



GLENDALE COMMUNITY COLLEGE

2010 Greenhouse Gas Inventory



Mary Harris
Department of Physical Sciences
April 22, 2011

The Country's Largest Community College District – Representing More Than 260,000 Students – Signs the ACUPCC

On February 17, 2010 Chancellor Rufus Glasper of the Maricopa County Community College District (MCCCD) signed the American College & University Presidents' Climate Commitment.

His signature enables Maricopa's ten colleges and the district office to actively pursue practices that target the Triple Bottom Line:

environmental responsibility, social justice and economic feasibility.



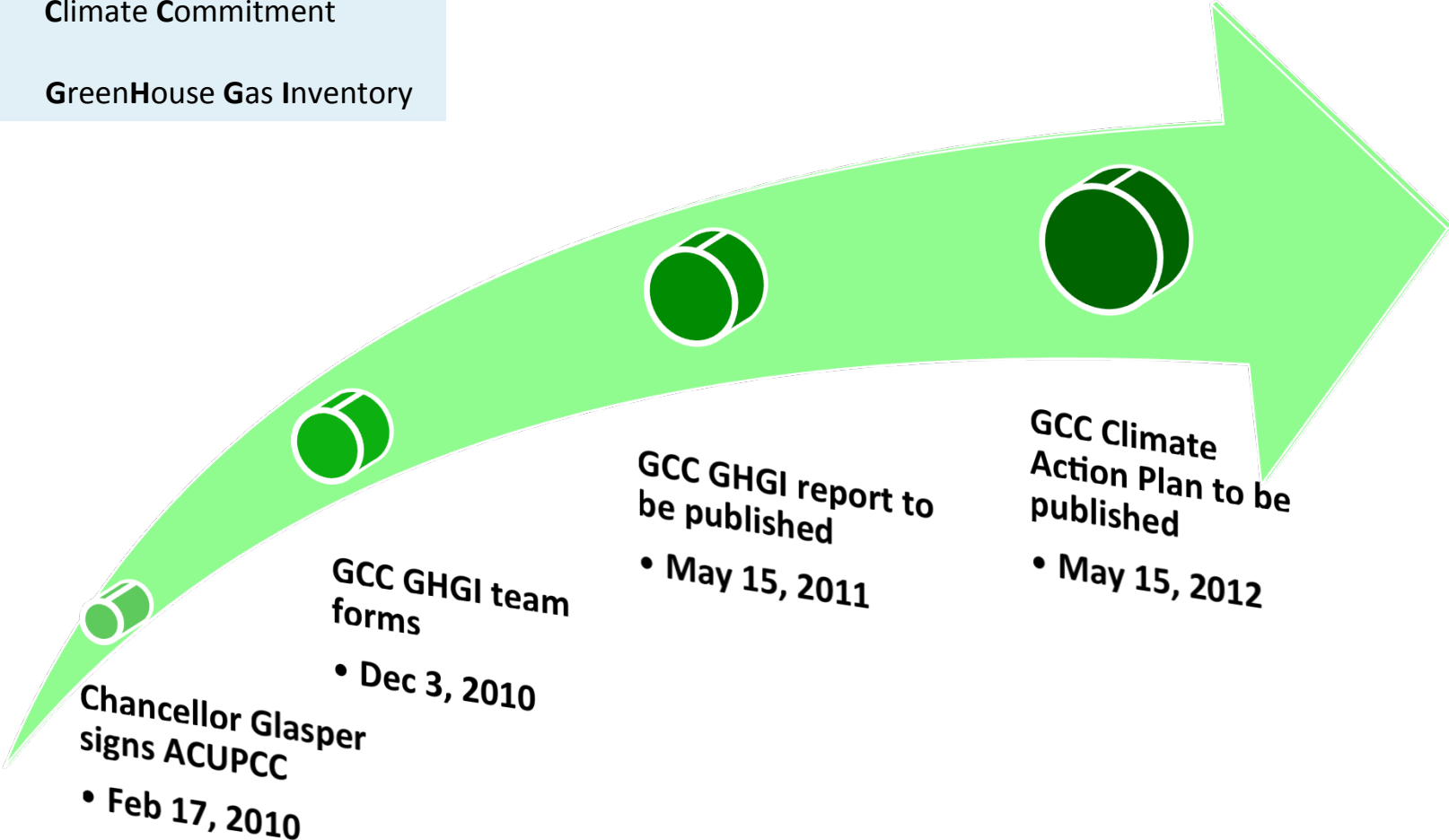
(From [The ACUPCC Implementer](#), May, 2010)

“My action reflects a strong pledge by Maricopa employees to the goal and responsibilities of the Climate Commitment and sustainability,” said Glasper.

Timeline

ACUPCC: American Colleges and Universities Presidents' Climate Commitment

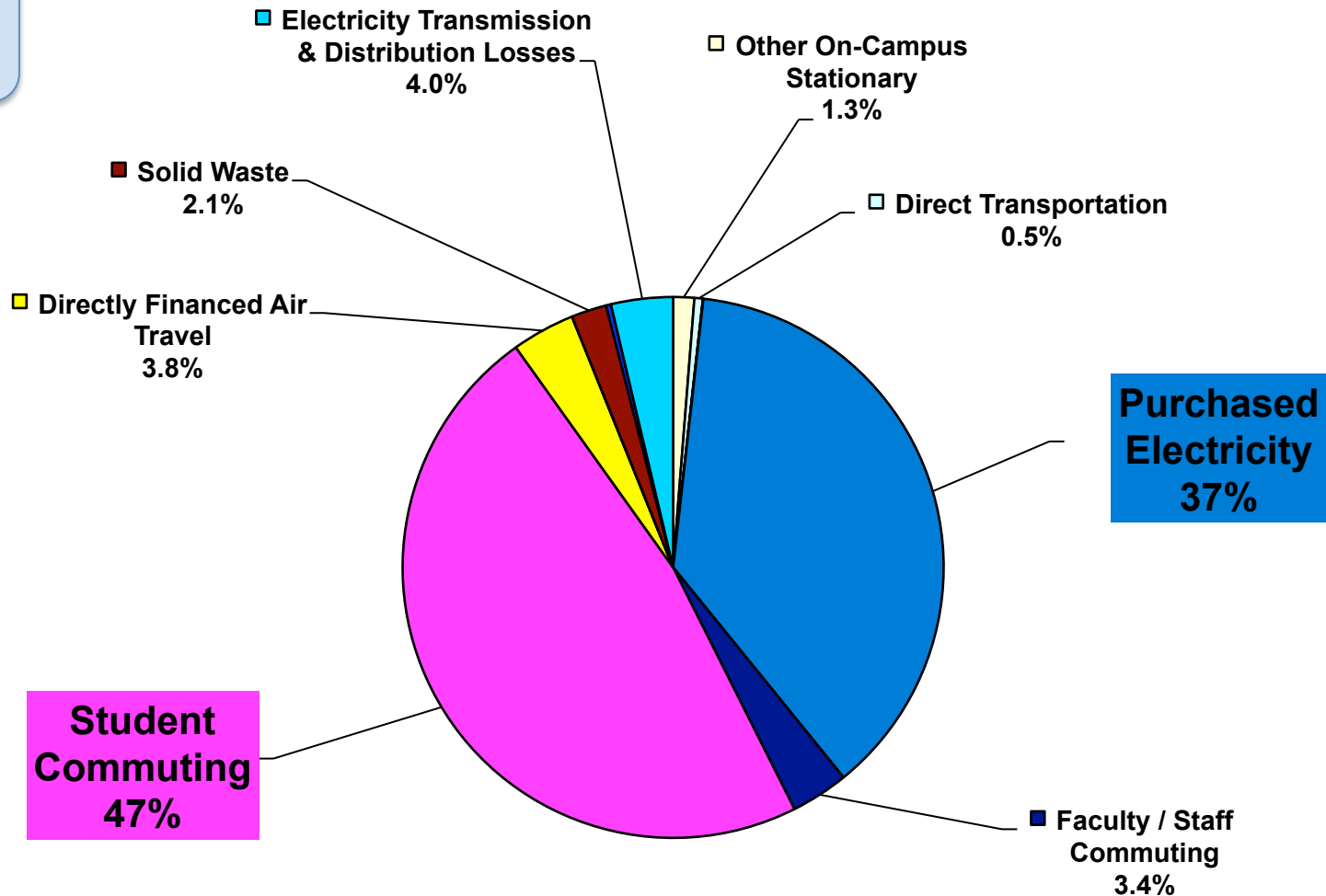
GHGI: GreenHouse Gas Inventory



2010 Greenhouse Gas Emissions Snapshot

