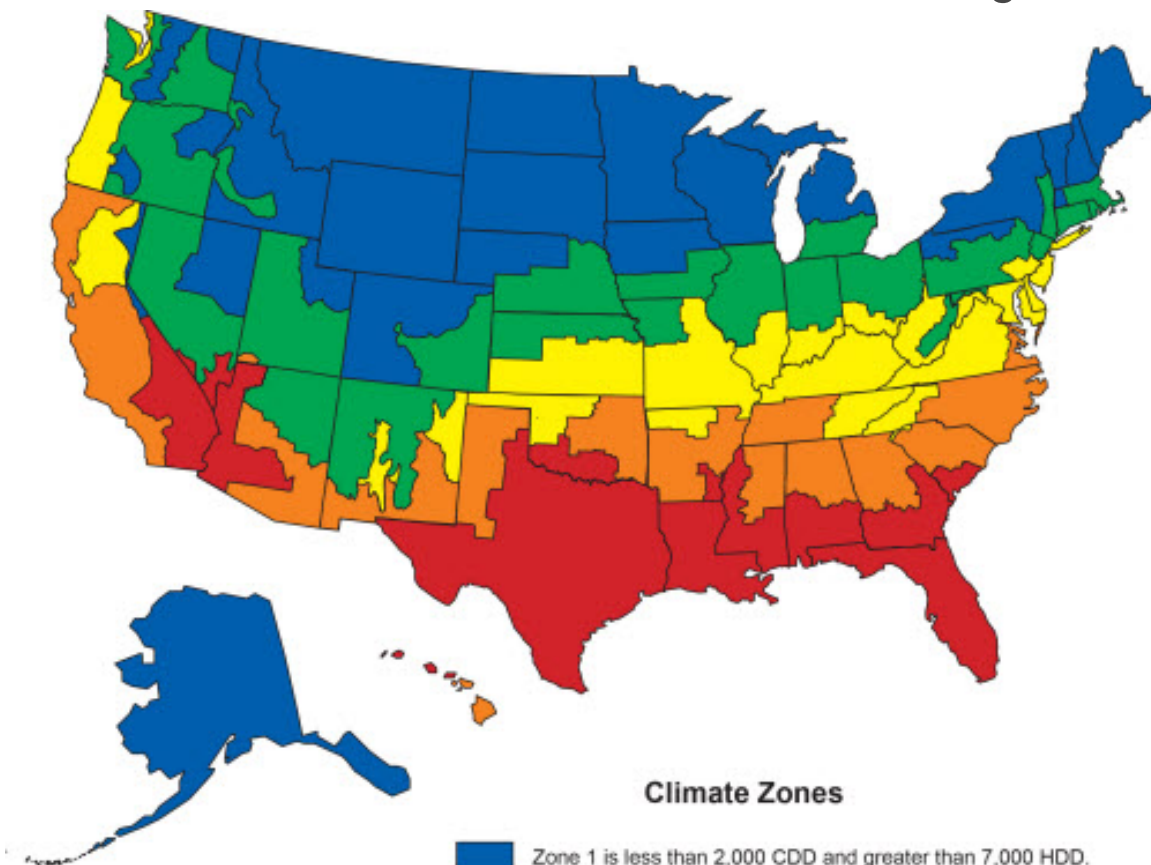
Scope 1: Emissions from the direct activities of the campus

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



Developing peer group

Go-Green Measurement, Benchmarking & Analysis Peers



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.

Go-Green Peer Institutions

Clemson University
George Mason University
Michigan State University
Texas A&M University
The University of Dayton
University of Arkansas
University of Tennessee
Virginia Commonwealth University

Go-Green Measurement and Analysis Members

- Sightlines has approximately 59 Members
- Approximately two-thirds are private
- Approximately one-third are public
- Approximately two-thirds have signed the ACUPCC
- Approximately forty percent are Charter Signatories



Balancing sustainability initiatives

Striving for structural and cultural changes on campus

Invisible
yet
Impactful

Visible
and
Visceral

Campus
Sustainability

Tackles core challenges of
operational sustainability:

- Space management
- Energy use
- Fuel mix

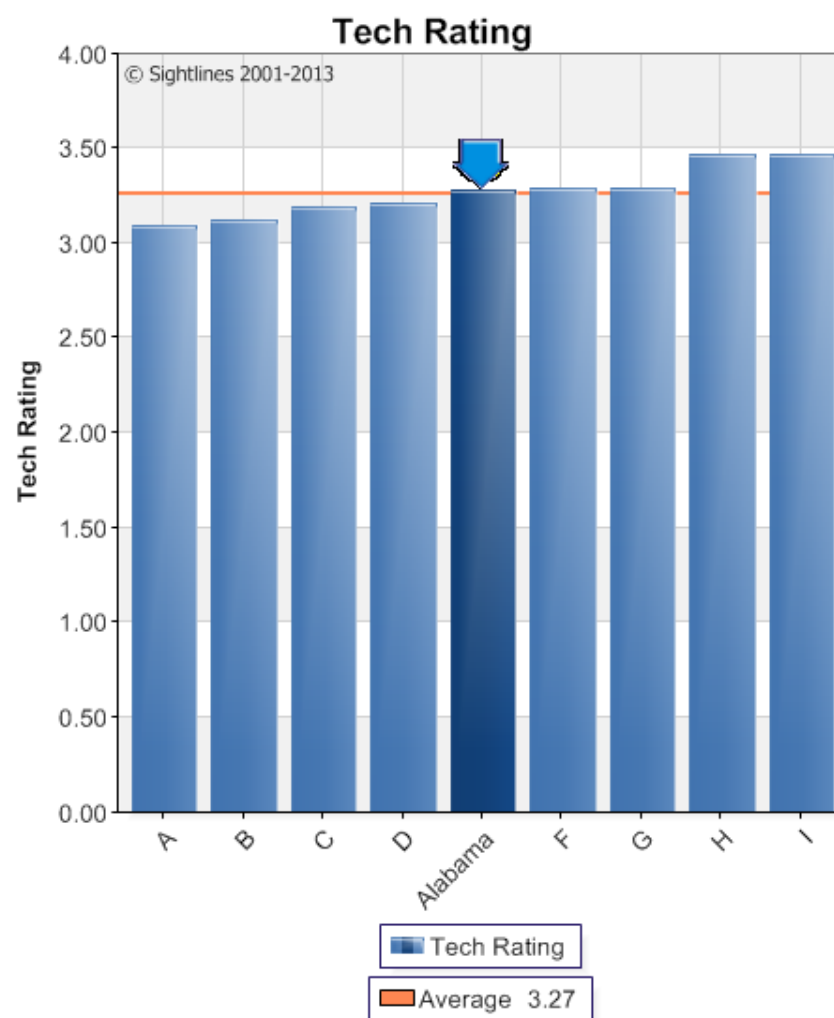
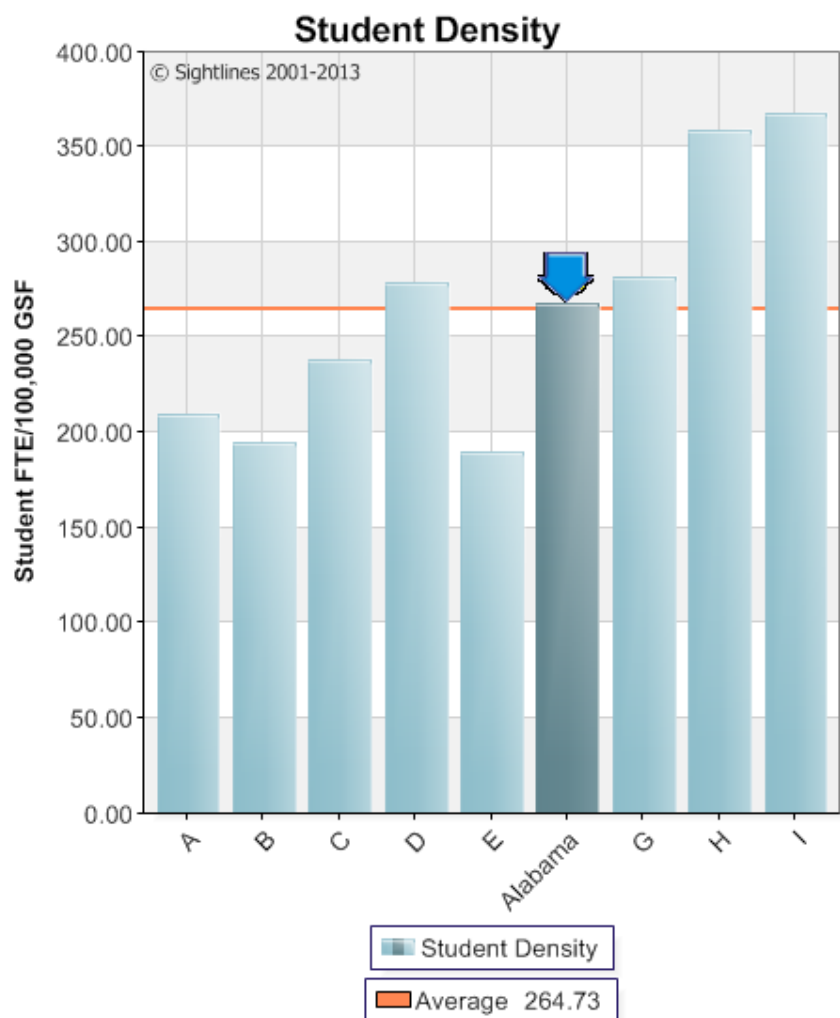
Engages and motivates campus
community to **change behaviors:**

