Project Green ROUTES

Redirecting Our campuses Toward Environmental Sustainability
What is the issue?

Humankind is rapidly expending Earth’s natural resources

Humankind is not harnessing renewable energy

Our future is one of limited resources

We are permanently damaging the environment and the world we are a part of
Climate Change

Carbon dioxide and other air pollution collects in the atmosphere, trapping the sun's heat and causing the planet to warm up.

Coal-burning power plants are the largest U.S. source of carbon dioxide pollution -- they produce 2.5 billion tons every year.

Automobiles, the second largest source, create nearly 1.5 billion tons of CO₂ annually.
Burning fossil fuels produces harmful greenhouse gases.
Global Average Temperature and Carbon Dioxide Concentrations, 1880 - 2004

Data Source CO2 (Siple Ice Cores): http://cdiac.esd.ornl.gov/ftp/trends/co2/siple2.013
Data Source CO2 (Mauna Loa): http://cdiac.esd.ornl.gov/ftp/trends/co2/maunaloa.co2

Graphic Design: Michael Ernst, The Woods Hole Research Center
A chunk the size of Rhode Island has broken off the Larsen Ice Shelf in Antarctica.
Rapidly melting sea ice is diminishing polar bear habitat.
In February 2007, the IPCC adopted a major assessment of climate change science:

“Warming of the climate system is unequivocal, as is now evident from observations of increases in global average air and ocean temperatures, widespread melting of snow and ice, and rising global average sea level…”
The report was produced by some 600 authors from 40 countries. Over 620 expert reviewers and a large number of government reviewers also participated. Representatives from 113 governments reviewed and revised the report before adopting it and accepting the underlying report.
Many geologists and environmental policy experts warn that we passed peak oil production in 2005 and will face ever increasing shortages in the future (http://www.lifeaftertheoilcrash.net/)
Locally, we place high value on water quality
"The world faces a stark choice -- reduce emissions or face the fury of nature"

Dr. Ute Collier, head of the World Wildlife Fund’s Climate Change Program
Carbon Calculation

Green ROUTES used Clean Air Cool Planet’s carbon calculator to determine how much CO$_2$ Colby-Sawyer College emits each year

<table>
<thead>
<tr>
<th>Year</th>
<th>Net Emissions (Metric Tons CO$_2$)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2003</td>
<td>5,142</td>
</tr>
<tr>
<td>2004</td>
<td>5,713</td>
</tr>
<tr>
<td>2005</td>
<td>6,671</td>
</tr>
<tr>
<td>2006</td>
<td>6,887</td>
</tr>
</tbody>
</table>

Colby-Sawyer College’s net CO$_2$ emissions have gone up every year
The most significant components of our carbon emissions are

Electricity
Heat
Gasoline
Student Air Travel
Waste Disposal
In comparison, Middlebury College’s CO$_2$ emissions in 2000 were 35,000 metric tons. Emissions increased after the construction of new buildings, just like Colby-Sawyer’s.
What IF…

we bring green initiatives to Colby-Sawyer College…
Actions to be carried out in the years to come

What are the possibilities?

What are the energy savings?

How we can contribute to decreasing our impact on the environment?

What are you willing to do?
Zip Cars
Campus car-sharing program for faculty, staff and students.
Each Zip Car replaces over 20 privately owned cars.
Campus vending machines could be replaced with Energy Star models that consume less energy.
…we could do the same with common area refrigerators
The Hogan Sports Center pool contains 3,375 square feet of water

A pool cover could save 70% of heat loss –

and $3,000 a year in water and heating costs
Paper:

Colby-Sawyer uses over 2.5 million sheets of paper each year

Currently, all of it is 100% NON-recycled
It would only cost approximately $4 per student per year to switch to 100% recycled

77% of students surveyed support this plan
Printers @ Colby-Sawyer

approximately 343 printers are in use on campus not including student personal printers
In Colgate there are 100 rooms and 123 printers
If we were to switch to network printers we would only need one or two printers per floor compared to 123 - saving money, energy and paper with double-sided printing
Green Building Design

...doesn’t mean a mud hut
Green Buildings use recycled materials, require less energy and can be pleasant work settings.

Recycled Materials:
- Carpets
- Floor Tiles
- Furniture
Green Buildings also use renewable resources

Examples: Natural linoleum flooring and certified wood shingles
Photovoltaic Shingles - converting the sun's energy into electricity

Wood Beams and Posts - wood fibers that are often wasted during the milling process
A Middlebury common room with *Local* wood products
Solar Panels at Proctor Academy
More double doors would help keep buildings at a constant temperature – saving energy and money
Water Consumption @ Colby-Sawyer College...
If all high flow toilets were changed to low flow, we would save 1,279,512 gallons of water and $21,000 each year.
Solar Panels and Wind Turbines harness renewable energy!
Incorporating native plant landscaping around buildings provides natural habitat for wildlife and important teaching and learning resources.
Estimated Financial Benefits per Year from Green ROUTES Recommendations

Investments: $200,000
Water Conservation: $21,000
Compact Fluorescents: $10,000
Energy Star Appliances: $10,000
Light Motion Sensors: $3,000
Pool Cover: $3,000

Total: $247,000
What You Can Do

Support Green ROUTES Recommendations

• Turn off lights
• Monitor room heating
• Conserve water
• Ride-Share
• Recycle and generate less waste
• Use e-documents and print double sided
• Plant a tree
• Be creative!
• Talk to your friends about Green ROUTES
As global climate change persists and environmental problems intensify worldwide, a new generation of thinkers and activists must rise to address the problem and take the initiative in green building.

A.O.Casale
Works Cited: