



“I’ve always wanted to...”

**Make Sustainability a Reality at
Cabrillo**

Connecting the Green Dots

Presented by the Climate Initiative Task Force



Overview

- ▶ Sustainability Definitions & Acronyms
- ▶ NSF TUES/CCLI Grant: EILS
- ▶ Recent Cabrillo Sustainability Accomplishments
- ▶ Current Cabrillo Projects and Plans





What is “Sustainability”?



Meeting the needs of the present generation without compromising the ability of future generations to meet their own needs.

As defined by the Brundtland Commission, 1987.

How can we ensure a prosperous future not just for our own children, but for all children, of all species, for all time?

William McDonough



“We need a new environmental consciousness on a global basis. To do this, **we need to educate people.**”

Mikhail Gorbachev
(SMC Environmental Audit)

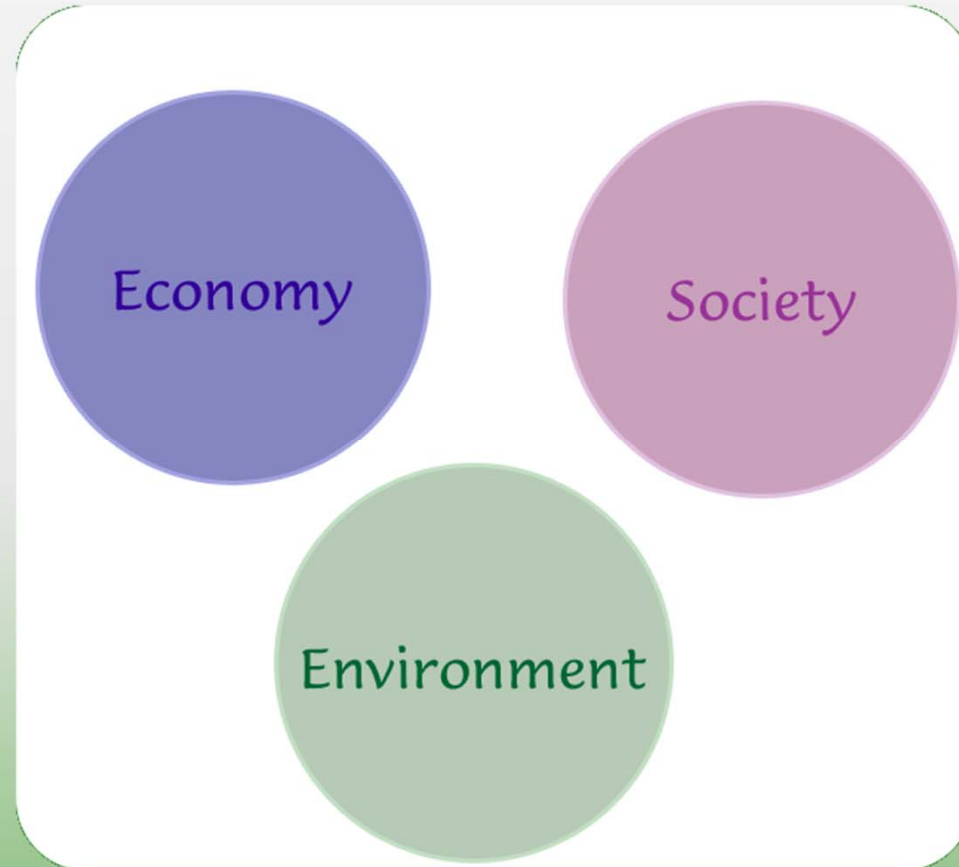




Sustainability is Interdisciplinary

“Connect and balance the three world views
(Economic, Ecological & Social)”

-John D. Adams



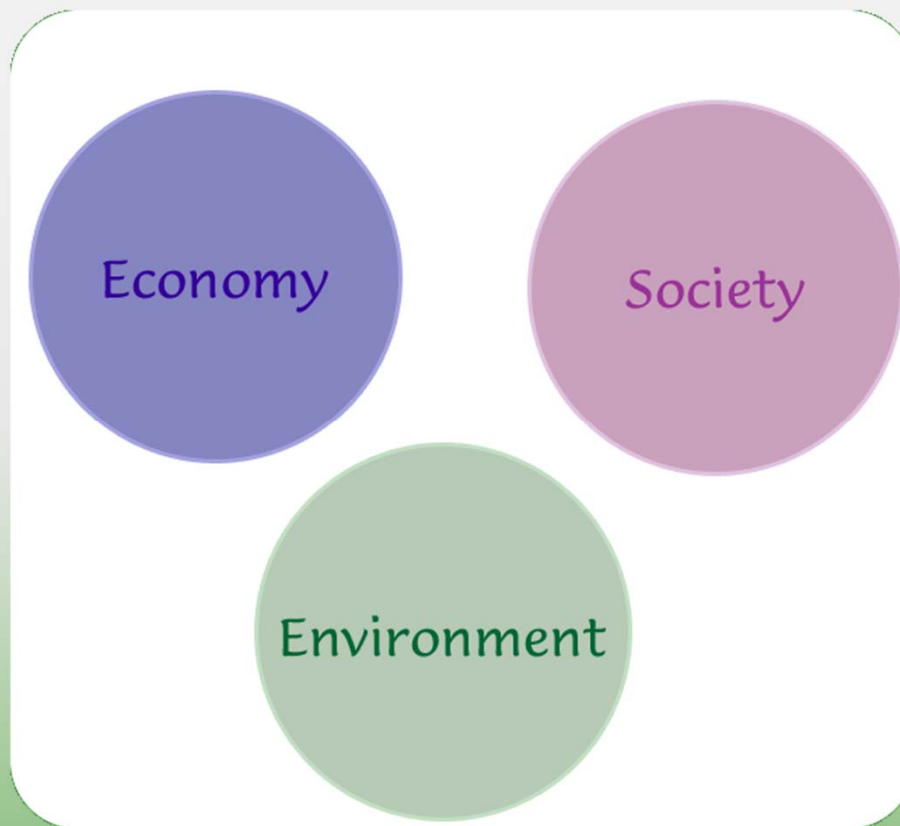
Seeing the Forest for the Trees



“Connect and balance the three world views
(Economic, Ecological & Social)”

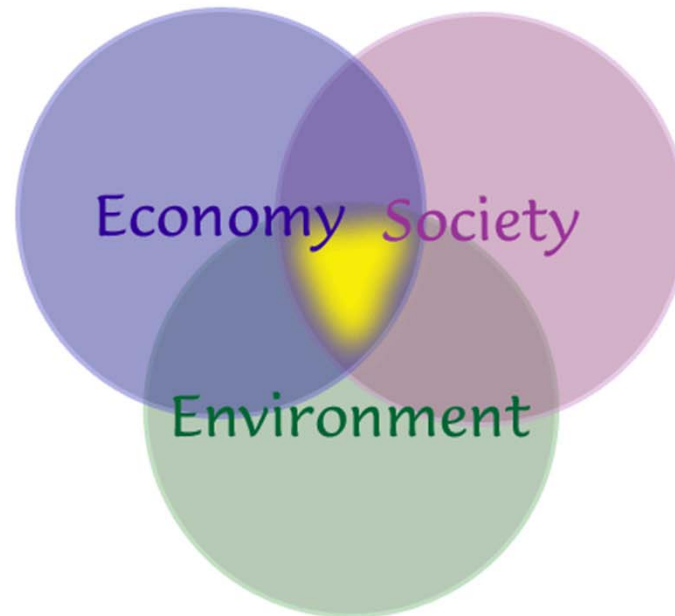
-John D.Adams

The Triple Bottom Line: AKA “Planet, People, Profits”