- Waste reduction/diversion
- Water use
- Commuting



Space profile qualifiers

Alabama situated amongst similar group of physical peer institutions

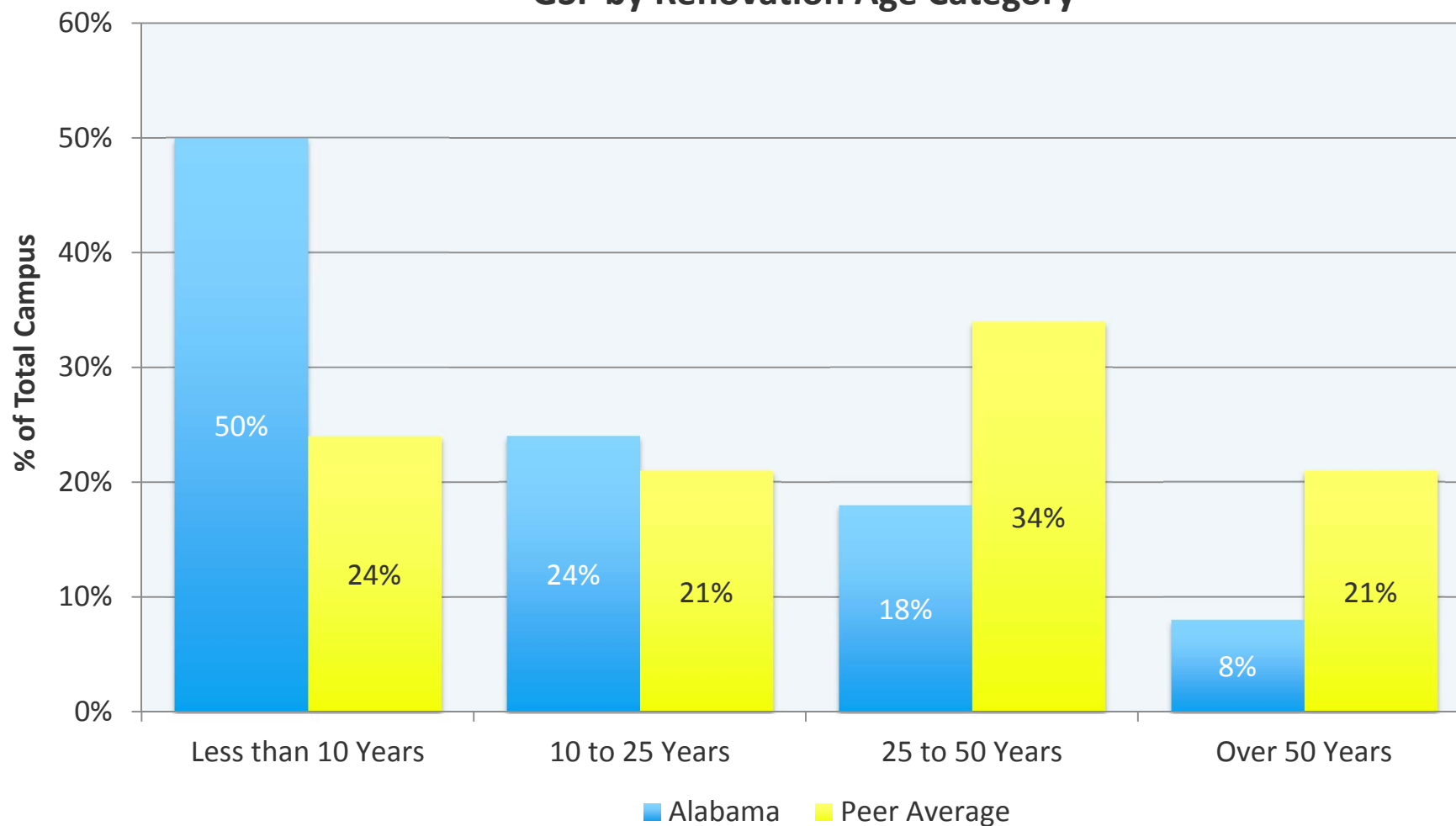




Younger campus than peers

Three quarters of space has been built or renovated in the past 25 years

GSF by Renovation Age Category

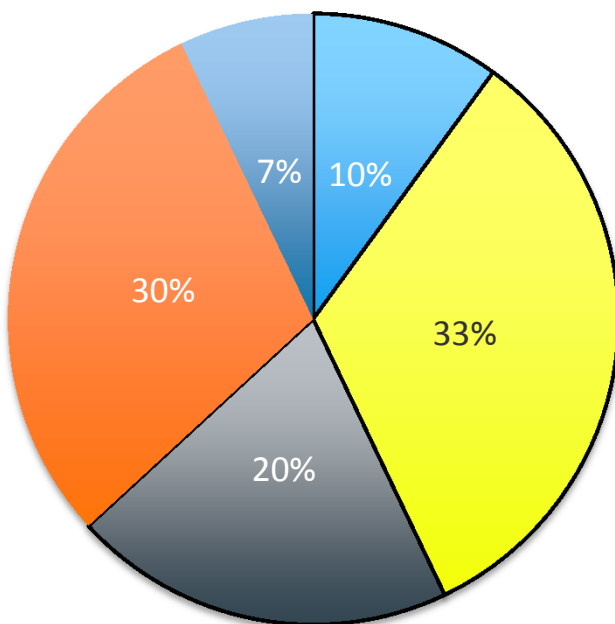




More balanced spending distribution

Less building systems work as buildings are considerably younger

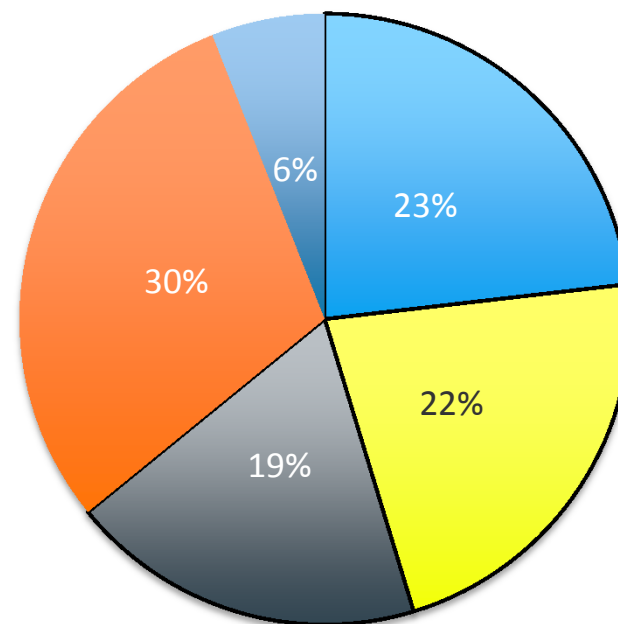
Peer Total Project Spending
By Package, FY03-12



- Envelope
- Building Systems
- Infrastructure
- Space
- Safety/Code

Average annual investment: \$3.73/GSF

Alabama Total Project Spending
By Package, FY03-12



- Envelope
- Building Systems
- Infrastructure
- Space
- Safety/Code

Average annual investment: \$3.50/GSF



Implications of your campus space

Connecting the physical profile to your carbon inventory

Weighted Reno. Age	
Peer Average	33.1
Alabama	18.8

**Younger Buildings=
Efficient Systems**

FY12 Backlog \$/GSF	
Peer Average	\$78.60
Alabama	\$44.92

**Accumulated Backlog=
Opportunity to be Proactive**

Project Mix – Core Bldg. Needs	
Peer Average	63%
Alabama	64%

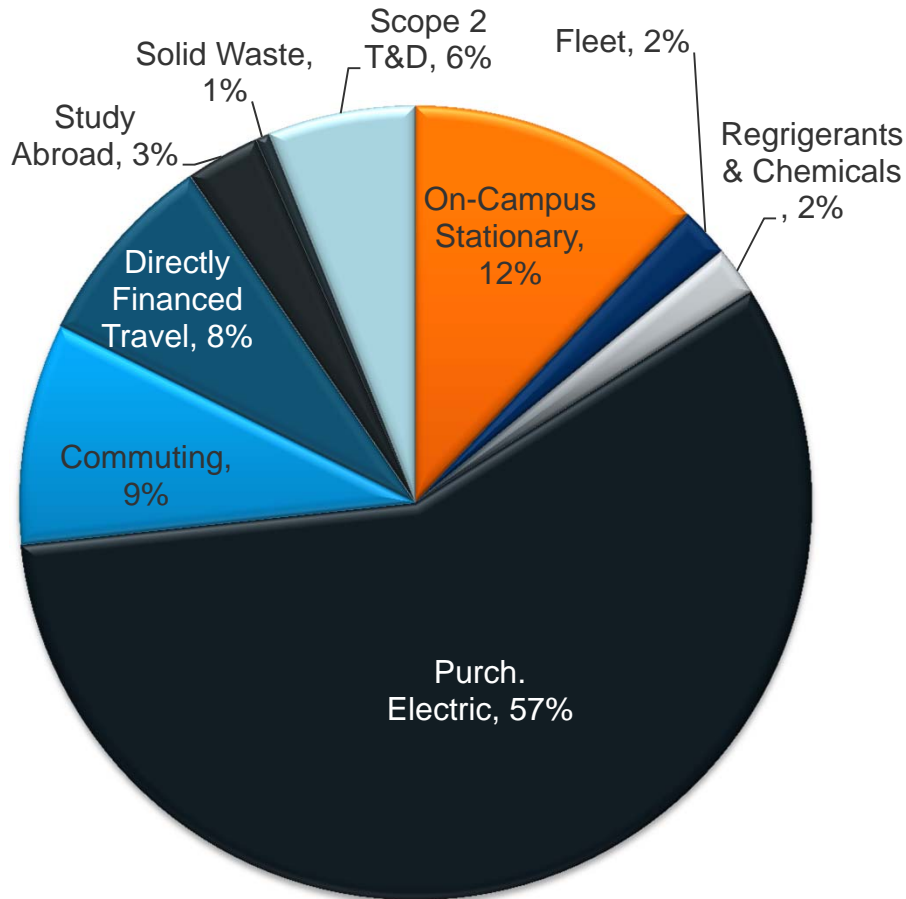
**Project Mix=
Prioritizing Impactful Projects**

Total FY12 gross emissions: 199,772 MTCDE

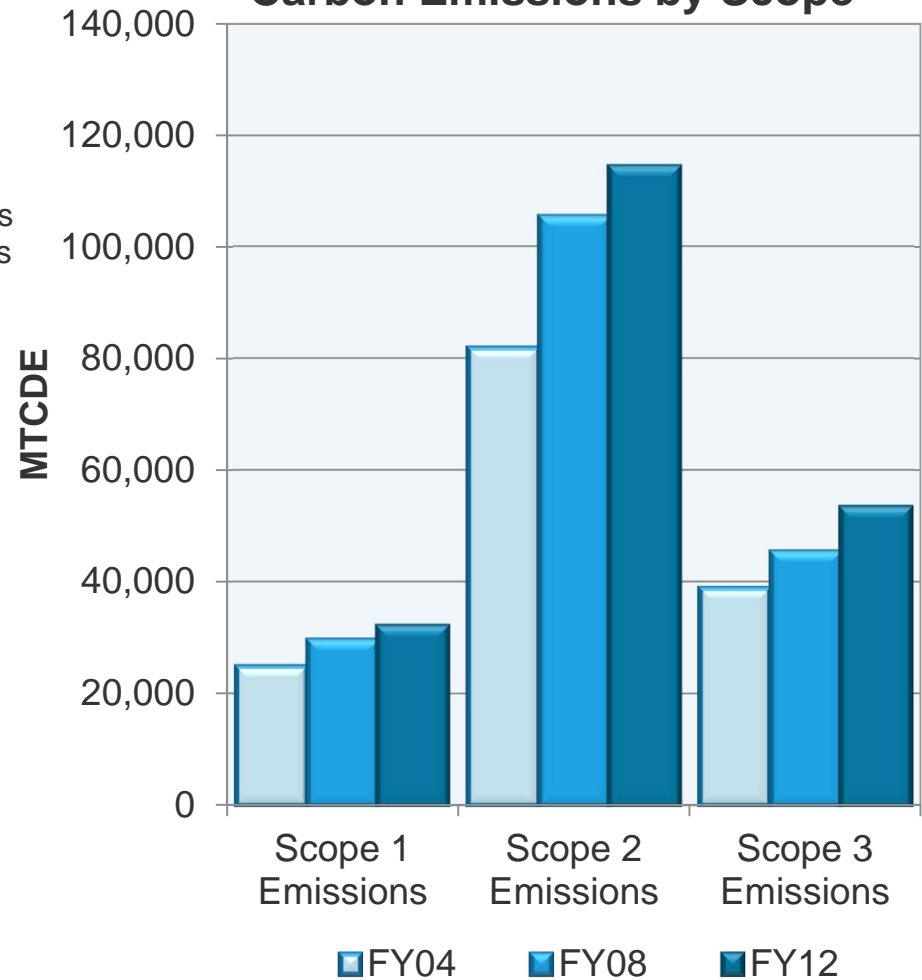


Energy consumption and on campus fuels are the most significant contributors

Carbon Emissions by Type



Carbon Emissions by Scope

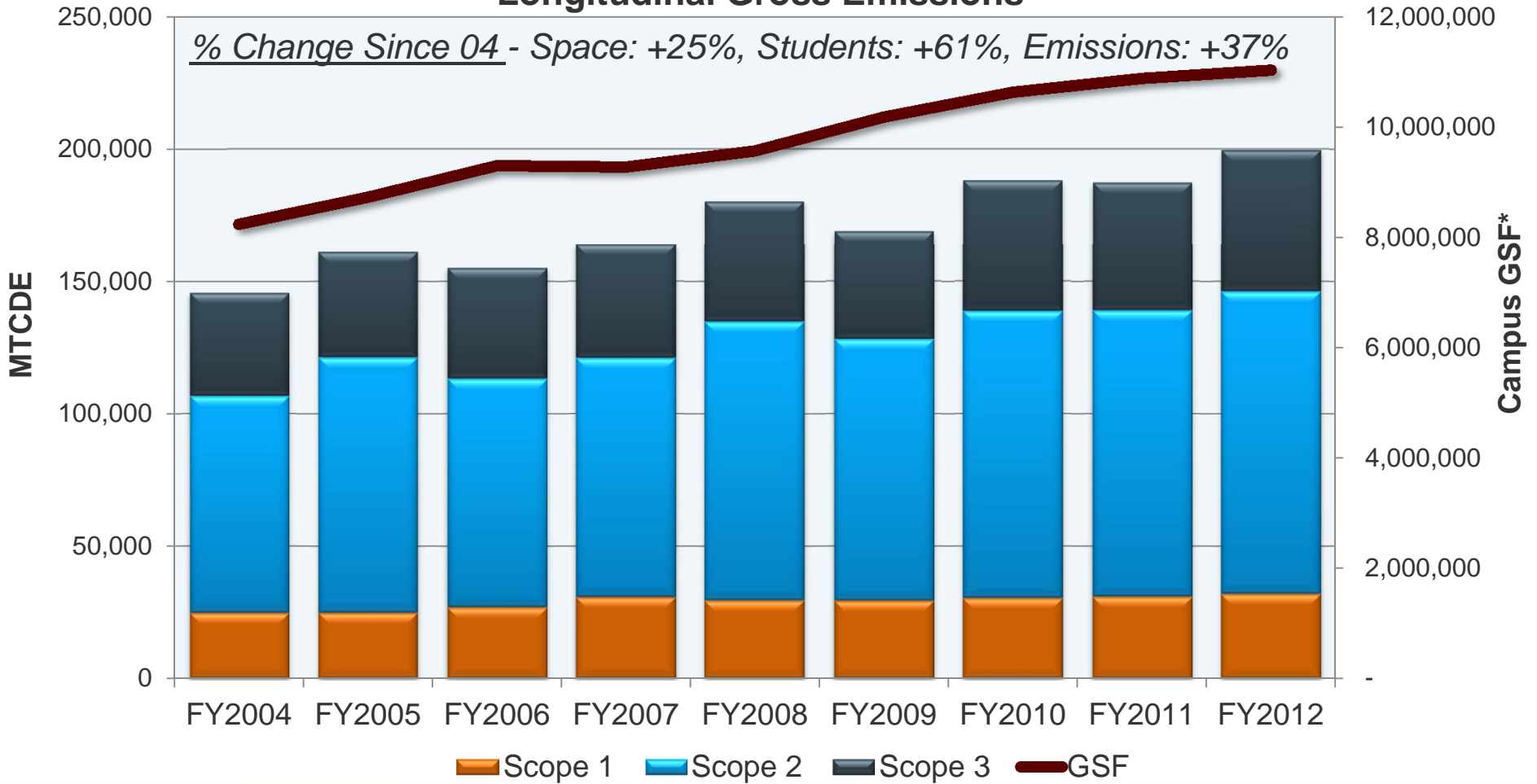


Campus size and GHG emissions increase



Development of campus community has driven carbon emissions upward

Longitudinal Gross Emissions



**Campus GSF excludes parking garages*



Different ways to benchmark GHG emissions



GHG Emissions per Student



Stresses intensity of operations and commuting.

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

GHG Emissions per 1,000 GSF



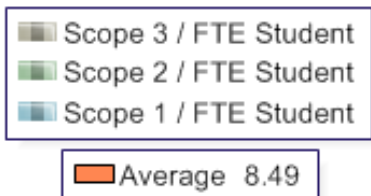
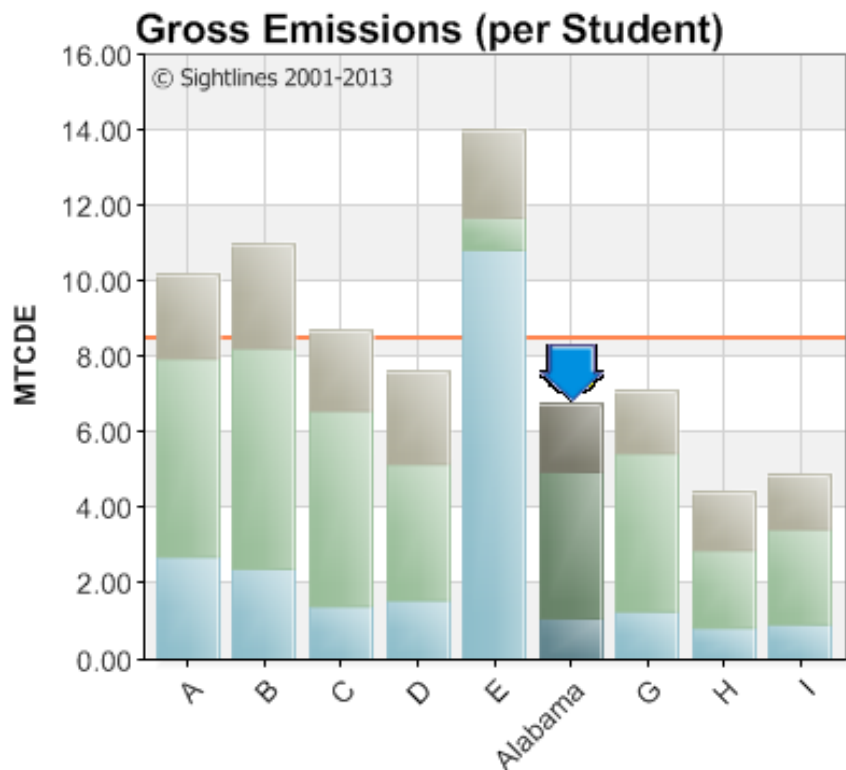
Stresses efficient use of space.

$$\frac{\text{Gross GHG Emissions}}{\text{Total GSF in Footprint}} \times 1,000$$

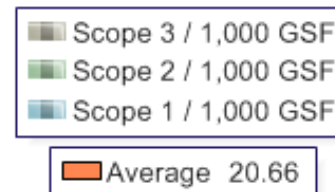
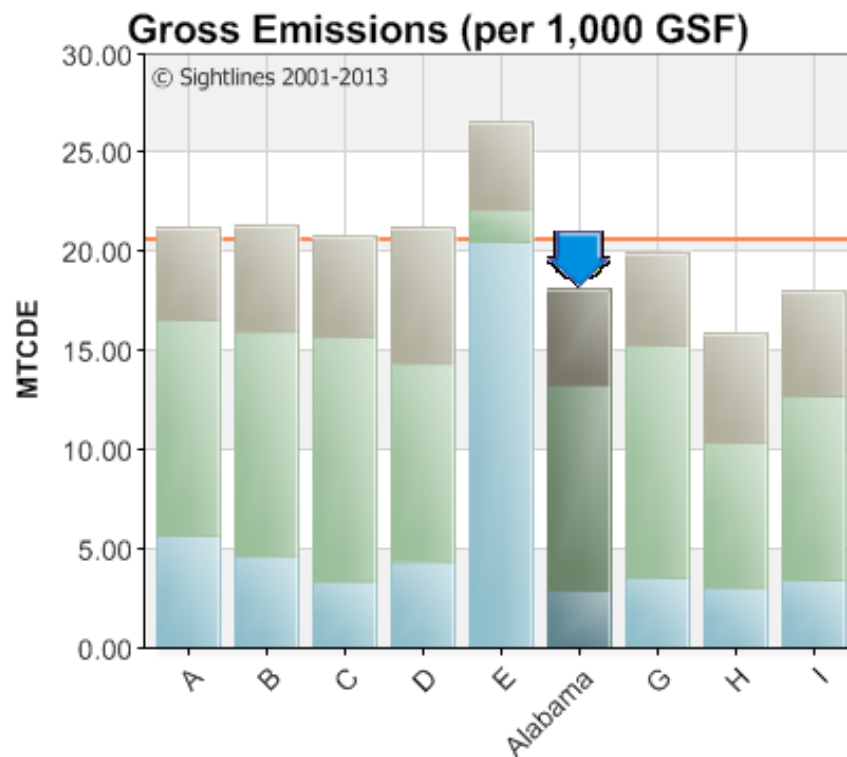


Gross emissions FY12

Alabama has below peer average emissions, accounting for students and space



Institutions Ordered By: Density Factor

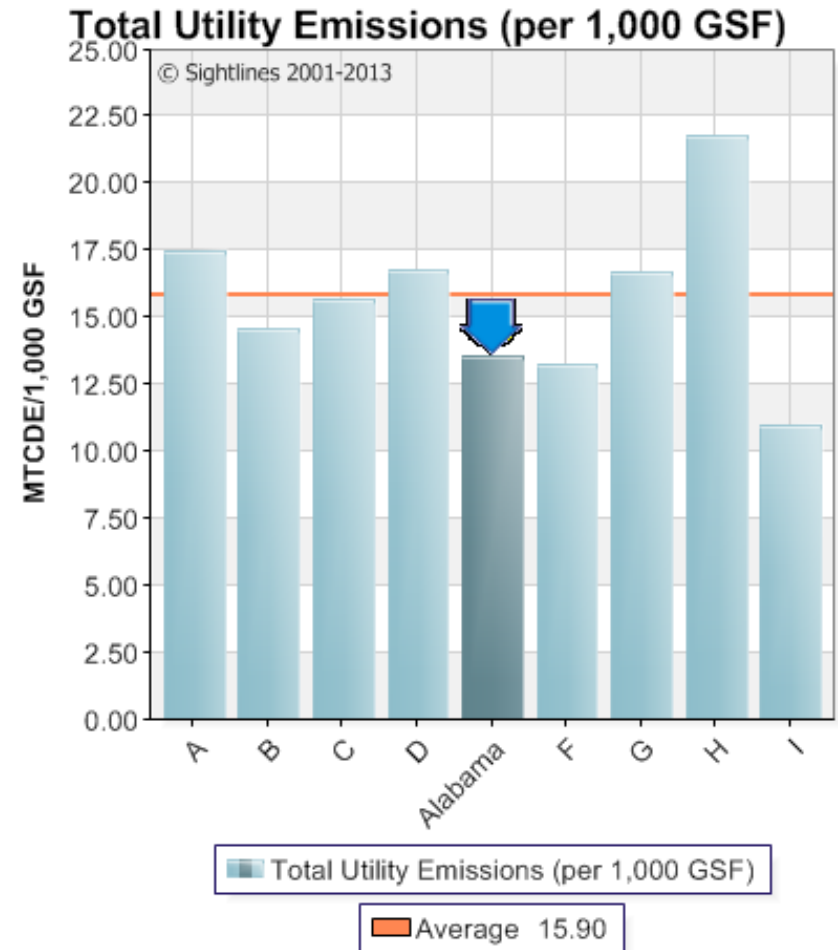
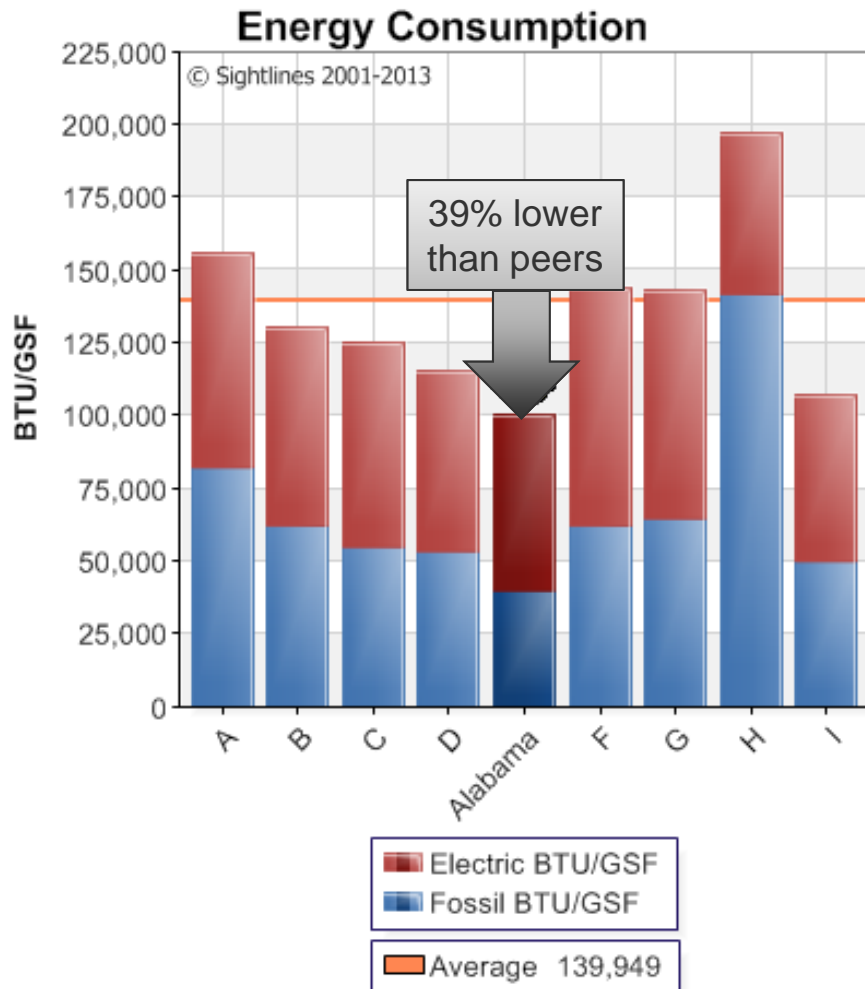


Institutions Ordered By: Density Factor

Total utility consumption vs. GHG emissions



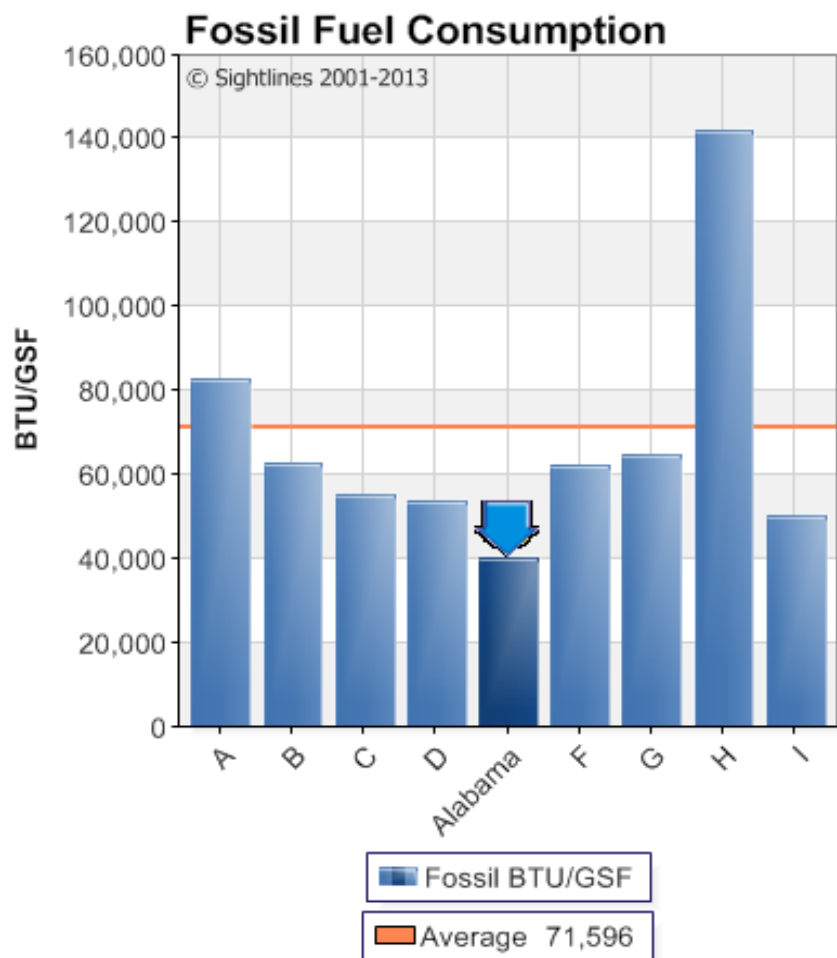
More sustainable campus operations than peers



