

Edit Climate Action Plan

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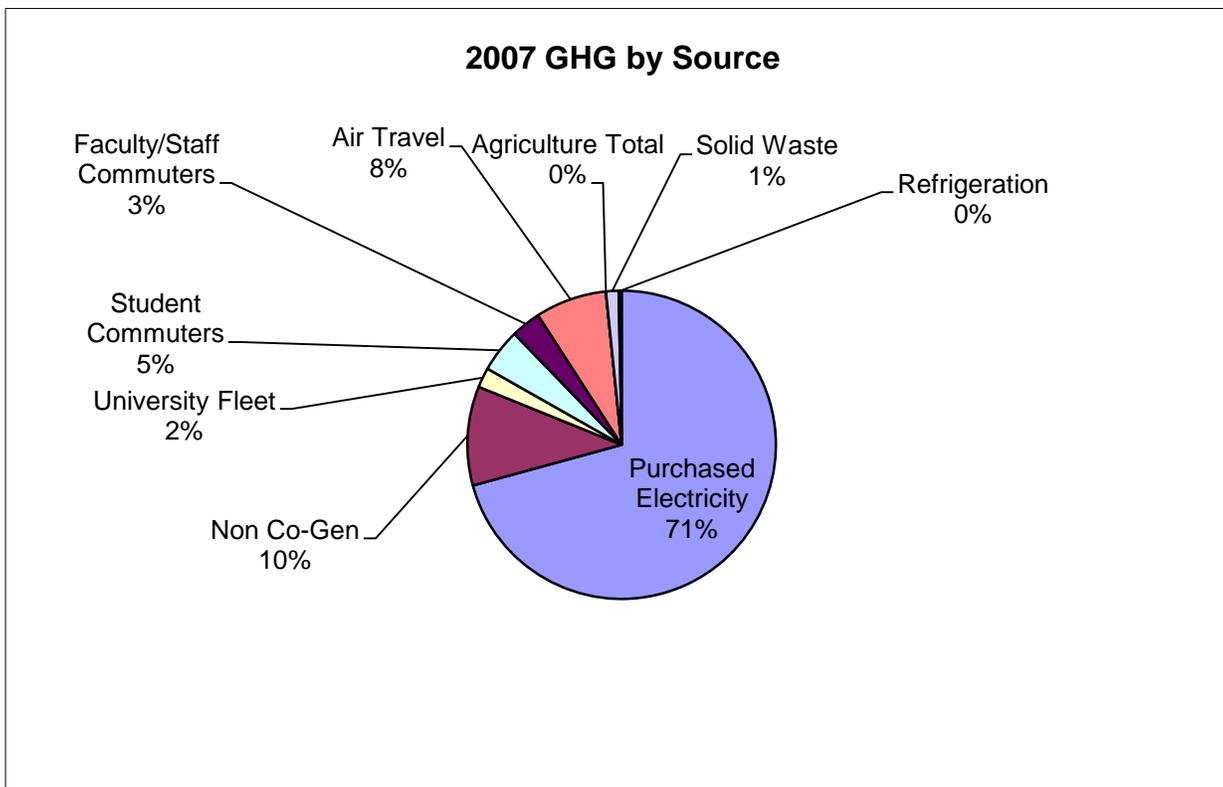
The ACUPCC Climate Action Plans explain how the institution intends to achieve climate neutrality. The plan should also describe planned actions to make climate neutrality and sustainability a part of the curriculum, as well as actions to expand research and community outreach. In addition, the plan should describe mechanisms for tracking progress on goals and actions. Fields that are required for a complete submission under the ACUPCC are noted with **REQ**. All other fields are optional, though you are encouraged to fill in all relevant fields. You may save your progress at any time by clicking the "Save as Draft" button at the end of the form. For further guidance on completing this form, including detailed descriptions of the data requested in each field, please see the [Instructions for Submitting a Climate Action Plan Report](#).

Climate Action Plan Details

Climate Action Plan Title **REQ** GEORGIA TECH CLIMATE ACTION PLAN, SEPTEMBER 2009

Climate Action Plan File Upload **REQ** OK

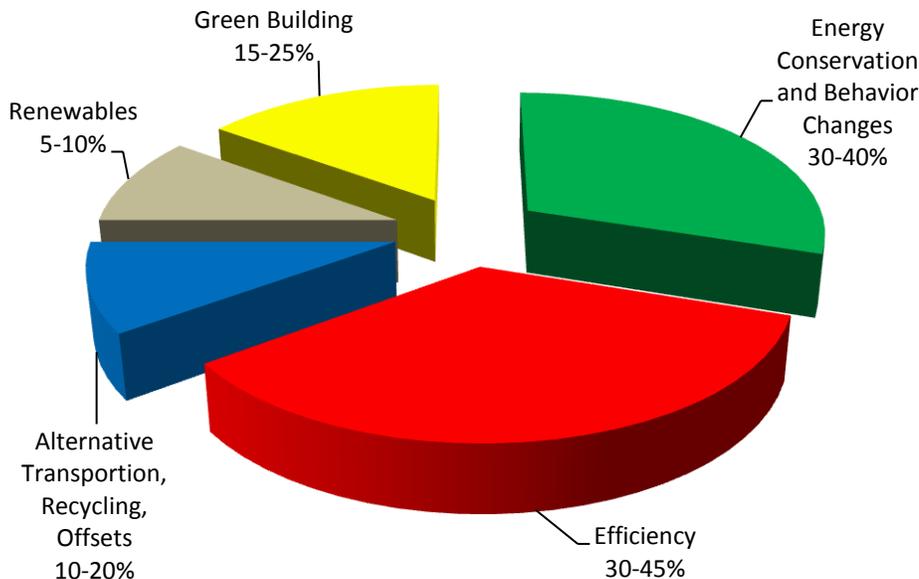
Date Adopted **REQ** 9/15/2009



261,920	Purchased Electricity
38,491	Non Co-Gen
7,711	University Fleet
16,853	Student Commuters
11,538	Faculty/Staff Commuters
27,712	Air Travel
9	Agriculture Total
4,899	Solid Waste
1,128	Refrigeration

370,260 Total

Climate Action Strategy



Green Construction

LEED Silver or better

Energy Conservation and Behavior Changes

Re-commissioning, Re-Balancing

Building Upgrades, Renovations

Occupant Education

Controls

Generation Efficiency

Plant Operations

Steam & Chilled Water

Fuel Mix

District Systems

Renewable Energy

On /off site solar, wind, biomass, geothermal

PPA when available, Performance Guarantees if become available

Stimulus and other grants, if or as available

Alternative Transportation, Recycling, Offsets

Voluntary purchase of Offsets donated to greening campus,
especially for airline travel prior to climate neutral commitment date

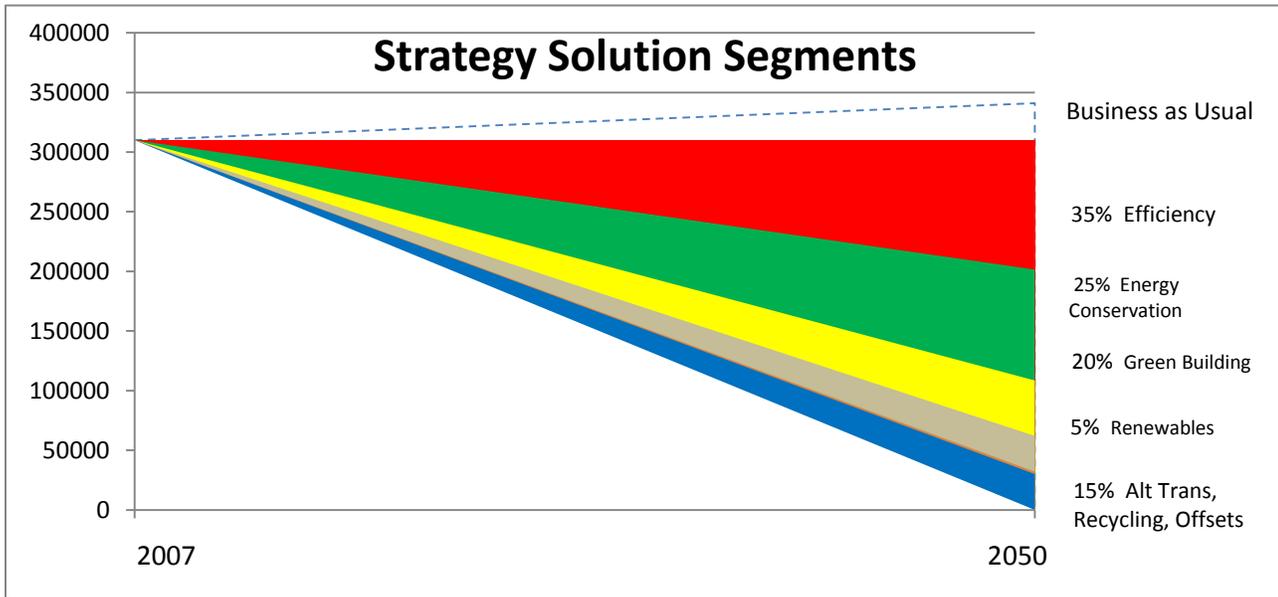
Continued expansion of Alternative Transportation options

Offsets at climate neutral commitment date

Recycling programs expanded to waste neutral programs asap

Donors encouraged to specify green campus on donations,
expanding donations for greening campus

Graphical Representation of Emissions Trajectory



Emissions Targets

ACUPCC Climate Action Plans should include interim milestones and emissions targets for achieving climate neutrality as soon as possible. At least one emissions target is required for submission. For examples of campus emissions targets please visit the AASHE resource on [Campus Global Warming Commitments](#).

