UMass Lowell
Climate Action Plan (CAP)
Education, Research and Outreach

January 16, 2014
Climate Action Plan (CAP)

- **Websites:**
  - Home page: www.presidentsclimatecommitment.org
  - Reports: www.rs.acupcc.org

- **Voluntary commitment to achieve climate neutrality.**

- **Administered by American College and University Presidents Climate Commitment (ACUPCC).** Approved by Chancellor Meehan 1/9/2012.

- **CAP requirements:**
  - Climate neutrality commitment (2050 for UML)
  - CAP goals: 3-phase (time frames) GHG reduction approach
  - Expansion of Education, Research and Outreach
  - Greenhouse Gas reduction strategies to achieve goals
  - Biennial progress reporting of GHG reductions
Mission of ACUPCC

To accelerate progress towards climate neutrality and sustainability by empowering the higher education sector to educate students, create solutions, and provide leadership-by-example for the rest of society. …

The Commitment recognizes the unique responsibility that institutions of higher education have as role models for their communities and in educating the people who will develop the social, economic and technological solutions to reverse global warming and help create a thriving, civil and sustainable society.
# Climate Action Plan

UMass Lowell Emissions by Scope

<table>
<thead>
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<th>Scope</th>
<th>FY 2011</th>
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| Scope 1 | - On-Campus Stationary Sources (i.e. natural gas, distillate oil, residual oil for boilers and emergency generators)  
- Motor Vehicle Fleet  
- Fertilizer Application  
- Refrigerant Releases |
| Scope 2 | - Purchased Electricity                                                  |
| Scope 3 | - Faculty and Staff Commuting  
- Student Commuting  
- Study Abroad Air Travel  
- Wastewater Processing  
- Paper Purchasing  
- Electricity Transmission and Distribution Losses |

**FY 2013 Emissions Percent of Total**

- Scope 1: 33%
- Scope 2: 30%
- Scope 3: 37%
Student Education, Research and Outreach in service of CAP

Education & Curriculum from the ACUPCC Implementation Guide

- Faculty Development Workshops
- Creation of academic programs related to climate change and sustainability
- Establishment of a graduation requirement in sustainability course study
- Development of institution-wide programs to encourage faculty to address sustainability in their courses
- Inclusion of students on building and construction, operations and facilities committees:
Student Education Examples in service of CAP

How to apply CAP to education for real world comparisons

- Project: set up creative financing models for revolving green funds to fund more GHG Mitigation, energy conservation and sustainability projects.

- Analyze alternative methods to heat, cool or power a building and compare the results in Operating Cost and in GHG emissions with solar PV or thermal, hydro or wind, geothermal vs. Utility electricity, Co-Gen; Coal, Thermal heat by #6 oil, #2 oil, natural gas.

- Group project on sustainability or climate change with varied majors to contribute from different points of view (requirement of Sustainability minor)

- Look at increasing the efficiency of systems to see how utility consumption and corresponding GHG emissions are reduced.

- Look at CO2 reductions by making everyday behavioral changes in heating, cooling, power, lighting, transportation, water, agriculture, etc.

- Alternate commuting methods to compare GHG emissions using:
  - Car-single operator
  - Carpool
  - Train
  - Bike
  - Bus
  - Electric or Hybrid Vehicle
Student Research & Outreach Examples in service of CAP

How to apply CAP to Research

− Research and brainstorm government (e.g., energy or tax credits, etc.), UMass System and other policies to encourage the advancement of renewable power and thermal processes.

− Same as above to advance public transportation system.

− Continue research in battery life extension and advance electric vehicle technology.

− Research honor’s thesis or capstone project at Bachelor’s and Master’s level to further advance climate change mitigation technology.

− Research in furthering development of GHG and water pollution reduction; and geological damage by creating sustainable fracking technology.

− Research improving efficiencies of existing transportation, energy, recycling, composting and green chemical technologies.
Student Outreach in service of CAP

How to apply Outreach in service of CAP

− Join a CAP subcommittee (like Student life; Energy; Sustainability) or student environmental club

− Advise entrepreneurial organizations like Sandbox Initiative that have as members many fledgling businesses on monetary and altruistic appeal of starting a sustainable business.

− Contact companies that develop, install or operate renewable technologies to set up co-operative education programs that will hire students as interns.

− Encourage participation in events that include the municipal, state Dept. of Energy Resources; Dept. of Environmental Protection and federal govt.

− Encourage active engagement with colleagues from academia; govt. and commercial centers on the subject of sustainability to mutually share on topics of climate change.

− Be an area representative for Green Team to reduce waste and save energy