

Project Green ROUTES



Redirecting Our campUs 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

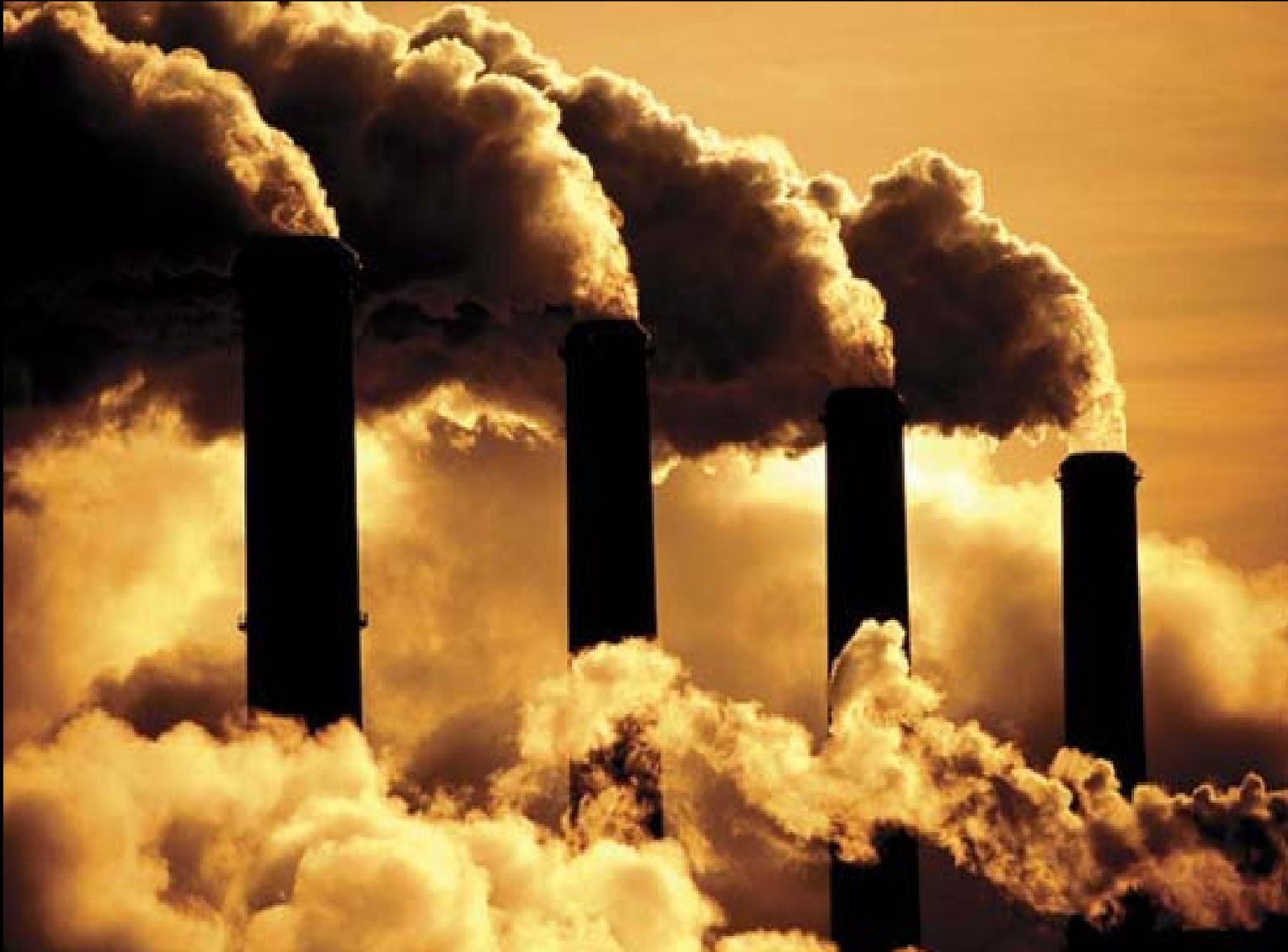
Climate Change

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

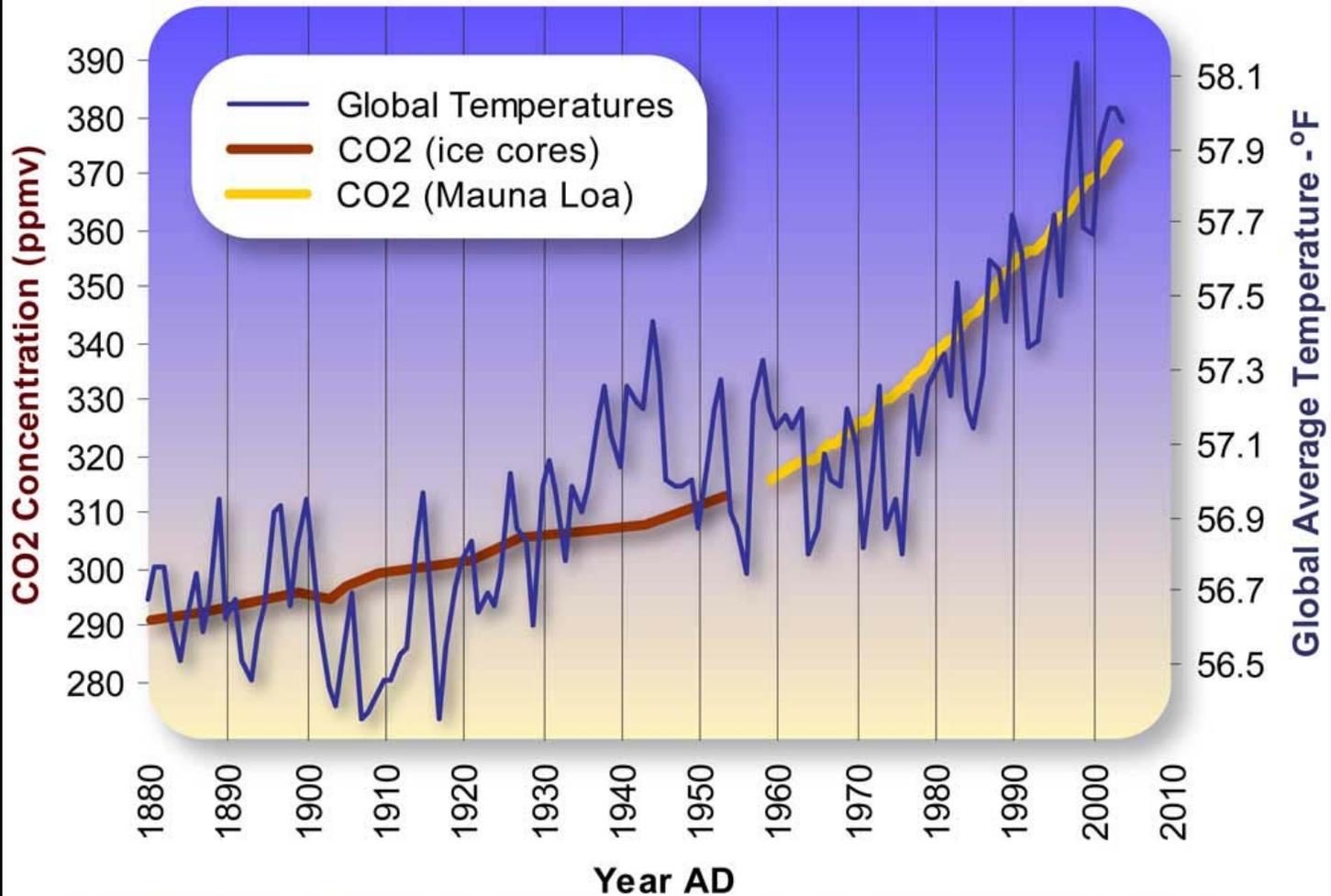
Coal-burning power plants are the largest U.S. source of carbon dioxide pollution -- they produce 2.5 billion tons every year

Automobiles, the second largest source, create nearly 1.5 billion tons of CO₂ annually

Burning fossil fuels produces harmful greenhouse gasses



Global Average Temperature and Carbon Dioxide Concentrations, 1880 - 2004



Data Source Temperature: ftp://ftp.ncdc.noaa.gov/pub/data/anomalies/annual_land.and.ocean.ts

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





INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE



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.