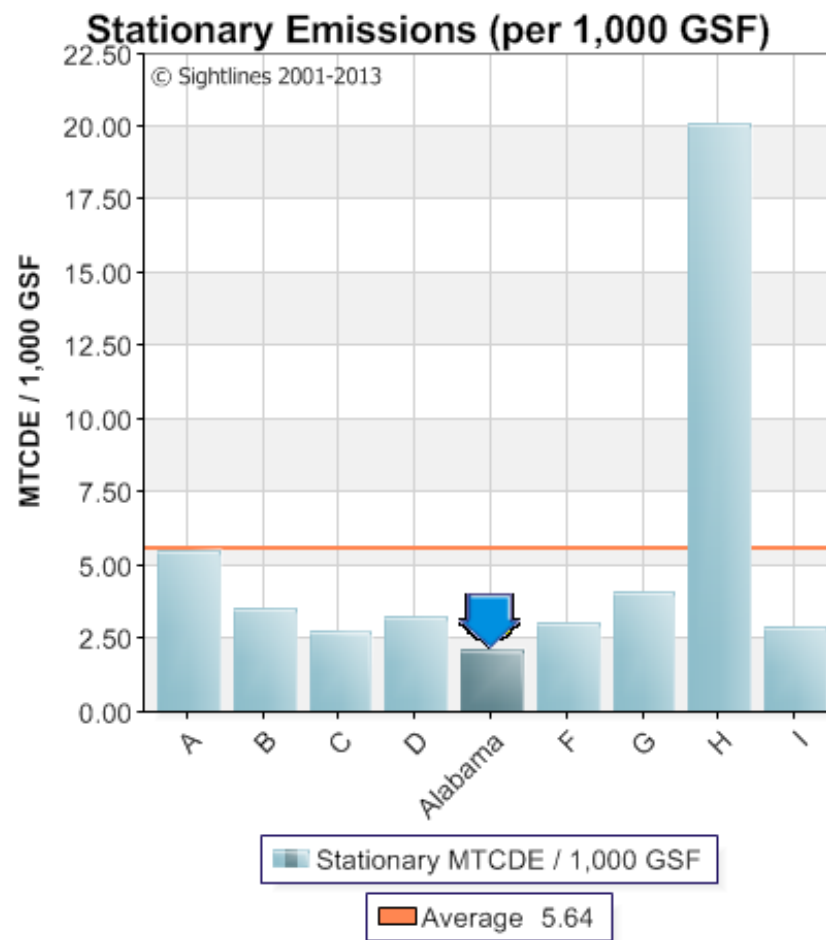


Lowest consumer of fossil fuels

Stationary (natural gas) emissions are more environmentally friendly



Institutions Ordered By: Tech Rating

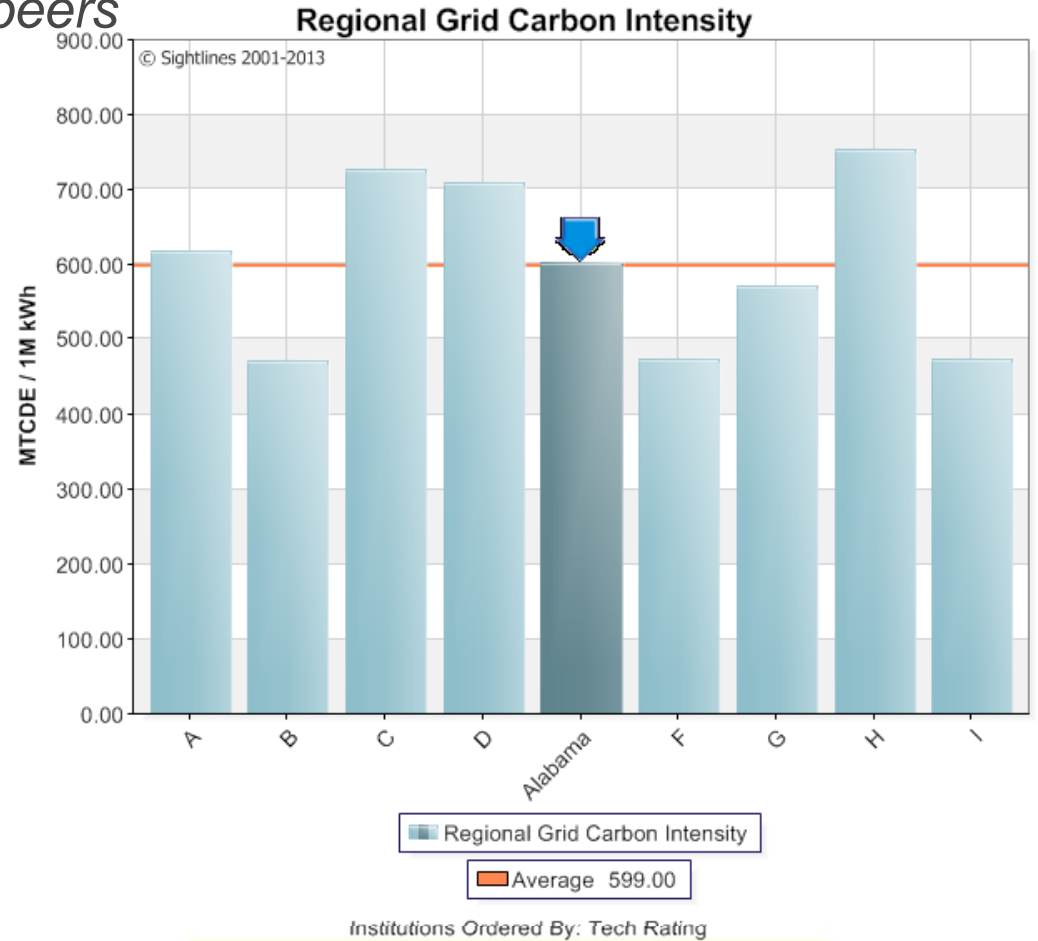


Institutions Ordered By: Tech Rating

Factors that influence electricity emissions



Regional carbon intensity vs. peers



Carbon intensity of purchased electricity similar to peers

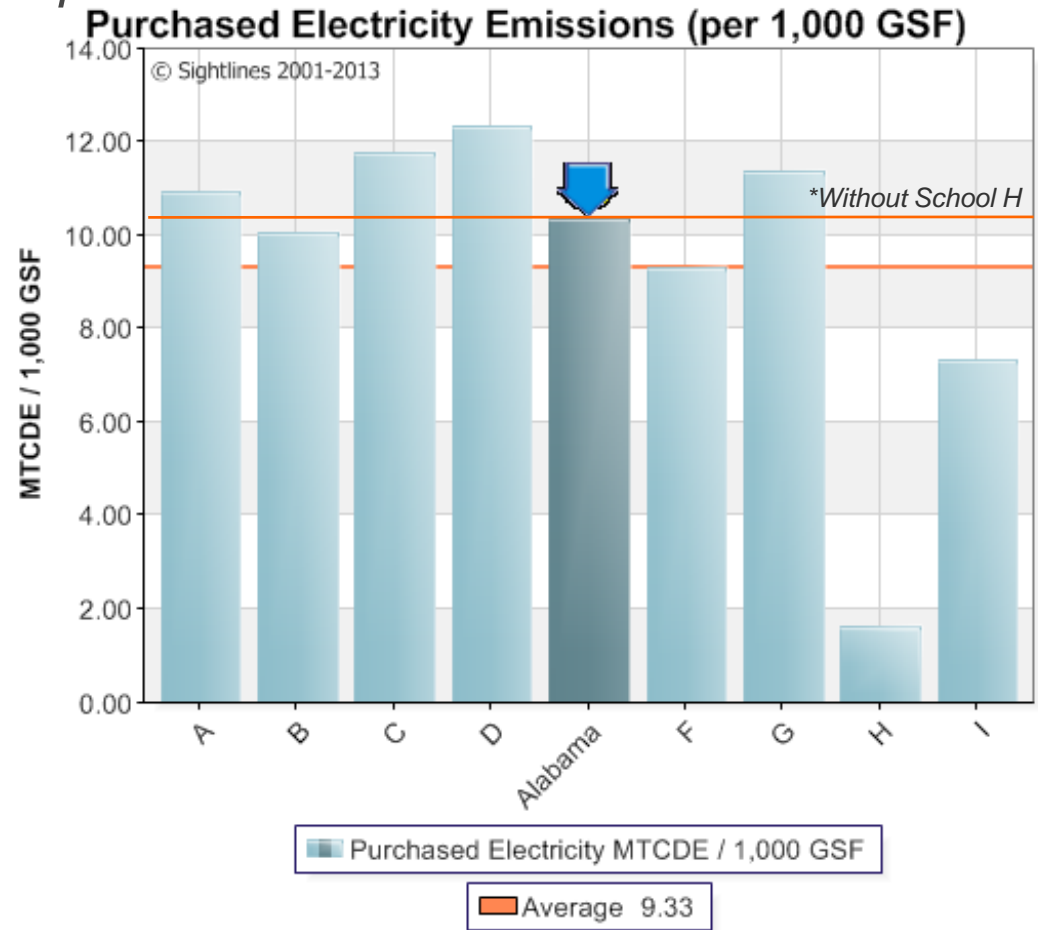
**School H produces majority of electricity on campus*



Effect of electricity consumption and intensity



Implications of grid and consumption



Institutions Ordered By: Tech Rating

Similar carbon emissions to peers

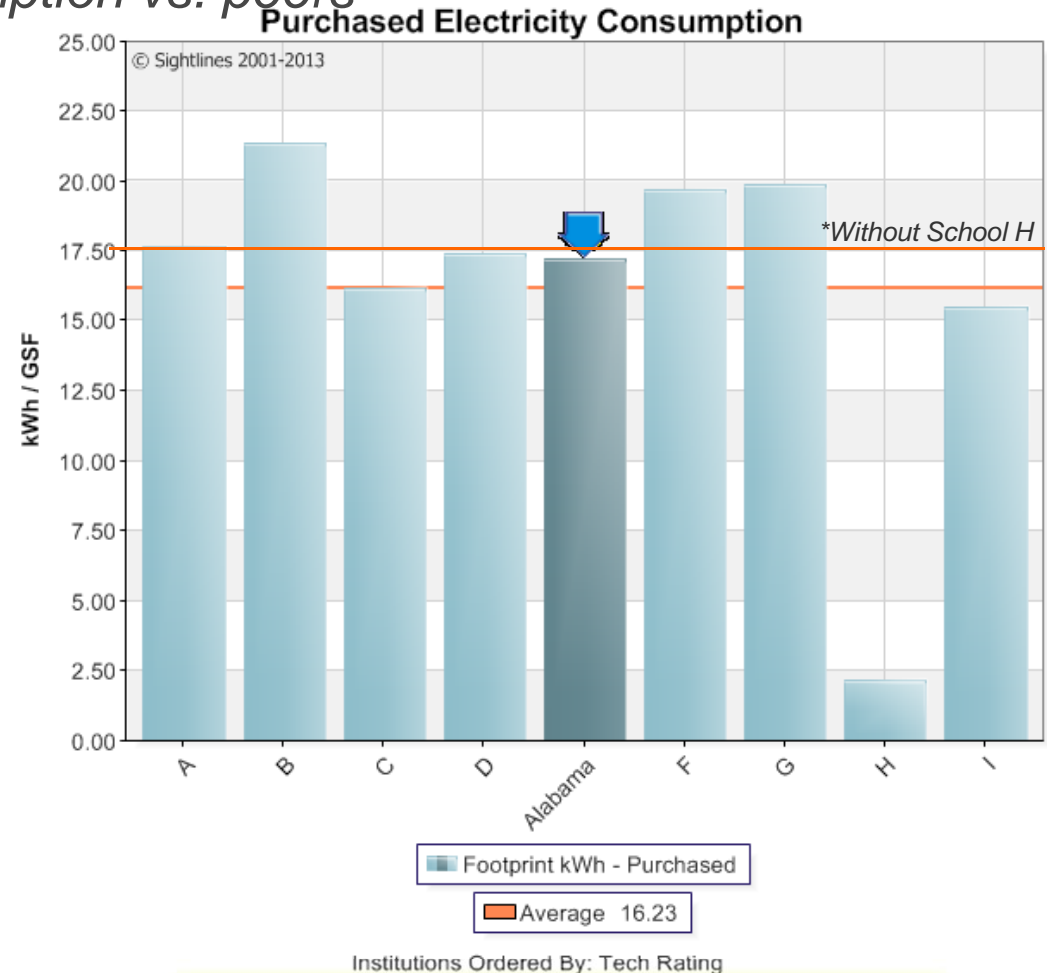
**School H produces majority of electricity on campus*



Factors that influence electricity emissions



Purchased electricity consumption vs. peers



Consuming similar electricity to peers

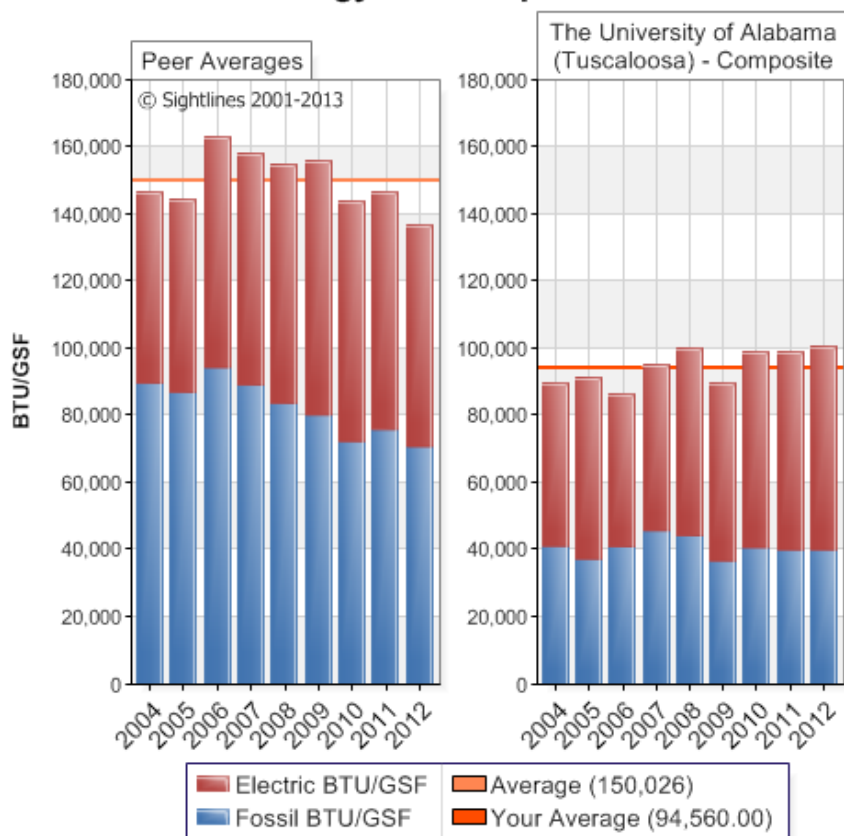
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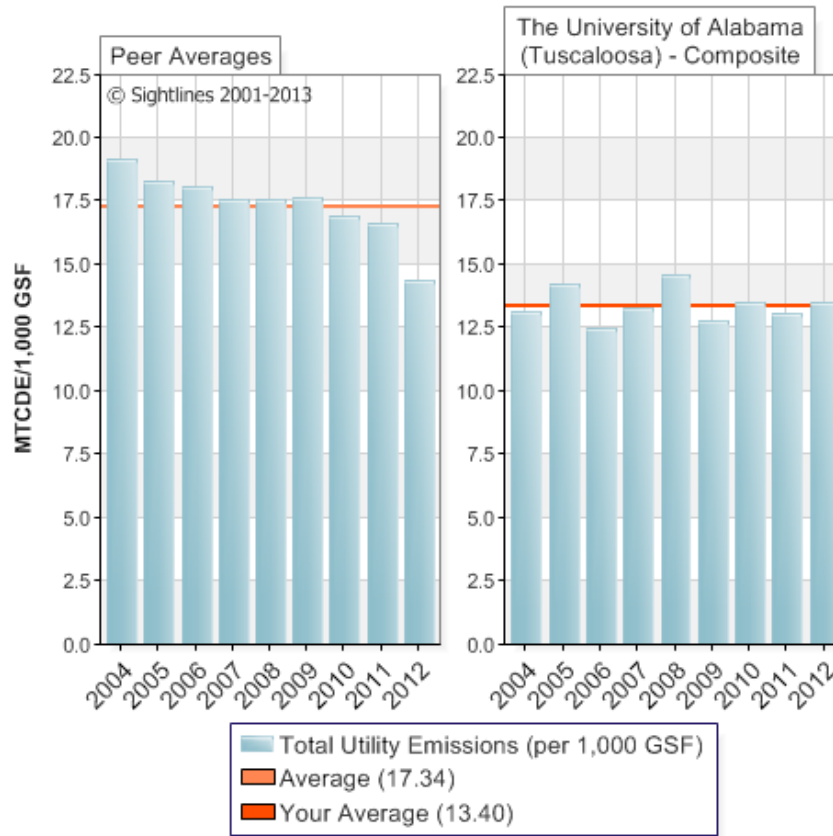


Historical total utility usage vs. GHG emissions

Energy Consumption



Total Utility Emissions (per 1,000 GSF)



Invisible but Impactful Performance

- Consistently consuming less energy than peers
- Lower fossil consumption driving high performance
- Energy consumption growing as campus expands – Tech rating (3.1 – 3.3)
- Lower Operational Intensity than peer institutions**



Balancing sustainability initiatives

Striving for structural and cultural changes on campus

Invisible
yet
Impactful

Visible
and
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Campus
Sustainability

Tackles core challenges of
operational sustainability:

- Space management
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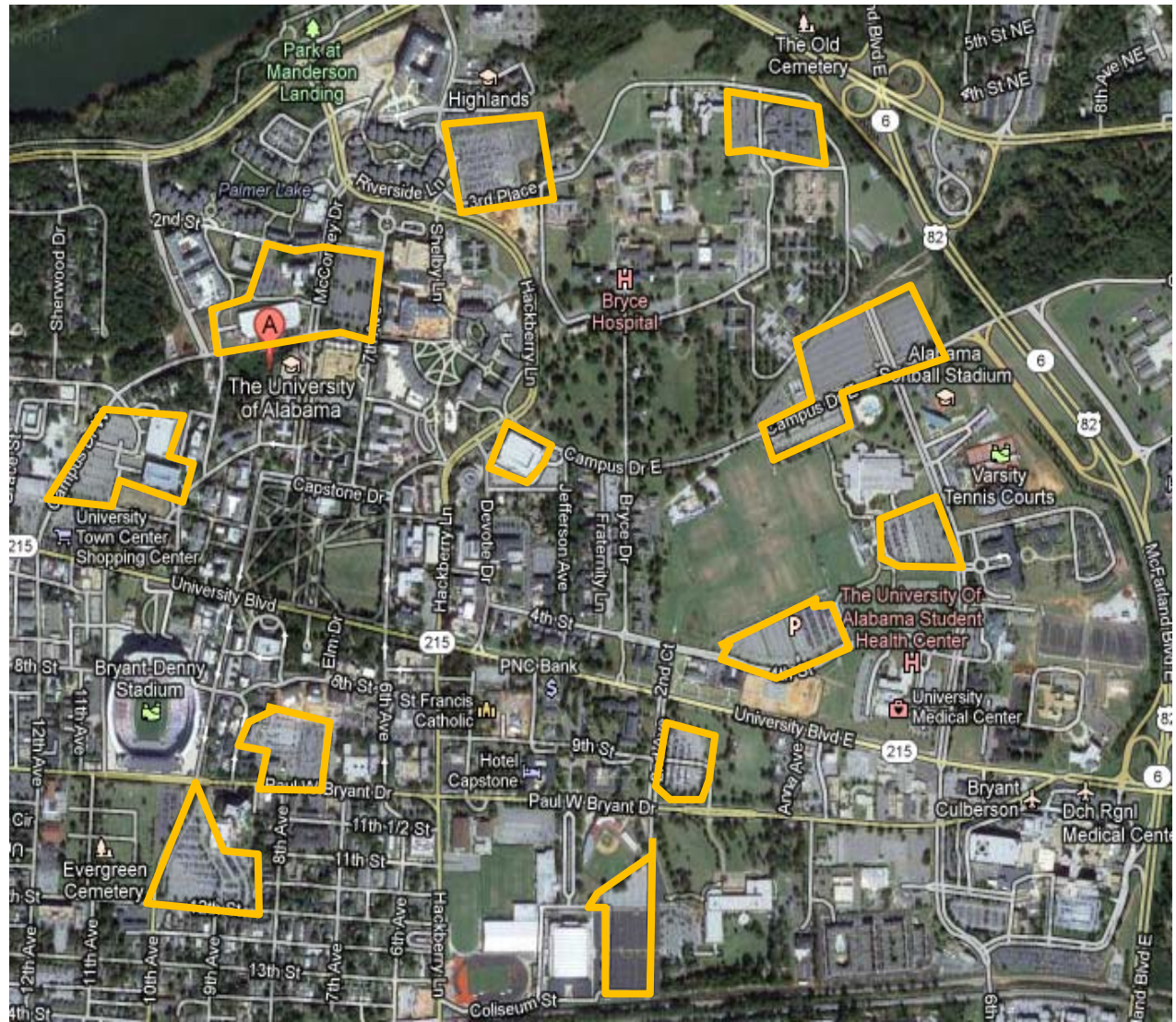
Engages and motivates campus
community to **change behaviors:**

- Waste reduction/diversion
- Water use
- Commuting

Parking at The University of Alabama



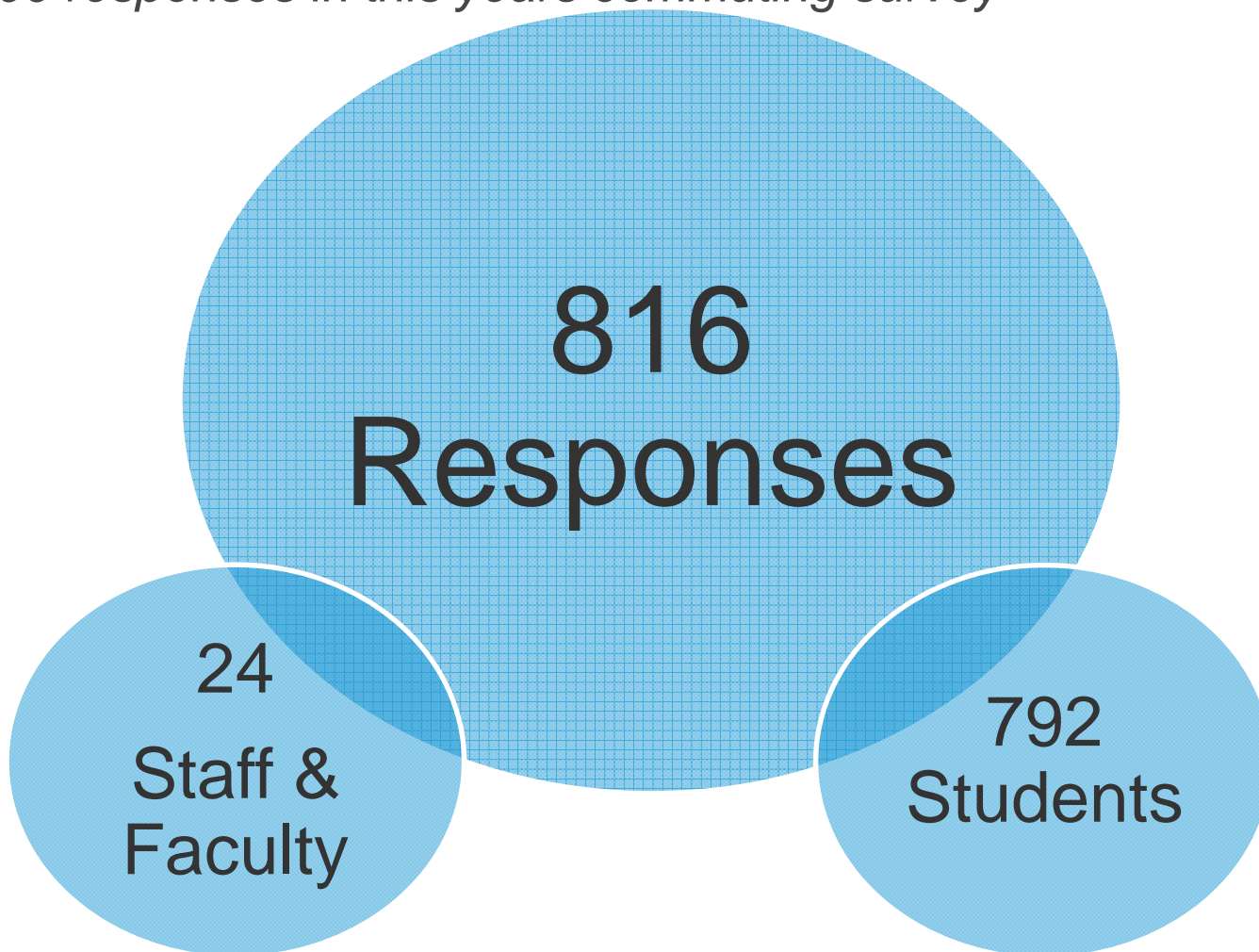
Over 1.4M GSF of parking garage space, plus surface lots





Commuting survey

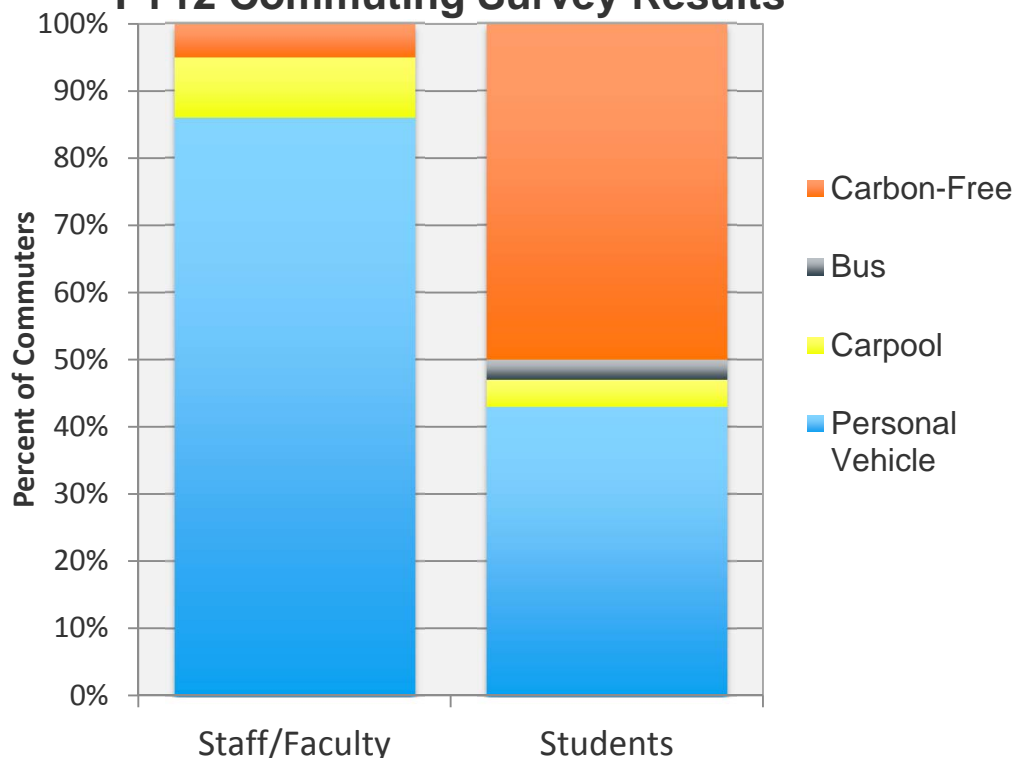
Over 800 responses in this years commuting survey





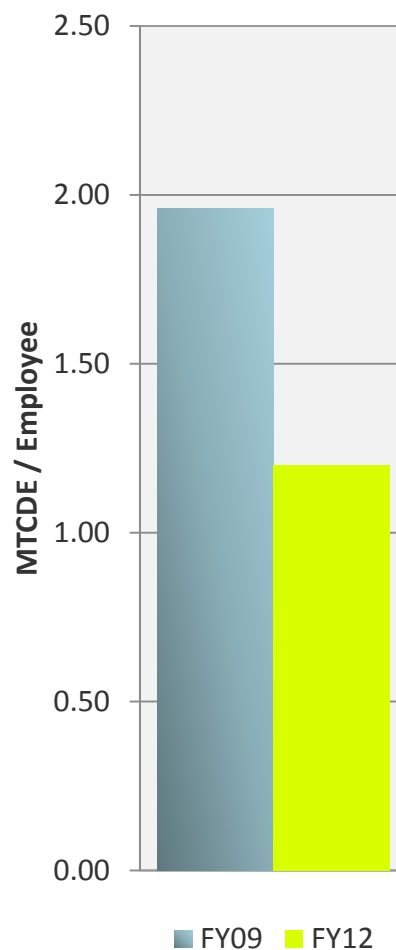
Impact of a commuting survey

FY12 Commuting Survey Results

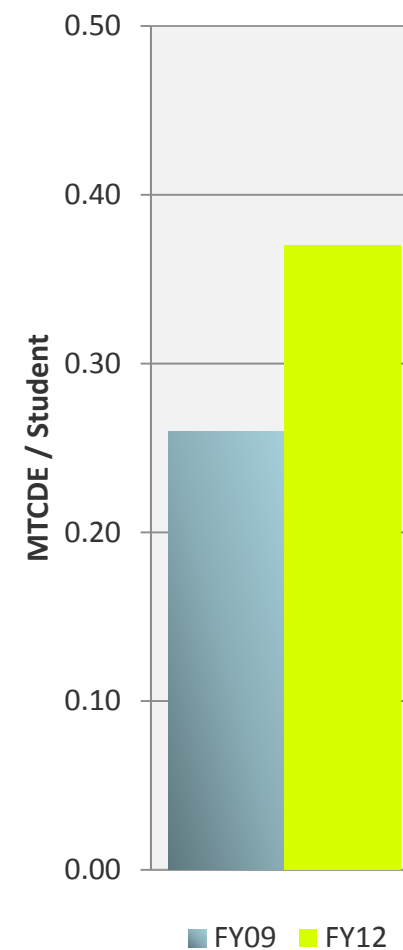


	Trip Distance		Trips per Week	
	FY09	FY12	FY09	FY12
Faculty/Staff	13.1	11.8	10	8.5
Students	4.3	7.6	10	8