Short Version:

Target	Target Date	Baseline*
Georgia Tech's efforts to date have reduced our carbon footprint approximately 10-12% below our Business as Usual scenario	2009	FY2003 Business as Usual Model (Green building, alternative transportation programs, energy conservation education & awareness, retrofits to 64 buildings built between 1994-2004, renovations of older buildings on campus, 340 KW solar PV on campus since 1995 (net avoidance of 4 MW), geothermal on campus since 1995, award winning recycling, green cleaning, land use/landscaping programs, etc)
15% reduction in energy consumption per square foot of building space (estimate cost of \$4 million/year with 2-3 payback, savings into a separate green fund for future green projects)	2020	FY2007 (Governor's Energy Challenge)
50% below Scope 1+2 by 2040	2040	FY2007
Carbon Neutral Scope 1+2 and appropriate components of Scope 3	2050	FY2007

Long version:

Target	Target Date	Baseline*
Georgia Tech's efforts to date have reduced our carbon footprint approximately 10-12% below our Business as Usual scenario	2009	FY2003 Business as Usual Model (green building, alternative transportation programs, energy conservation education & awareness, retrofits to 64 buildings built between 1994-2004, renovations of older buildings on campus, 340 KW solar PV on campus since 1995 (net avoidance of 4 MW), geothermal on campus since 1995, award winning recycling, green cleaning, land use/landscaping programs) LEED Silver building designs since 2002. Campus buildings since 1880 have been designed and implemented to sustainability standards of their times. Renewed sustainable building goal emphasized with 1998 opening of the Lamar Allen Sustainable Education Building. All five buildings in Tech Square were built to LEED Silver standards. The College of Management Building in Tech Square was

		Georgia Tech's first LEED Silver certified building, the state of Georgia's 2 nd LEED Certified building, and the US's 13 th building LEED Certified.
New buildings and renovations are to be built to LEED Silver standards or higher. Ensure all future buildings are highly energy efficient.	In place since 2007	New buildings since 2003 designed to LEED Silver or higher. Design standards for energy exceed California Energy Code 2005 by 20% and Georgia Energy Code by 40%.
New buildings will include 2.5%+ of their expected energy use via renewable energy	In place since 2009	FY2009
Energy efficiency programs to continue on infrastructure (operations and maintenance of Facilities buildings and plant operations) at \$5-7 million per year	In place since FY2007	FY2007
15% reduction in energy consumption per square foot of building space (estimate cost of \$4 million/year with 2-3 payback, savings into a separate green fund for future green projects)	2020	FY2007. Governor's Challenge
Setup separate fund for donors to specify green energy projects – highlighting the goal of having 10-15% of energy use on campus by 2050 to be renewable energy sources. Setup voluntary "offsets" based on commercial market rates, for equivalent to airline travel offsets. Used these "offsets" funds for green energy projects on campus.	2009	FY2009
Implement additional efficiency and conservation efforts to 50% reduction of Scope 1+2. Begin/continue implementation no later than 2020 and as early as possible.	2040	FY2007
Implement additional renewable energy projects on campus to reach 10% of campus energy coming from renewable. Via PPA, when available. Grants and donations whenever possible.	2040	FY2007
50% below Scope 1+2 by 2040	2040	FY2007
Carbon neutral Scope 1+2+ and appropriate portions of Scope 3.	2050	FY2007

Current Barrier, which will need to be addressed for us to reach our goals:

- Current EPA air quality limits do not allow for co-gen options, which many colleges have used to reduce their carbon footprint
- PPA process not in place at University System of Georgia
- Performance Guarantees are not legal for Georgia's public Universities at this time

Nonstandard Emissions Targets

Narratives

To meet the requirements of the ACUPCC, Climate Action Plans should go beyond simply mitigating campus emissions and should include plans to make climate neutrality and sustainability a part of the curriculum and/or educational experience for all students as well as plans to expand research (if appropriate) and community outreach related to the achievement of climate neutrality. (300 words max)

In 1992, Georgia Tech embarked on a twenty-year program of institutional transformation. Our goal is to incorporate concepts of sustainable technology and development into every academic program, to promote innovation through our research and development programs, and to model sustainable practices in the way we manage the built environment of our campus.