Gasoline Self Serve

REGULAR
UNLEADED

2.79 $\frac{9}{10}$

PLUS
UNLEADED

2.89 $\frac{9}{10}$

SUPREME
UNLEADED

2.99 $\frac{9}{10}$

DIESEL NO. 2

2.79 $\frac{9}{10}$

FOTORESEARCH

PEAK OIL

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 CO₂ Colby-Sawyer College emits each year

Year	Net Emissions (Metric Tons CO₂)
2003	5,142
2004	5,713
2005	6,671
2006	6,887

Colby-Sawyer College's net CO₂ 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 CO₂ 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



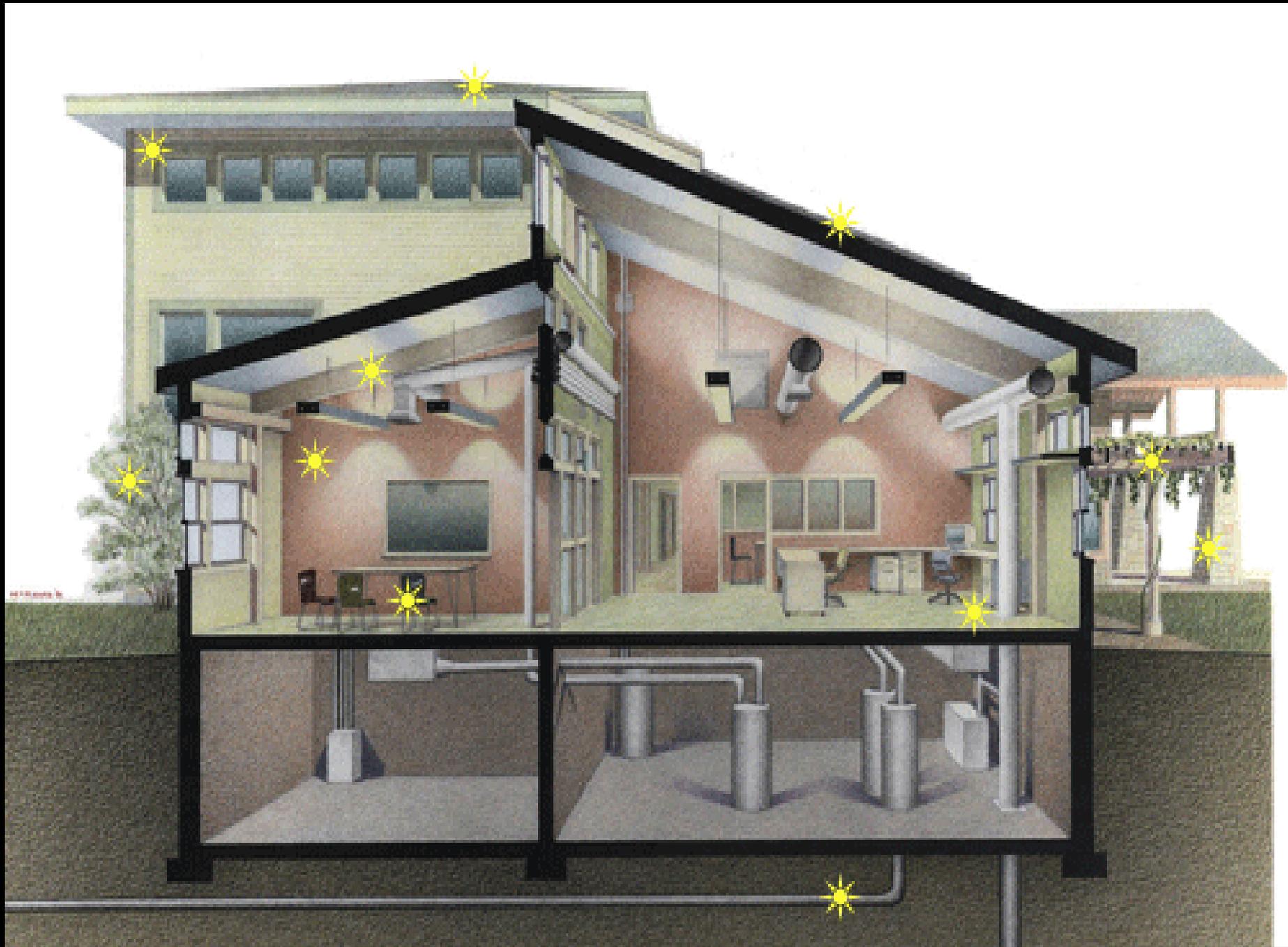
In Colgate
there are 100
rooms and
123 printers

