

SOM Climate Action Plan
October 1, 2013

The University Climate Action Plan (CAP) sets forth the following goals, assuming our baseline use of fossil fuels to be 2005:

- By 2020: 20% reduction in total emissions, 35% reduction per square foot
- By 2036: 36% reduction in total emissions, 50% reduction per square foot
- By 2050: 50% reduction in total emissions, 85% reduction per square foot

As described in the University CAP, over ½ of Emory's CO₂ emissions are due to electricity supplied by Georgia Power. This portion of our fossil fuel use has decreased by 2% from 2005 through 2010 despite vigorous growth. During that same time period, emissions due to "Scope 3" (including staff or student travel) have increased both as a percentage of use and in absolute numbers. Data from the University Climate Action Plan indicate that 55% of our greenhouse gas emissions (2010) are from purchased electricity, 15% is from on campus use of natural gas, 14% is from commuting, and 6% is from directly financed air travel. Five percent is due to inefficiencies in power transmission and distribution of energy. No other category is greater than one percent.

To gain substantial reduction in greenhouse gas emissions, the SOM must address issues relating to energy use in our buildings (70% of use if both purchased electricity and natural gas consumption is combined), emissions related to travel (local and out of town), and perhaps in the power transmission and distribution arena (if we are to move to solar energy in a meaningful way).

We propose the following plan:

- 1) Assess energy use/carbon emissions for each of the SOM buildings regarding:
 - a. Heating and air conditioning
 - b. Lighting
 - c. Computing/Printing
 - d. Laboratories (refrigerators, freezers, hoods, centrifuges, etc)

Each building will be assessed for usage based on the categories above. We are in the process of submitting a grant that will assess two of our buildings lighting efficiency. Given the rapid growth of lighting technology (LED), we will be able to assess the energy savings based in the lighting category. Based on this pilot lighting audit, we will perform similar audits on all SOM buildings and translate those savings to the entire SOM footprint. Savings on heating and air conditioning costs will be difficult to realize without University efforts to reduce the upfront costs. The SOM has already realized savings by adjustments to summer and winter temperature settings and centralization of temperature controls. Computing and printing energy consumption can be reduced by a) deliberate purchasing strategies that mandate greater energy efficiency, b) policies that emphasize the powering down of all non-essential computing and printing during non-work hours, and c) mandated computing "sleep" after a period of non-use. We will work with our SOM IT unit to achieve these savings. Finally, we will assess energy use on a laboratory by laboratory basis and produce purchasing and usage guidelines that reduce consumption.

- 2) Calculate energy use/carbon emissions related to commuting:
 - a. Distance commuted

- b. Mode of transportation (public, Emory bus, private auto, carpool)
- c. Efficiency of mode of transportation (car/bus/train consumption)
- d. # of days commuting per week

If possible, employee specific commuting information from 2005 will be used to estimate the carbon emissions associated with each faculty, student and staff person. If those data are not available, then we will assume the amount of consumption for the SOM is proportionate to the # of staff, students and faculty in the SOM compared to the entire University. Going forward, we will create a database, in conjunction with data obtained from our parking office and the University administration, to estimate the fuel consumption related to commuting for each individual in the SOM. We will track consumption of multiple groups (staff, departments, student groups, faculty) and develop a “carbon reduction competition” that will allow our community to realize the savings in carbon emissions related to 1) use of “cleaner vehicles” for commuting; 2) bicycle/walking commuting; 3) work hour adjustments to avoid traffic; 4) use of bus/train/carpool alternatives; and 5) alternative work arrangements to allow employees to work at home if appropriate. It is anticipated that significant reduction in carbon emissions will be achieved through the new standards for gas mileage for cars and trucks, as well as electric and natural gas fueled vehicles.

- 3) Calculate energy use/carbon emissions as related to air travel:
 - a. By Department and individual faculty staff member
 - b. Purpose of air travel
 - c. Distance of air travel

Where possible, estimates will be made for the 2005 baseline year. As stated in #2 above, if 2005 estimates for individuals are not available, we will estimate consumption as best possible by extrapolating University data to individual departments. Educational materials will be developed that request participation from individuals who travel on University business.

Our Climate Change Committee will work with the Office of Sustainability and others to estimate the value of each of the following potential initiatives:

- 1) Personal behavior change
 - a. Mode of transportation
 - b. Efficiency of personal vehicles
 - c. Carpooling
 - d. Reduction in air travel
 - e. Use of computers and printers
 - f. Use of lights
- 2) Institutional behavior change
 - a. Alternate work hours to decrease commuting time (avoid rush hours)
 - b. Retrofitting of lighting to more efficient modalities (LED)
 - c. School wide policy regarding manual computer and printer downtime during non-work hours
 - d. Purchasing of new laboratory equipment to maximize energy savings
 - e. Consolidation of laboratory equipment such as freezers/centrifuges
 - f. Reduction in number and types of printers (printing stations with 2 sided printing as standard option)

- g. Increase in Cliff buses/routes
- h. Rewarding alternative methods of transportation
- i. Consideration of local solar power stations and hot water heating
- j. Consideration of local rainwater salvage for irrigation
- k. Building/renovations that include energy savings

We propose the following timeline to begin our reach toward our 2020 goals:

1) October – December 2012:

- a. Determine Energy usage for each SOM building and rented space by category:
 - i. Lighting
 - ii. Heat/air conditioning
 - iii. Equipment
 - 1. Computing
 - 2. Laboratory
 - 3. Other (kitchens, coffee makers, etc)
- b. Determine Energy usage related to commuting
 - i. Work with central administration (Transportation and parking) to create a de-identified database for SOM employees with type of vehicle (bus or car) and distance
- c. Determine Energy usage for business trips for the SOM
 - i. Since Emory has only recently required the use of a central booking agency for air flight, historic data may not be available. This data may be obtainable via individual department budgets from 2005.

2) January – March 2014

- a. For each category above, the committee will provide a SOM specific assessment of the contribution of each category to our fossil fuel consumption.
- b. Each category of consumption will be considered for potential reductions. To accomplish this we expect to work closely with the Office of Sustainability, FMD, and experts outside of Emory as feasible.

3) April – June 2014

- a. Various Intervention strategies will be suggested and ranked by potential reductions and costs (some of these may well be cost-savings)

4) July 2014 – July 2015

- a. Implement reduction strategies

5) August 2015

- a. Assess results of reduction strategies and alter/add/delete programs as indicated
- b. Continue the above process on a yearly basis going forward.

Respectfully submitted,

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