Brown • Cornell • Columbia • Dartmouth • Harvard • Penn • Princeton • Yale

Ivy Council Resolution on Environmental Reform

Sponsored by Pavan Surapaneni and the Ivy CORPS
11.15.03

Whereas there is growing concern that human-driven global climate change poses a significant threat to our environment, health, and economy;

Whereas every Northeast Governor has declared that climate change is a matter of increasing concern for public health and the environment and that the control and reduction of emissions of greenhouse gases are critical to slow the effects of climate change;

Whereas universities have a tremendous influence over environmental, economic, and social policies in the country;

Whereas every Ivy League University has demonstrated that creative, cost-effective solutions to climate change are feasible and lead to long-term savings:

W***hereas*** Brown University built MacMillan Hall – a new 75,600 square-feet building that houses teaching, laboratory space, research facilities, a large classroom and a lecture hall – using energy efficient designs, resulting in an annual savings of 929,588 kWh and $59,030;

Whereas Columbia University installed new toilets and water fixtures, saving $235,000 annually;

Whereas Cornell University undertook a transportation reform initiative to get their student and faculty population to get out of cars, thus saving and generating total revenue of $3,123,000 annually;

Whereas Dartmouth College revamped its lighting systems in residential halls, saving $75,000 annually; undertook a program to create fertilizer from kitchen waste, saving and generating revenue of $10,000 annually;

Whereas Harvard University began recycling programs in its dining services, saving $79,000 annually, and using washable cups at the Freshman Union, saving $186,500 annually; a 1994 investment by Harvard of $2.6 million in resource conservation projects has seen a rate of return of 34%;

Whereas The University of Pennsylvania implemented an extensive energy conservation program in 2000, reducing energy intensity per square foot of university building space by 13.1%, resulting in a decline of total electricity use of 3% (including new building growth). This program saved Penn $2,070,640, some of which has gone to wind energy purchases equivalent to 10% of

total electricity use over the next 10 years.;

Whereas Princeton University Produces 80-85% of its energy on campus by co-generation;

Whereas Yale University Produces about 50% of electricity used annually by a co-generation plant;

Whereas the Ivy CORPS and the Ivy League Environmental Committee (ILEC) are committed to intensive campus-wide energy consumption reduction initiatives to aid the Universities in reducing overall emissions and cutting energy costs;

Whereas it is the duty of our respective university Presidents to work with students, staff, and faculty to address the pressing issues facing our nation and world by adopting policies that ensure the well being of current and future generations;

Whereas the implementation of these policies will require energetic and creative leadership, reform, and education among students and staff alike; therefore be it

Resolved that each Ivy League University conduct a Green House Gas (GHG) emissions inventory to establish the University's contribution to global warming and commit to reducing their total GHG emissions; and be it further

Resolved that each Ivy League University implement a major energy conservation initiative(see appendix A), and use the savings from the initiative to establish an energy efficiency revolving fund or an endowment to purchase clean, renewable energy; and be it further

Resolved that each Ivy League University initiate institutional reforms including hiring a sustainability coordinator, employing "green-friendly" purchasing policies, and introducing environmental educational and awareness programs in new student orientations; and be it further

Resolved that each Ivy League University adopt a policy that new and renovated buildings be designed and built to a LEED Silver rating or higher; and be it further

Resolved that each Ivy League University increase its use of energy produced from clean renewable sources, with the goal of 5% of clean, renewable energy by 2006 and by 15% by 2010; and be it finally

Resolved that each Ivy CORPS chapter, the ILEC, and affiliated campus groups and councils conduct a survey of the student population to gauge support for further reform and launch projects to promote awareness among their constituencies.

Appendix A :

Additional energy-related reforms recommended by the Ivy Corps

- Offer students free, energy efficient compact fluorescent light bulbs in exchange for typical incandescent light bulbs used in university housing.
- Stressing the importance of resource management and conservation – Reduce, Reuse, Recycle to students, faculty, and administrators.
- Purchase compressed natural gas cargo vans, "zero-emissions" electric carts, and other types of environmentally friendly transportation.
- Switch all printers and copiers to double-siding printing to decrease paper use by 20%.
- Increase purchase of energy efficient computers to 90-95% level and commit to increasing purchase of other energy efficient, EPA approved equipment.
- Work to use 100% recycled paper (study at Penn shows that purchasing all copy paper from a recycled grade saves the University $5,600 per year).
- Reevaluate current recycling policies in residential halls, classrooms, and other common points of interaction – including the quantity, size, and strategic placement of recycling bins around campus.
- Installing student eco-representatives in residence halls
- Install motion activated lights.
- Fund internship programs designed to further sustainability efforts on campus.