Seeing the Forest for the Trees

... a more realistic perspective



Decoding Acronyms

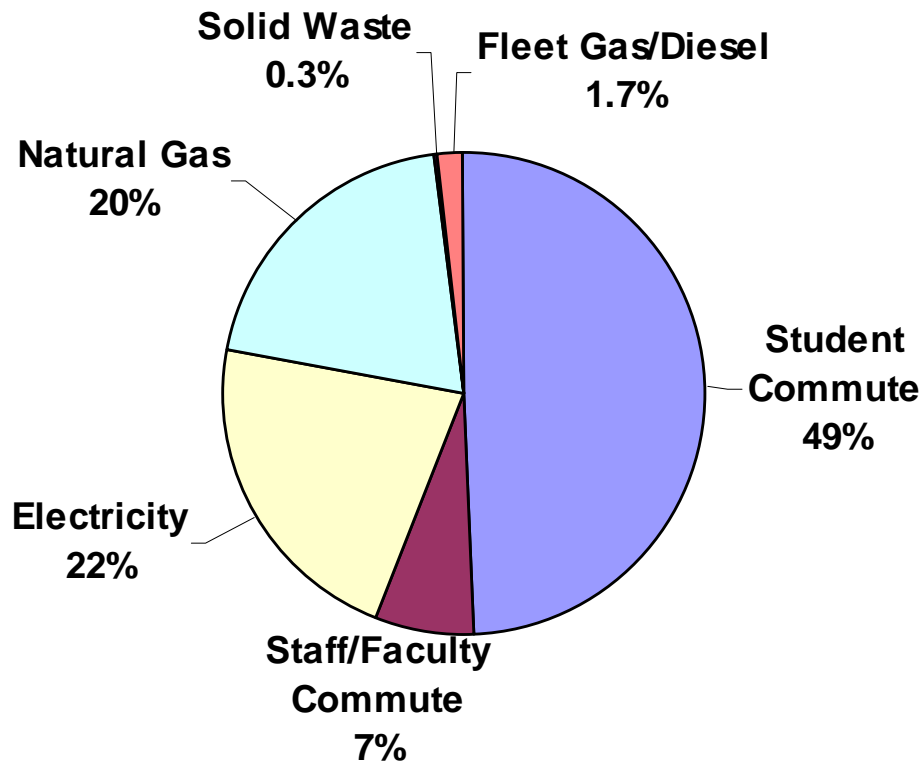


- ▶ AASHE: American Association for the Advancement of Sustainability in Higher Education
- ▶ ACUPCC: American College and University Presidents Climate Commitment
- ▶ CAP: Climate Action Plan
- ▶ CCLI: Course, Curriculum, and Laboratory Improvement (now TUES)
- ▶ CITF: Climate Initiative Task Force (at Cabrillo College)
- ▶ CSC: Cabrillo Sustainability Council (student club)
- ▶ EILS: Engaged Interdisciplinary Learning in Sustainability
- ▶ GHG: Green House Gasses
- ▶ IDEASS: Impact Designs: Education and Sustainability through Service learning
- ▶ NSF: National Science Foundation
- ▶ S4: Sustainability Science and Sustainability Studies
- ▶ SEED: Sustainable Engineering and Ecological Design
- ▶ SJSU: San Jose State University
- ▶ STEM: Science, Technology, Engineering and Math
- ▶ TUES: Transforming Undergraduate Education in STEM
- ▶ UCSC: University of California, Santa Cruz



Cabrillo's GHG Emissions Profile

Cabrillo College Major Sector Emissions, 2008



Major Sector Emissions in Metric Tons eCO₂, 2008*

Source	MTCDE
Student Commute	4,610
Electricity*	2,052
Natural Gas	1,883
Staff/Faculty Commute	625
Fleet Gasoline/Diesel	162
Solid Waste, estimated	29
Total	9,361

Scope 1: natural gas, diesel, gasoline fuel

Scope 2: electricity purchased from Pacific Gas and Electric

Scope 3: commute transportation, waste

*Based on CACP Carbon Calculator calculations, with custom energy mix:
<http://www.pge.com/myhome/edusafety/systemworks/electric/energymix/>

American College & University Presidents Climate Commitment



“Campuses that address the climate challenge by eliminating global warming emissions and **by integrating sustainability into their curriculum** will better serve their students and meet their social mandate to help create a thriving, ethical and civil society.”



www.presidentsclimatecommitment.org



Engaged Interdisciplinary Learning in Sustainability (EILS): Enhancing STEM Education through Social and Technological Literacy

Collaborative grant (**NSF CCLI 1023054**) with
UCSC: *A. Shakouri (EE), R. Lipschutz (Politics), M. Dupuis (Sociology), S. Gleissman (Env. Studies), Isaacson (EE), Crow (Sociology)*
SJSU: *H. Nixon (Urban & Regional Planning)*
Cabrillo College: *Michelle Merrill (Anthropology), Sue Tappero (Math/MESA), Karen Groppi (Engineering)*

Cabrillo College EILS Activities Supported by Grant



▶ I. Curriculum

- ▶ Modify and incorporate labs and modules from UCSC's EE80J, EE80S and Soc 115 into relevant existing Cabrillo courses.
- ▶ Research and adapt other modules about sustainability appropriate for use in other community college level courses across all disciplines.
- ▶ Incorporate project-based learning and service learning in collaborative teams, possibly with other educational institutions, in a variety of existing courses, in order to enhance sustainability education across the curriculum.
- ▶ Develop seminars in energy efficiency and home energy auditing, making full use of the materials already developed in UCSC's EE80J.