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

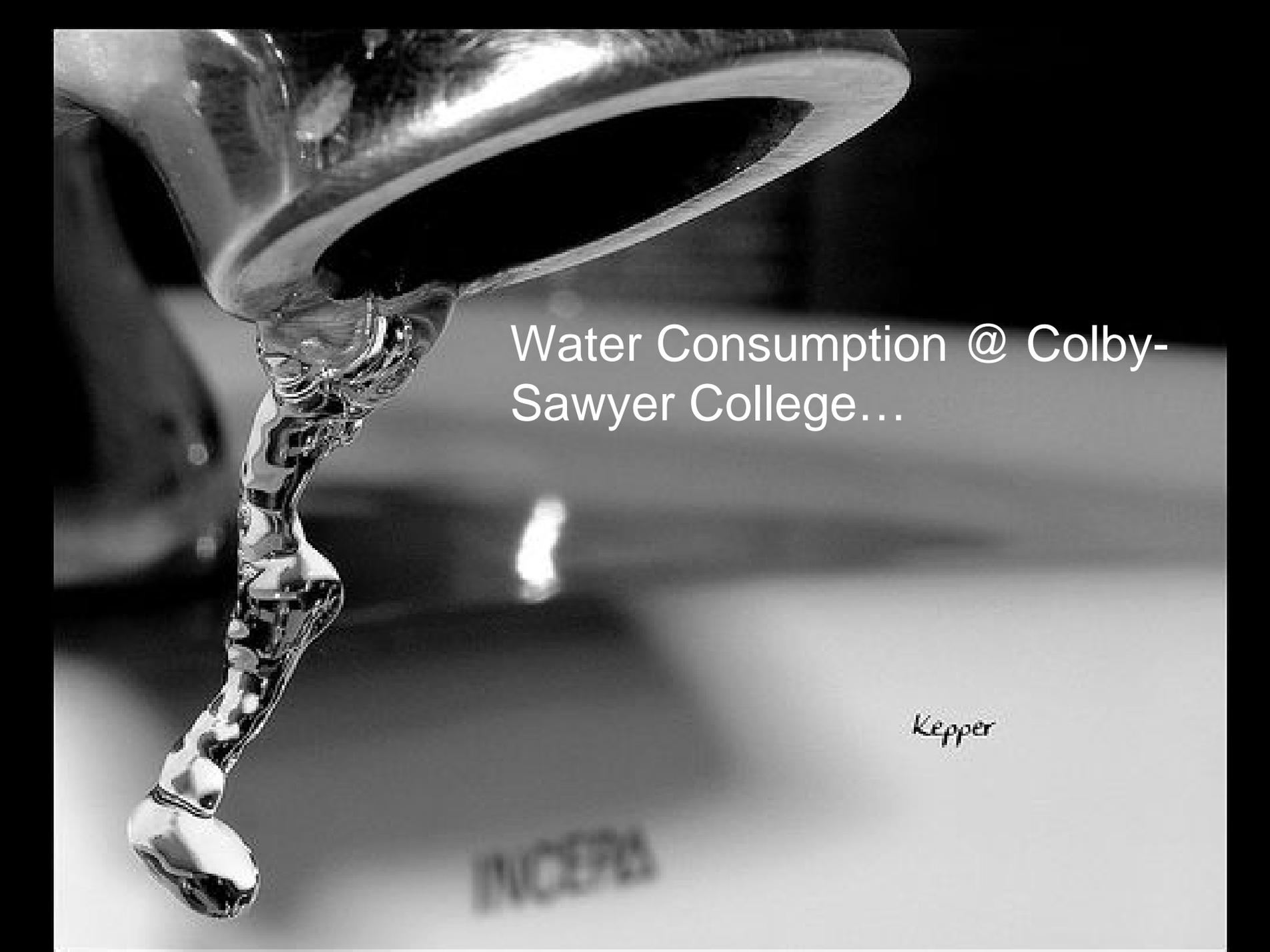


Solar Panels at Proctor Academy



More double doors would help keep buildings at a constant temperature – saving energy and money





Water Consumption @ Colby-Sawyer College...

Kepper

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.

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