Appendix B:

Creative and cost-effective policies to reduce GHG emissions at Ivy League Universities.

BROWN

- Brown installed water-saving showering heads to save $45,800 annually;

COLUMBIA

- Established a center (the Earth Institute) devoted entirely to research and the promotion of sustainability.

CORNELL

- Began a highly successful lake-source cooling project to reduce need for air conditioning.
- Established an energy endowment to be used for purchasing green energy and are investigating possibilities of building a wind farm with the money from this fund.
- Currently installing motion sensors in many of its laboratories to control fume hoods and thereby reduce the load on HVAC systems.

DARTMOUTH

- Designs new facilities with energy efficiency in mind, using a peer review process and consultants for energy conservation. All new facilities will be built in accordance with LEED® standards.
- Co-generates power (40% from on-campus plant) and uses steam byproducts for campus heating.
- Receives rebates from local energy provider, Granite State®, for energy-efficient efforts, and was recently awarded by Granite State® for commitment to energy conservation.

HARVARD

- Created the Harvard Green Campus Initiative to focus and centralizes their efforts toward environmental sustainability.
- Established a $3 million interest-free revolving Green Campus Loan Fund to support energy efficiency and sustainability initiatives.
- Formed the Resource Efficiency Program (wedded to the administration) and Computer Energy Reduction Program to raise awareness about the impact of daily habits and create sustainable habits on campus.

PRINCETON

- Reduced greenhouse gas emissions to 5.6% below 1990 in 2002.
- Recently acquired two natural gas-powered shuttle buses.

UNIVERSITY OF PENNSYLVANIA

- Purchases 10% of total energy consumed from wind energy.
- Conducts a compact fluorescent light bulb exchange every year (exchanging, for free, for incandescent bulbs that are then donated to Habitat for Humanity®)

YALE

- Yale's School of Forestry and Environmental Studies recently purchased renewable energy certificates, ensuring that 20 percent of the school's electricity is generated from wind power.

Appendix C:

Greenhouse Gas inventory information.

This explains the step-by-step process of completing the first step in a campus effort to reduce greenhouse gas emissions: a detailed and accurate inventory of the those emissions and their sources (see box below). The purpose of completing an inventory is to provide the information necessary to choose the most substantial and cost-effective sources and means of emission reductions. Without an accurate description of the sources and amounts of emissions, it would be difficult to establish realistic emissions reduction goals. Clean Air-Cool Planet can provide, free of charge, a Campus Greenhouse Gas Emissions Inventory Calculator that has been used on over a dozen campuses in the Northeast since 2001.

The Inventory Process

1) Data Collection
   a) Find the needed information by contacting various institution officials
   b) Organize and record the data in the spreadsheets sheets provided in CA-CP's calculator
2) Emissions Calculation
   a) Use the "Emission Calculator" spreadsheet to enter the gathered information, following the instructions on its introduction page.
      The calculator will automatically estimate emissions from the information you enter. You may want to explore the spreadsheets to discover how they estimate emissions from the information you enter.
   b) Keep a hard copy of the gathered information in case of computer problems
      You should also keep a copy on a backup disk or different computer
3) Analysis of Results
   a) Use the "Emission Summary" spreadsheet to understand the emissions estimates
      These worksheets include tables and graphs that you can use to understand and interpret the emissions. They provide information that you can directly

Appendix D:

The Climate Campaign's Campus Climate Pledge

Global warming is one of the most significant problems we will deal with in our lifetimes. In the last century, the average temperature in the Northeast increased by [roughly 2.4°F – check]. By 2100, temperatures are predicted to increase another 4-5 degrees. We are already seeing the effects of such a significant change in climate on our environment, our health and our economy. Internationally, the threat is even more serious. The World Health Organization recently found that hundreds of thousands of people are already dying from the effects of climate change around the world and that these problems will only get worse as countries continue to emit carbon dioxide at practically unchecked levels.

The New England Governors have endorsed a regional Climate Action Plan to slow the effects of climate change by cutting statewide greenhouse gas emissions to:

- 1990 levels by 2010; and
- 10% below 1990 levels by 2020; and
- 75-85% below current levels in the long term.

As part of this plan, the New England Governors have issued a challenge to the region's Colleges and Universities to endorse the goals of the Regional Climate Action Plan, and to work within their institutions to reduce their own greenhouse gas emissions.