Cabrillo College existing courses that may relate to EILS



ANTHRO 17: Global Perspectives of Food and Culture

ANTHRO 19G: Surviving the Future: The (Re)Emergence of Sustainable Cultures

CEM162: Sustainable Buildings, Home Performance and the Environment

CEM162SP: Solar Photovoltaic Design and Installation

CEM163: Fundamentals of Renewable Energy Systems

CEM169G: Sustainability Assessment*

DMCP112: Fundamentals of Digital Management

ENGL 2: Composition and Critical Thinking (emphasis on Environmental Ethics)

ENG25: Graphics and Design

ES50: Local Sustainability Research and Solutions**

HORT 162AA-AD: Organic Food Production

HORT 175: Sustainable Landscaping

HS 24: Environmental Health**

OCEAN 20: Coastal Environmental Monitoring: Field Studies in Oceanography

PHILO 16: Contemporary Moral Issues

SOC 9: Global Society and Culture

STEEP Program: Summer Energy Academy and Energy Internships

**Should your class be here?
Let us know.**

Cabrillo College EILS Activities Supported by Grant



▶ II. Collaboration

- ▶ Work as part of a regional consortium to share curricula, ideas for student projects, and service learning strategies.
- ▶ Facilitate inter-institutional student teams for some community service projects.
- ▶ Cooperate with UCSC's ongoing student learning assessment activities by using some of their assessment techniques in applicable Cabrillo classes.
- ▶ Work together with UCSC (a primary transfer university for Cabrillo STEM majors) to provide transfer students with a smoother transition from community college to research university.

Cabrillo College EILS Activities Supported by Grant



▶ III. Content

- ▶ Provide feedback on teaching materials, lab projects, textbook and manual being produced by UCSC, especially as regards applicability to the community college students.
- ▶ Utilize and modify relevant materials and pedagogy developed for UCSC's SEED courses and labs in workshops and seminars developed by Construction and Energy Management.
- ▶ Provide feedback to authors of the sustainability textbook based on Cabrillo's experience with how our students respond to course materials.

Cabrillo College EILS Activities Supported by Grant



▶ IV. Communication and Dissemination

- ▶ Send a team to participate and present at the regional consortium's Summer Sustainability Education Workshops.
- ▶ Make all learning modules and labs developed available for adaptation in any community college for incorporation into existing classes across many disciplines.
- ▶ Share and discuss curriculum, laboratory activities and community service projects developed at Cabrillo with our partners in the Consortium during summer workshops and additional meetings, to facilitate potential adaptation and use at partner institutions.

SEED – EILS Summer Workshops



- ▶ Summer 2011: Workshop Preparing sustainability education programs for multiple campuses
 - ▶ Focused on coordination and education, bringing together project leaders from participating campuses to share knowledge, experience and practices and develop collaborative efforts.
 - ▶ A short course to provide literacy and capacity to design sustainability-related courses will be taught and tested.
 - ▶ Attendees will engage in sample labs and discuss learning goals motivating these designs.

SEED – EILS Summer Workshops



- ▶ Summer 2012 Workshop: Sharing sustainability education programs for multiple campuses
 - ▶ Bring teams from partner campuses, previous participants who piloted sustainability courses, and new participants from UCSC.
 - ▶ The workshop will offer short course and specialized modules on topics that can be applied to new sustainability courses and programs.
- ▶ After 2012
 - ▶ Annual summer seminars & workshops, funded by fees, external grants and other sources to be devised (e.g. consultation fees and contracts). We will seek to “export” the workshop model to other institutions.