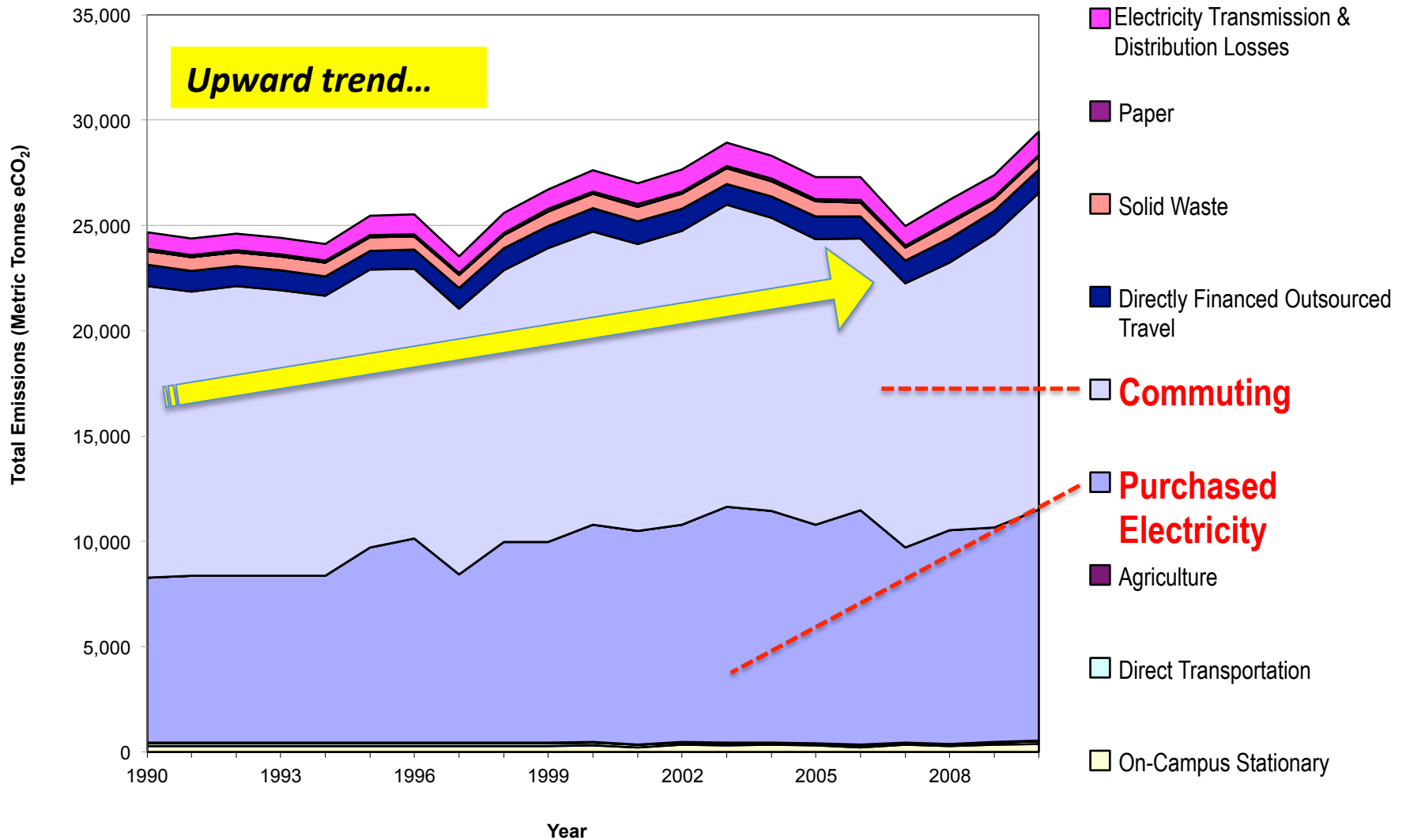
Less than 0.5%

- Agriculture
- Other Directly Financed Travel
- Paper



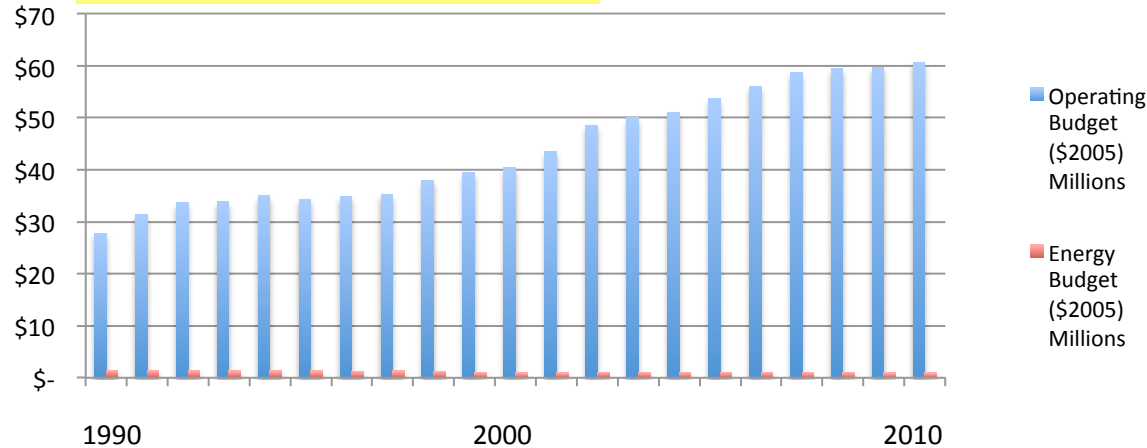
Student Commuting & Purchased Electricity are the challenge.

Trend in Total Emissions 1990 – 2010



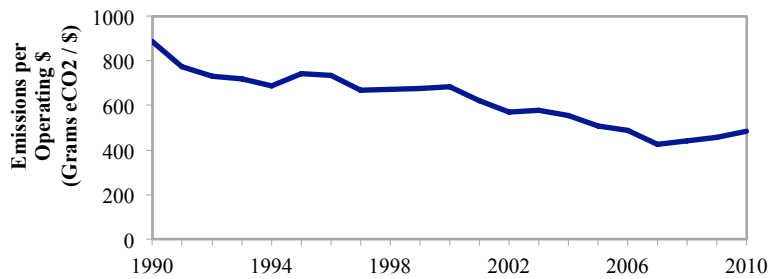
Operating and Energy Budget Analysis

Progress on efficiency.



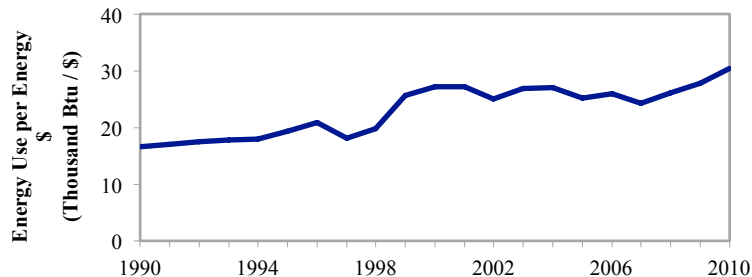
Budget over time shows:

- (a) the small fraction spent on energy,
- (b) the increasing operating budget, and
- (c) the decreasing energy budget, from \$1.49m in 1990 to \$0.97m in 2010.



Emissions per operating dollar estimates the environmental impact of GCC operation.

The downward trend reflects increased efficiency of building operation.

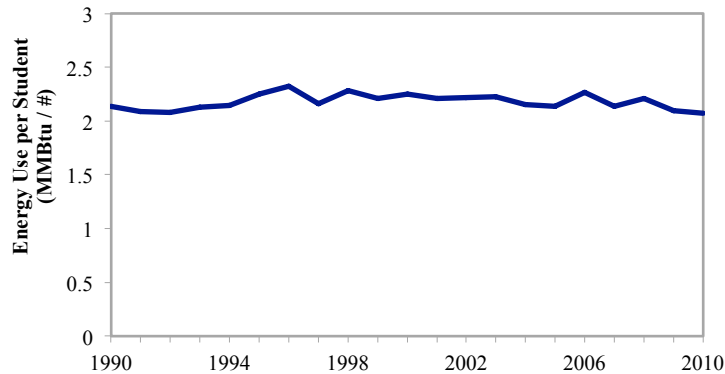


Energy use per energy dollar estimates the overall economic efficiency of GCC's energy purchases.

The upward trend means more energy value per dollar.

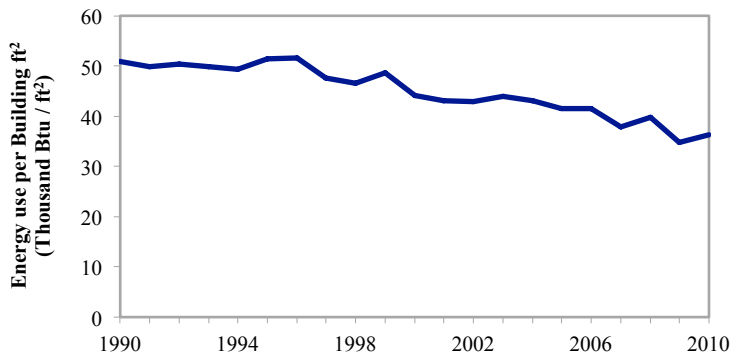
Energy Use (not Emissions) Analysis

Progress on efficiency.



Energy use per student estimates the energy efficiency in terms of the student population.

The downward trend shows a small improvement in energy efficiency per student.