The state's higher education and high technology institutions will be instrumental in developing and applying the technologies and industries that we will need to reduce our impact on the climate. By making a commitment to solving climate change, our campus can directly impact the problem, save money and help lead our state to a more sustainable future.

There are many simple, cost-effective steps we can take at the local level, on this campus, to reduce our greenhouse gas emissions and help the state slow the drastic effects of climate change. In addition there is broad support within the campus community for reducing our impact on the environment and increasing the sustainability of our facilities.

I/We agree with the goals of the Regional Climate Action Plan and pledge to support the goal of reducing the greenhouse gas emissions of this institution, at a minimum, to 1990 levels by 2010, to 10% below 1990 levels by 2020, and to 75-85% below current levels in the long term.

Name: _____

Title: _____

College/University: _____

Date: _____

Leadership in Energy & Environmental Design (LEED)
http://www.usgbc.org/LEED/LEED_main.asp

LEED Certification Guide for New Construction
http://www.usgbc.org/Docs/LEEDdocs/LEED_RS_v2-1.pdg

Energy Guide: Smart Energy Choices has a good site for finding energy efficient products.
http://www.energyguide.com

Energy Star EZ Save Software
http://www.energystar.gov/index.cfm?c=power_mgt.pr_power_management

The U.S. Green Building Council developed the Leadership in Energy and Environmental Design (LEED) Green Building Rating System as a voluntary, consensus-based, market-driven building rating system based on existing proven technology that evaluates environmental performance from a "whole building" perspective over a building's life cycle, providing a definitive standard for what constitutes a "green building" with the convergence of the primary objectives: implement high energy/water efficiency, conserve natural resources, and create a healthy indoor environment all resulting in substantially lower operating, maintenance, and healthcare expenses and higher occupant productivity (Sources: www.usgbc.org, www.buildinggreen.com, www.greenbuild.com); and

Also, according to the Rocky Mountain Institute, LEED Silver rated buildings cost no more than non-LEED buildings when the appropriate design concepts, technologies, and materials are incorporated at the beginning of the design process.[1]

Appendix F:
Strategies for funding purchases of clean, renewable energy

DSIRE Database of State Incentives for Renewable Energy
http://www.dsireusa.org

Info on Buying Renewables

Green Energy Network (US Department of Energy) has a listing of "green" energy marketers, however many of them are heavily invested in incineration and other polluting energy technologies so check them all out thoroughly.
http://www.eere.energy.gov/greenpower/consumers.shtml

Green-E Pick Your Power has a good state by state breakdown of the options. Again, check all the companies thoroughly and evaluate them according to criteria you find acceptable since many of the suppliers listed use incineration.
http://www.green-e.org/yout_e_choices/pyp.html

Info for On-Sight Generation of Green Energy

Home Power directory of renewable energy companies listed by state.
www.homepower.com/community/directory.cfm

Solar Energy Industries Association **listing of solar installers, retailers contractors and manufacturers**
http://www.seia.org (click on "Find Solar")

[1] www.rmi.org/images/other/GDS-WhyBuildGreen.pdf

Appendix G:
Examples of successful energy reduction projects that can be undertaken by the Ivy Corps and campus environmental groups working together in coalition.

#1. Student representatives in dorms to promote conservation and stewardship.
Project: Eco-Reps Program
School: Tufts University
Sponsoring Organization: Tufts Climate Initiative
Project Description:
The Eco-Reps Program at Tufts aims to engage students in activities and campaigns that both increase environmental awareness on campus and also mitigate the university's ecological footprint. Funded and run by the Tufts Climate Initiative, the Eco-Reps program is organized like an internship-style course, with bimonthly classes focusing on a specific topics and occasional fieldtrips. The reps, who commit 1-3 hours per week, are trained to answer student questions and serve as a resource for their peers. They are also responsible for organizing and implementing a variety of educational programs and projects such as monitoring recycling, conducting surveys, hanging posters, organizing events, and more. In the program's first semester, there were 23 Eco-Reps from 10 different residence halls, each of whom was paid a $200 stipend for their work.[2]
Contact: Anja Kollmuss, Outreach Coordinator, anja.kollmuss@tufts.edu
Website: http://www.tufts.edu/tie/tci/EcoReps.html