Employee Commuting Emissions



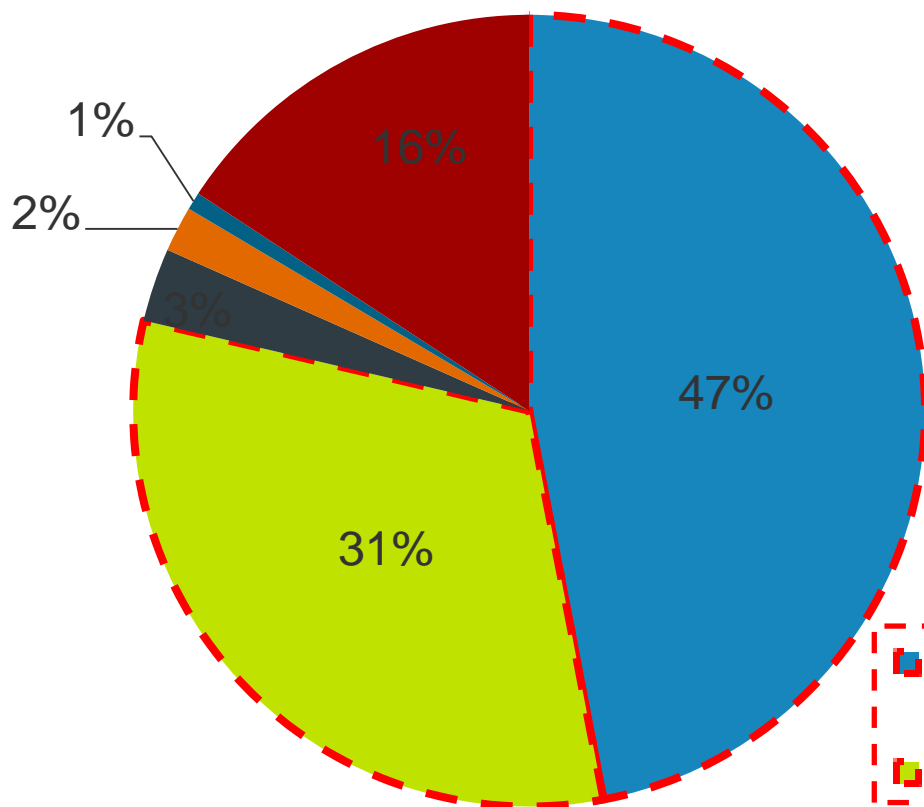
Student Commuting Emissions



*Commuting Survey Responses – 2009: 658, 2012: 816



Why are campus users driving alone?



If you do not primarily carpool to campus, what is the central reason, why?

- It isn't convenient to where I live
- Time - using mass transit would take too long

- Personal reasons - my health, taking children to school/home, etc.
- I carry too much material daily to make mass transit feasible

Why are campus users driving alone?



If you do not primarily use mass transit to get to campus, what is the central reason?

Mass transit does not exist close to where I live.

There is none.

It does not exist in my area.

What mass transit? The city bus? Right.

From CampusWay, the trolley is great for getting TO campus; although, the commute BACK to CampusWay always takes at least an hour. Therefore, I drive to the Rec Center, take the bus to the bus hub, then bike around campus.

It is quicker to bike, which I do everyday.

Walking is faster.

The schedule for the bus to and from my apartment complex does not fit with my schedule on Monday, Wednesday and Friday.

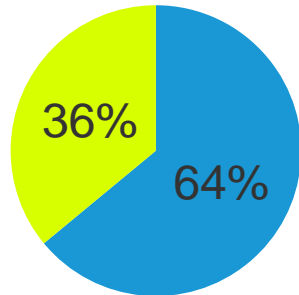
I don't like having to rely on the schedule of mass transit options, as my schedule is very irregular. I also feel more independent riding my bicycle, as I can go and come as I please.

Which commuting programs would be most effective in switching your primary commuting mode away from Drive Alone?

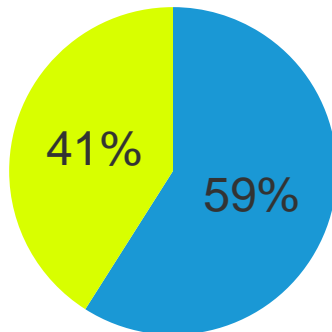


Top 3 Effective Measures

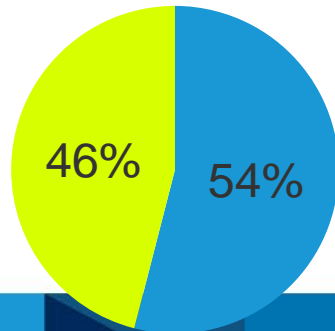
Reduced parking costs for carpoolers



Increased mass transit service

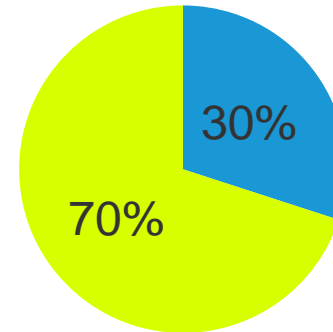


Reserved parking for carpoolers

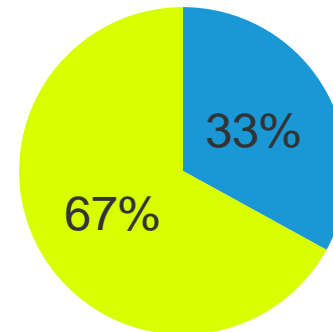


Top 3 Ineffective Measures

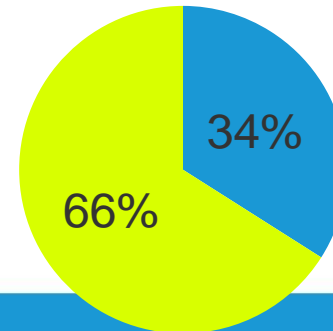
Higher drive alone parking costs



Electronic carpool/ride matching



Sheltered bicycle parking

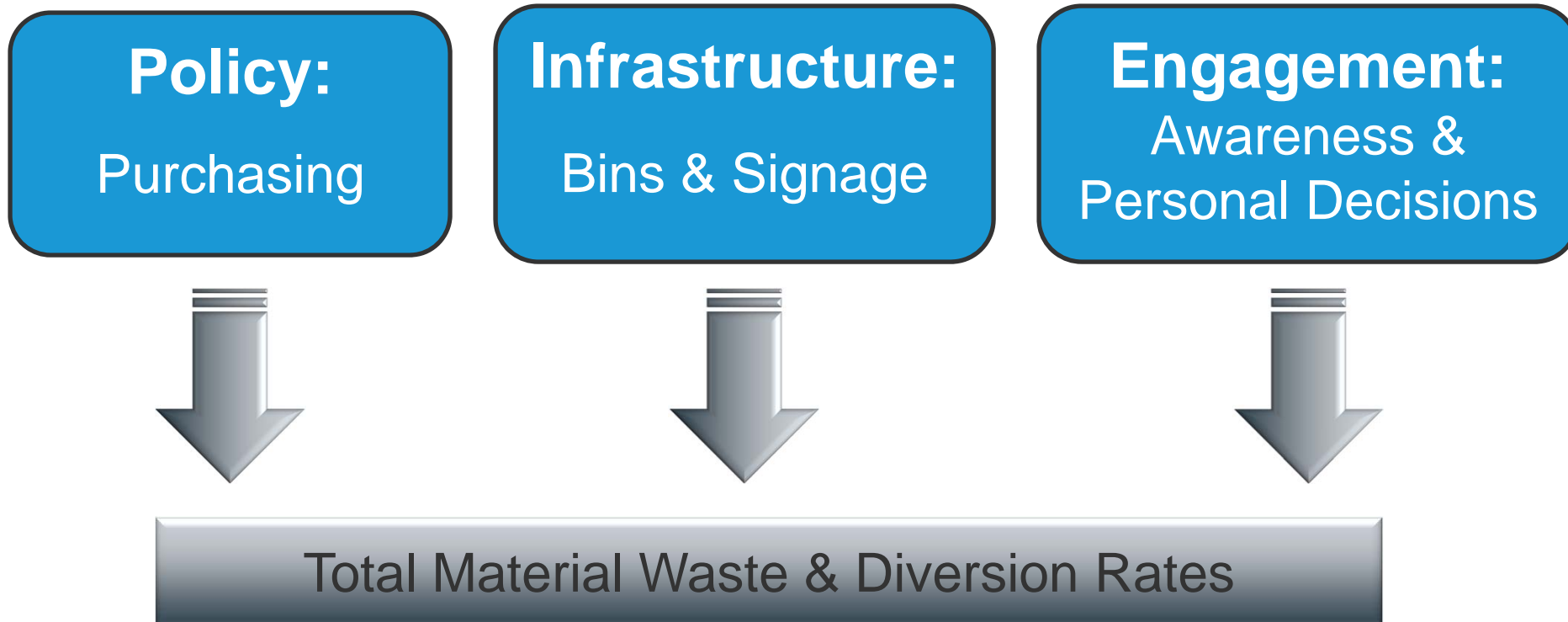


Effective
Ineffective



Waste reduction strategies

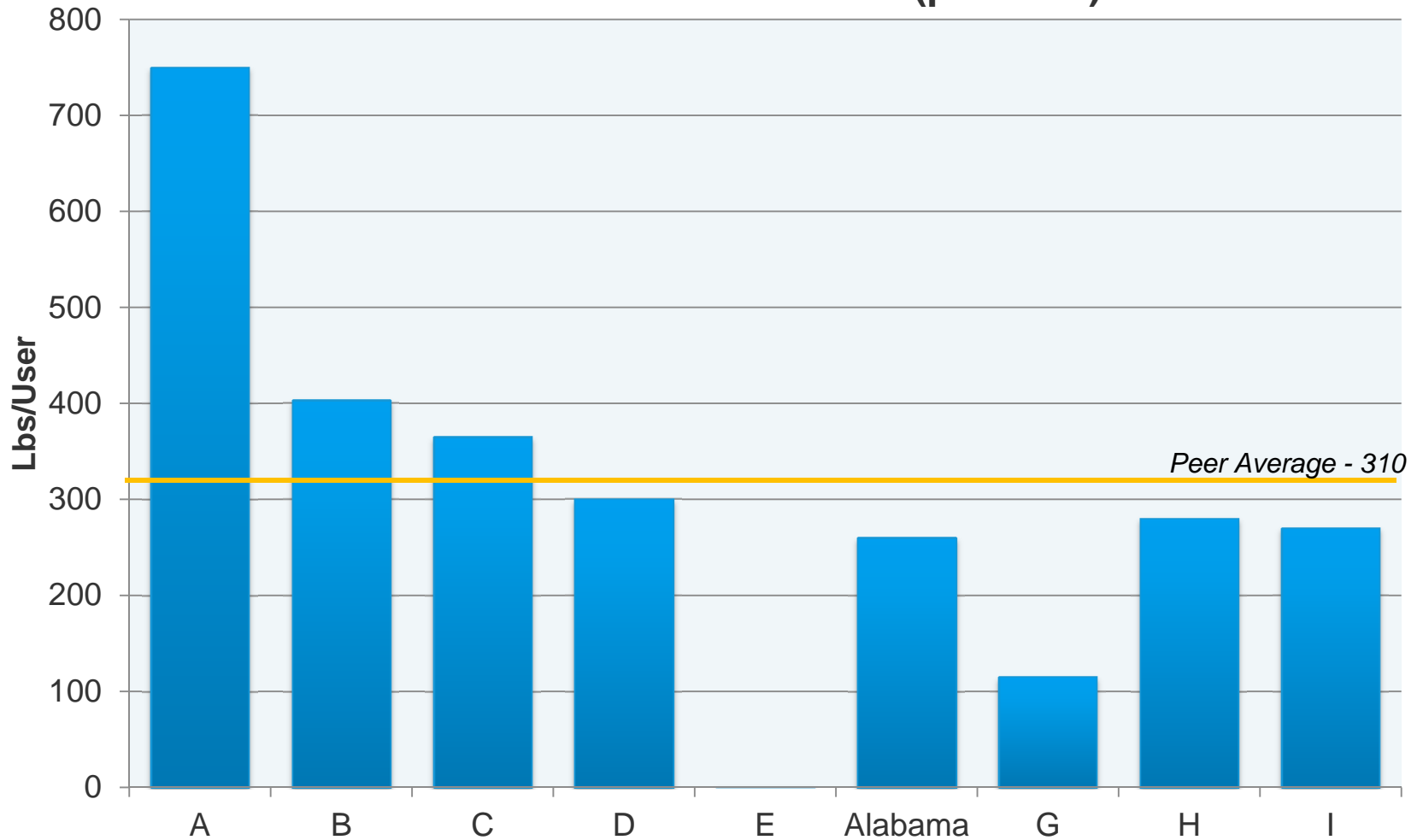
Waste management is the intersection of policy, infrastructure and engagement



Alabama produces less waste than peers



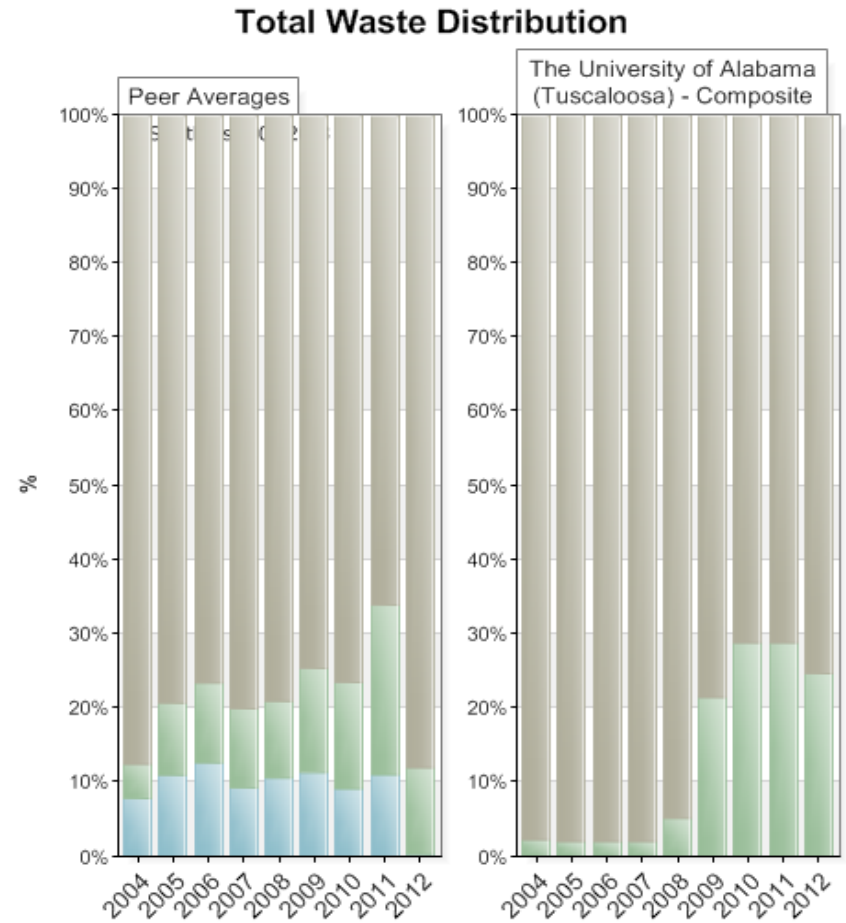
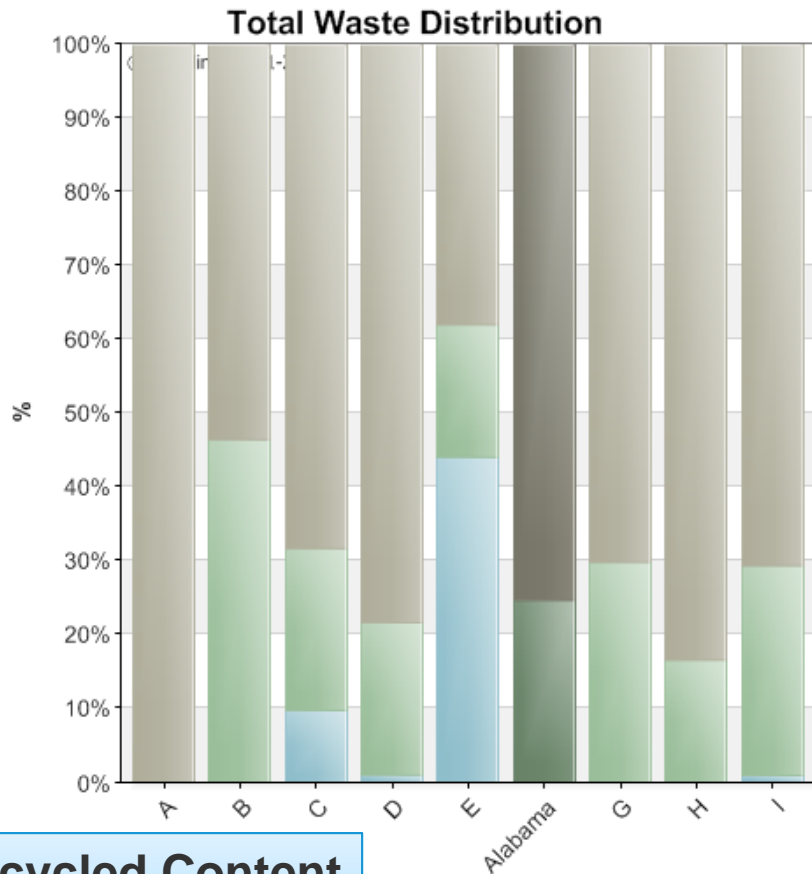
Total Waste Stream (per user)



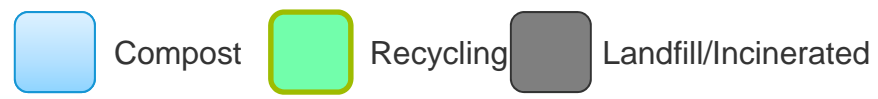
Alabama recycle 25% of total waste in FY12



Recycling program grows considerably since FY07, surpasses peers FY12 level



Recycled Content
 Peers – 23%
 Alabama – 25%

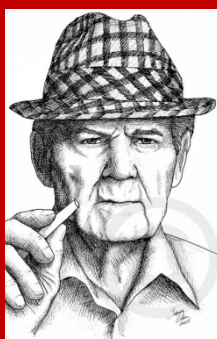
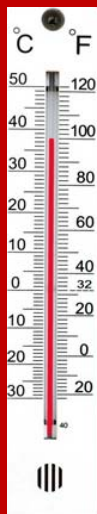




Perception vs. Performance

Perception

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



Performance

	Alabama	“Green” Schools Avg.	% Difference
BTU/GSF	99,263	114,644	- 13%
GHG(MTCDE)/GSF(1,000)	18.1	16.3	+ 11%
GHG(MTCDE)/Student	6.8	5.2	+ 31%
Waste Pounds/Student	232	212	+ 9%
Gallons of Water/Student	8,005	8,528	- 6%

*“Green” Schools selected from STARS program and top performers in Sightlines database

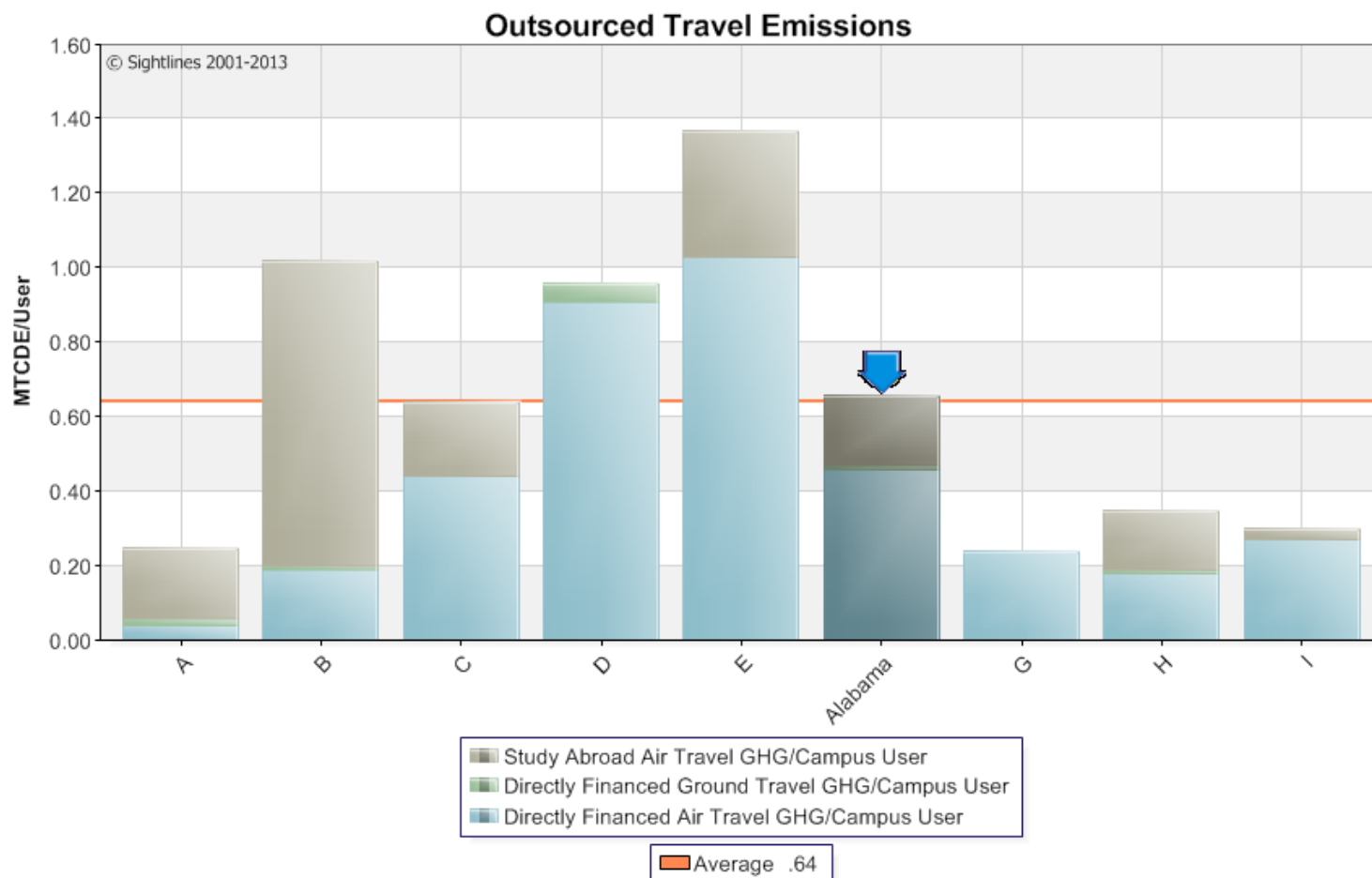


Questions



Outsourced Emissions Comparison

Alabama similar to peers in outsourced carbon emissions/user



Institutions Ordered By: Density Factor