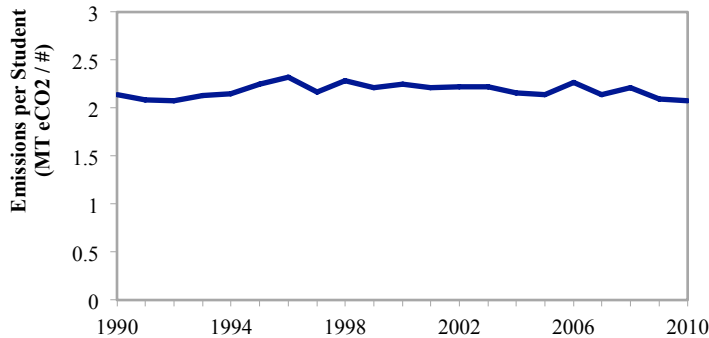


Energy use per square foot of building space is another estimate of the overall energy efficiency of GCC.

The downward trend shows significant improvement in building efficiency.

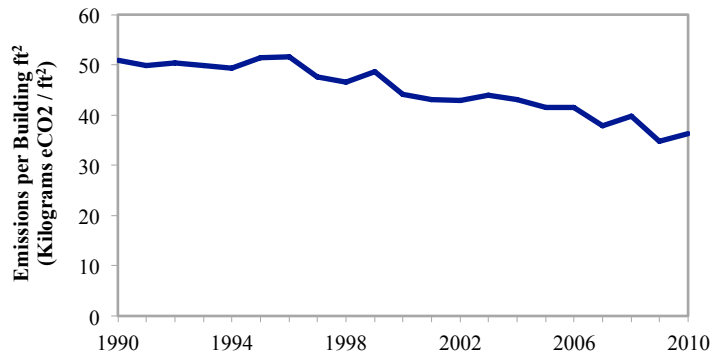
Relative Emissions Analysis

Progress on reduction of relative emissions.



Emissions per student is the most fundamental measure of GCC's impact on climate disruption.

The slight downward trend indicates progress toward carbon neutrality.



Emissions per square foot of building space is another estimate of the overall relative emissions of GCC.

The downward trend indicates progress toward carbon-neutral buildings.

Comparison with other MCCCDC Colleges

GCC compares favorably with its sister colleges

Negligible student commuting.

Emissions surprisingly low

	Rio Salado	Chandler-Gilbert	Mesa	Scottsdale	GateWay	Glendale
Year covered	2008-9	2009-10	2007-8	2009-10	2008-9	2010
Total Emissions (MTCDE)	8,678	11,606	33,457	32,431	17,660	29,444
Building Space (Sq. Ft.)	263,451	501,218	937,494	584,498	301,092	811,576
Student Population (FTE)	(Not stated)	10,409	11,880	7,956	3,677	14,207
Emissions (MTCDE/FTE)	0.7	1.1	2.8	4.1	4.8	2.1
Emissions (MTCDE/1,000 Sq. Ft.)	32.9	23.2	35.7	55.5	58.7	36.3

NOTE: Calendar year reporting is the standard used by formal registries such as The Climate Registry, and is preferred by ACUPCC, although fiscal year, i.e., starting July 1, is accepted.

Full Time Students	8,118
Part Time Students	12,178
Summer Students	1,402
FTE (Using CCC formula of Full Time + 0.5*Part Time + 0*Summer)	14,207

NOTE: The CCC formula for FTE is different from the formula used throughout MCCCDC; definition below and at:

www.gc.maricopa.edu/crs/dd/ftse.swf
(Select the Fiscal Year button.)

Annual Full-Time Student Equivalent (FTSE) Calculation:

Sum of the following, divided by 30

- All credit hours in session on Fall 45th Day
- All credit hours in session on Spring 45th Day
- Half of all credit hours in short-term courses not in session on 45th Day
- Half of all credit hours in such courses that are completed
- Half of all credit hours in OE courses
- Half of all credit hours in OE courses that are completed

Minor sections are rolled up into Majors

Data for other colleges from
<http://acupcc.aashe.org>, April 2011

Conclusions

- Student commuting and purchased electricity are the main causes of GCC's Greenhouse Gas emissions.
- GCC's Energy Budget has declined even though Operating Budget and Total Building Space have increased.
- Progress has been made on reduction of emissions per student and per square foot of building.
- Massive change will be needed to move meaningfully toward carbon neutrality.
 - Reduce commuting emissions per capita ← **BEHAVIOR CHANGE**
E.g., charge for parking to discourage SOV use
 - Eliminate wasted electricity ← **BEHAVIOR CHANGE**
E.g., smart scheduling of classrooms
 - Install zero-emission power sources ← **STRATEGY CHANGE**
E.g., photovoltaic panels on parking shade structures

The challenge is clear!