#2. Computer energy reduction programs.
Project: Go Cold Turkey!
School: Harvard University
Sponsoring Organization: Computer Energy Reduction Program (CERP).
Project Description:
Harvard's "Go Cold Turkey" campaign urged students to sign a pledge promising to turn off their electrical appliances over Thanksgiving break. The campaign specifically targeted computer use, which constitutes the single greatest energy expenditure at Harvard, responsible for 39% of overall usage according to the Computer Energy Reduction Program (CERP). Student residence halls competed for the greatest number of pledges; the winning dorms boasted nearly 50% participation.[3] To gauge the success of this campaign, Harvard's University Operations Services measured electricity consumption by reading meters before, during, and after Thanksgiving break and compared it with previously collected data for normal term-time activity and student vacation when most students are not around.[4] Harvard reports that the competition "saved over 100,000 pounds CO_2 emissions, which is the equivalent of taking almost 9 cars off the road" and "would take 13.5 acres of forest to absorb."[5]
Website: http://www.greencampus.harvard.edu/CERP/
Contact: Antje Danielson, Program Manager, antje@eps.harvard.edu

#3 Inter-dorm energy efficiency competitions.
Project: Save Power And Receive Cash! (SPARC)
School: Dartmouth College
Student Organization: Environmental Conservation Organization

[2] http://tuftsjournal.tufts.edu/archive/2002/february/briefs/eco.shtml
[3] Zhang, Yingzhen. "Campaign Urges Energy Efficiency." Harvard Crimson Online 02 Dec 2002. 29 July 2003.
[4] Delucia, Christine M. "Straus, Mather Top Turkeys in Energy Saving Contest" Harvard Crimson Online 17 Dec 2002. 29 July 2003.
[5] http://www.greencampus.harvard.edu/CERP/ documents/cold_turkey_2003.pdf

Project Description:
Dartmouth's SPARC program works to combat the rising energy use in its college dormitories. It is run by ECO-reps in residence halls and functions as a month long energy saving contest each term—the dorm that saves the most energy wins a prize of some sort—free meals, party, massages, etc. ECO-Reps are crucial to making SPARC a success, following the golden rule of energy conservation: "If you aren't using it, turn it off!" The program offers incentive for students to get into the habit of turning off lights and computers. The winning dormitory last year won by reducing energy use by 15%. A calculator tool on their website allows students to translate this reduction into money saved by their efforts.[6]
Website: http://www.dartmouth.edu/~esd/fall/sparc.html
Contact: Daniel Hui, daniel.hui@dartmouth.edu; Brent Reidy, brent.reidy@dartmouth.edu

#4. Retrofitting light bulbs in university buildings to improve energy efficiency.
Project: Green Lights Program
School: University of Michigan
Sponsoring Organization: The US Environmental Protection Agency (EPA)
Project Description:
As part of a program sponsored by the EPA, student interns at the University of Michigan worked to help the University of Michigan transition to more energy efficient lighting choices where it was profitable. The interns began by conducting a lighting audit that surveyed lighting usage, gathering information about fixture types and quantities as well as voltage and hours of usage. The final audit reported included information about what lighting equipment upgrades would mean for annual energy savings, cost savings, payback, and emission reduction figures. This "Green Lights" program was also the first step of the EPA's Energy Star Buildings Program, which the University of Michigan joined in 1997. The lighting audit report was used to procure funding from the EPA.[7]
Website:
www.plantops.umich.edu/utilities/energy_management/EnergyStar/green_lights/program_overview.html
Contact: Yoshiko Hill, Manager of Electrical Engineering and Energy Management Utilities and Plant Engineering Dept., yhill@umich.edu
Additional information:
http://www.energystar.gov/ia/business/ government/FINAL_Paper.pdf
http://www.energystar.gov/index.cfm?c=cfls.pr_proc_cfls

#5. Creative procurement of funds to subsidize green energy purchase costs.
Project: The Wind Power Referendum
School: University of Colorado – Boulder
Student Organization: Clean Energy Now!
Project Description:
In spring 2000, students at the University of Colorado Boulder initiated a referendum that would pay for green power in three student-controlled campus buildings—the student union, recreation center and campus medical center. By a 6 to 1 margin, students approved the referendum, agreeing to increase student fees by $1 per student per semester to pay for wind power. This small increase in fees yields a hefty $60,000 annually that pays for the output of one turbine at the Excel Wind Farm. The wind power now represents 35-40% of the total energy usage of the three student buildings.[8]
Website: http://www.ulsf.org/pub_declaration_spotvol42-2.htm
Contact: Ghita Levenstein, Energy Coordinator, ghita.levenstein@colorado.edu

---

[6] http://www.dartmouth.edu/~esd/fall/sparc.html
[7] http://www.plantops.umich.edu/utilities/energy_management/EnergyStar/green_lights/program_overview.html
[8] http:// www.secondnature.org/pdf/snwritings/ factsheets/StudentCollab.pdf