- We believe that sustainability is everyone's responsibility, and that each discipline, inter-discipline, and profession has a particular contribution to make.
- Sustainability is incorporated in both our mission statement and strategic plan.
- Georgia Tech is a leader in research in fields of energy, climate change, nanotechnology, biomedical technology, engineering, management and public policy.
- Our students are taught to be collaborative, innovative, interdisciplinary, and global.
- They operate at the intersection of technology, policy, business and sustainability.
- In 2007, Georgia Tech signed the President's Climate Commitment
- Georgia Tech was one of the first universities to include LEED in the building process. Tech's Management Building was the 2nd LEED Silver certified building in Georgia and the 13th in the US.
- Georgia Tech has 26 sustainability buildings, representing 3.5 million square feet, has retrofit many of the campus buildings built between 1994 and 2004 for energy and water efficiency.
- Georgia Tech works with the City of Atlanta – extensively
- Courses offered at Georgia Tech includes over 260 courses related sustainability across all colleges and every graduate takes at least one sustainability course. Currently 23+ degree programs emphasizing sustainability at the undergraduate and graduate levels. Georgia Tech, Distance Learning and Professional Education, DLPE offers approximately 260 courses in sustainability topic areas across 21+ subject areas and certificate programs.
- Research at Georgia Tech includes our leadership programs in energy, city planning, architecture, engineering, etc. Renewable energy, energy efficiency, carbon sequestration. Includes sustainable systems. Etc.

Summarize the institution's plans for mitigating its greenhouse gas emissions (up to 300 words). **REQ**

1. **Campus has reduced carbon emissions 10-12% below “business as usual” levels since 2003** via green building, energy retrofits, energy conservation, education and awareness, etc.
2. **Campus will reduce energy use per square foot by 15% by 2020** via 14 projects estimated to cost \$4 million per year. These projects are focused on recommissioning, rebalancing, retrofits, etc. Stimulus grant application submitted for turning 46 buildings on campus into “Smart Buildings” prior to 2020.
3. **Expand Renewable Energy use to 10% of energy consumed on campus by 2040**

Campus has had renewable energy on campus since 1995 representing 4 MW of avoid fossil fuel use. Current policy includes adding 2.5% of estimated energy use to new buildings as they are built. Grants, research efforts, and donations are in process to increase renewable in current projects on campus. PPA (Power Purchase Agreements) are being investigated through the University System of Georgia to finance additional renewable on campus. Use of PPA's would allow us to make renewable 10% of our energy portfolio at a small price uplift per year for a number years plus a possible buyout option at the end of those years. Performance Guarantees are not legal in Georgia at this time but availability of both PPA and Performance Guarantees, or options such as

these will be important to increase our odds of successfully implementing our energy efficiency and carbon reduction strategies on campus, especially as a state funded institution.

4. Reduce energy use per square foot to 50% below 2007 by 2040

Additional energy demand projects have been identified across campus which expands the use of processes such as recommissioning, rebalancing, retrofits, smart buildings, etc. to additional buildings on campus. Estimates are that these projects pay for themselves in 2-5 years and would cost approximately \$150,000,000. This will require a doubling and then tripling of current expenditures per year, on average, over time to meet the proposed goals for energy efficiency and carbon reduction strategies.

5. If in 2050 we will not be at carbon neutral begin purchasing carbon offsets to become carbon neutral.

Estimates are that this could be \$2-3 million/year using estimates of \$20-60 MTCE. Prior to 2050 spend the money that would have bought carbon offsets to purchase renewable energy sources on or off campus.

6. Expand Waste Neutrality/composting/recycling, green purchasing, etc along with Behavior Changes through education and awareness as well as alternative transportation strategies to further reduce the 19% of the GHG emissions for transportation, solid waste, etc.

Summarize the institution's plans to make climate neutrality and sustainability a part of the curriculum and other educational experience for all students (up to 300 words). **REQ**

Tech has a goal that every student will take at least one course in sustainability. We have more than 240 courses, spanning every college at Georgia Tech, that focus on sustainability or include an emphasis area of sustainability. Varied and numerous in nature, the educational aspects of Georgia Tech's commitment to environmental sustainability reflect our promise to produce the technological leaders of the future. Many additional resources are available on campus, such as student professional organizations and over 20 non-professional student organizations.