Cabrillo College Recent Sustainability Accomplishments: **Curriculum**



- ▶ **Core Competencies** now include language emphasizing interconnectivity and global systems
- ▶ **2008-2011 Master Plan:** Goal B, Objective 4. “Promote awareness of the interdisciplinary nature of emerging trends, including global sustainability and social justice.”
- ▶ **New Courses & Curricula** (approved 2/09, but no units)
 - ▶ HS24: Environmental Health (may be on for Fall 2011)
 - ▶ ES50:Local Sustainability Research and Solutions
 - ▶ Expand existing special topics course Anthr19G: Surviving the Future: the (Re)Emergence of Sustainable Cultures to 2 units
- ▶ **Student Research**
 - ▶ CWEE units for hands-on learning
 - ▶ Energy Academy & Interns
- ▶ **Horticulture Learning Center**

Other Cabrillo College Sustainability Accomplishments

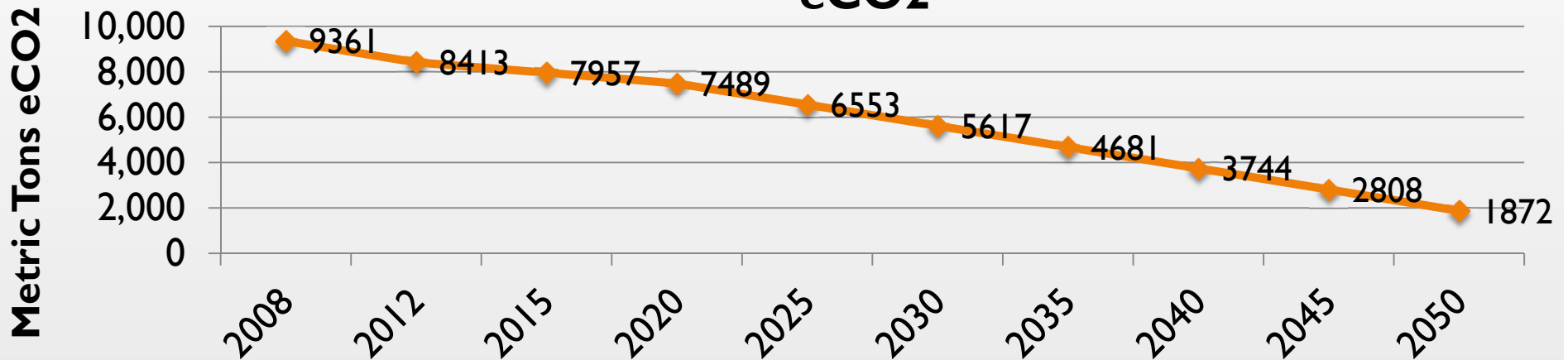


- ▶ **President's Climate Commitment (ACUPCC)**
- ▶ **Sustainable Energy Plan** (approved 9/14/09), targeting a 15% reduction in campus facilities energy use
- ▶ **Websites:** CabrilloGreenSteps.org, Cabrillo College Sustainability Alliance at <http://wiserearth.org/group/cabrillosustainability>
- ▶ **Student Organizations:** Sustainability Council, Bike Co-Op, Permaculture Club, CalPIRG
- ▶ **Events:** Earth Week & Social Justice Conference
- ▶ **Food Systems:** local produce, composting, tray-less cafeteria, Meatless Mondays?
- ▶ **Santa Cruz County Green Careers Partnership:** greencareerspartnership.org
- ▶ **Documents:** Shift from paperwork to online (rosters, grades, forms) & reduced catalog run



Cabrillo's Climate Action Plan

Cabrillo College Emissions Trajectory in Metric Tons eCO₂



Relative to 2000 levels:
15% Reduction in Scope 2 by 2012
(per Board-Approved Sustainable Energy Plan)

Relative to 2008 levels:
15% Reduction in Scope 1, 2&3 by 2015
20% Reduction in Scope 1, 2&3 by 2020
80% Reduction in Scope 1, 2&3 by 2050

Scope 1: natural gas,
diesel, gasoline fuel

Scope 2: electricity
purchased from Pacific
Gas and Electric

Scope 3: commute
transportation, waste

Cabrillo College Sustainability Planned Activities & Improvements



- ▶ Construction and Energy Management developing new Energy Management A.S. program, with classes that lead to green career certifications
- ▶ Watsonville Industrial Technology Education Center designed to LEED Platinum certification (expected to open Fall 2011 – event for Earth Week April 2011)
- ▶ Regional collaborative application to the Strategic Growth Council (SGC) for the Sustainable Communities Planning Grant
- ▶ GreenSteps program – increase signage and outreach:
CabrilloGreenSteps.org
- ▶ Student Sustainability Office?



Faculty Leadership in Sustainability

"Help make faculty comfortable with just posing questions about sustainability, not necessarily knowing answers, but learning along with students. We need to get comfortable with the discomfort of change."

– Julie Phillips, *Sustainable Curriculum for the 21st Century*