- One third of Tech's students study abroad, up 101 percent;
- More than 40 percent of undergraduates participate in structured research for academic credit.
- Tech has the fourth oldest cooperative education program in the United States.
- In 2006-07, more than 200 Tech students actively volunteered in the local community.
- There are 20+ student organizations at Georgia Tech that are focusing on sustainability.
- There are numerous student versions of professional organizations related to sustainability on campus, too.
- Annual EarthDay event is largest in SE, with 6000+ visitors each year.
- Solar Decathlon House 2007 and
- EcoCar Challenge 2008-2011.
- Solar Jackets solar race car 2009+.

- Employers hire our students (over 170 companies employ more than 25 Georgia Tech Alumni) knowing they will bring with them good academic training, research exposure, and an ability to make a difference in this world, including through sustainability.

- Georgia Tech has 4 campuses on 3 continents and hosts international leaders at each of them.

- Professionals come to our executive education programs, distance and professional education programs, and topical conferences for ongoing education.

- We encourage our students to carry their experience in sustainability with them into the global economy and implement sustainable lifestyles, economic practices, and business processes that are sustainable.

Summarize the institution's plans to expand research related to the achievement of climate neutrality (up to 300 words).

Research and Interdisciplinary Research Centers Focus on Sustainability:

- Georgia Tech has 21 Endowed Chairs and 23 Research Centers that include significant sustainability components or a sustainability focus.
- Interdisciplinary Research Centers, Corporate Partnerships, NSF and SEED funding all support major sustainability research at Georgia Tech.
- We have many award winning researchers and highly referenced (h-index) in sustainability. Examples include:
 - Presidential Green Chemistry Award,
 - Power Finance & Risk Magazine's one of the five most influential people in renewable energy,
 - National Medal of Technology Laureate and LED technologist, and
 - Nobel Peace Prize 2007 co-recipient, for her work on Climate Change
 - As well as many accomplished graduate and undergraduate researchers in the area of environmental sustainability.
- The collaborative research culture at Georgia Tech invites all members of the campus community to take part in the innovation.

Examples of Research Centers include:

- □ Strategic Energy Institute,
- University Center for Excellence in Photovoltaic's,
- Center for Innovative Fuel Cell and Battery Technologies,
- □ Center for Quality Growth and Regional Development,
- Sustainable Design and Manufacturing, etc.

Examples of Interdisciplinary Research Centers include:

- Center for Urban and Regional Ecology,
- National Electric Energy Testing, Research, and Applications Center, and
- The Institute for Leadership and Entrepreneurship.
- Our researchers are establishing new fields such as nanomedicine, systems biology and Piezo electricity.

Summarize the institution's plans to expand community outreach related to the achievement of climate neutrality (up to 300 words). **REQ**

With over 9700 people living on campus, many more live within a few miles: walking, biking, carpooling, vanpooling, taking the bus are the major modes of transportation to and from campus.

- Campus buses connect with Atlanta's rapid transit system.
- EPA Best Places for Commuters awards
- The first flex/ZIP cars in Georgia were on Tech's campus.
- Subsidized mass transit program, incentivized van/car pools etc
- In 1991, Georgia Tech hired its first alternative transportation manager

Supporting local and sustainably grown food:

- Local food comprises 41% of food served on campus.
- Organic, Fair Trade, Vegan, vegetarian are available campus wide.
- Georgia Tech has signed its support of the Atlanta Local Food Initiative (ALFI)

Economic Development, Tech Transfer, Clean Tech, Co-op, International Study, Community Outreach, and Student Involvement: Tech stimulates economic development, works on policy issues in a global context. Offers leadership learning experience in and out of the classroom.

- Tech operates the nation's oldest university-based high-technology business incubator,
- ATDC companies have attracted more than \$1 billion in venture capital since 1999 and accounted for ten of the state's top twenty-five venture capital investments in 2006
- VentureLab advises "clean-tech" startup companies.

- The Georgia Tech Center for International Business Education and Research has 26 international partner universities.
- Our alumni influence their communities and corporations (approximately 5,000 alumni currently hold prominent business roles as CEOs, Executive VPs, CIOs, CTOs, Presidents, or Board Chairs) and often return for networking and professional continuing education. Our alumni carry their sustainable life styles into the community and the global economy.

Our researchers/faculty consult with businesses on sustainability (see [Enterprise Innovation Institute](#) and [Sustainable Design and Manufacturing Research Center](#)). Two examples include:

[Ford Motor Company reduces environmental impact 7% <](#)

[Coca-Cola reduces energy consumption 23%, water by 15%](#)