
Climate Neutrality Action Plan

Draft 2010

Santa Clara University

Adopted January 15, 2010
Prepared by the Office of Sustainability

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Introduction

As a Jesuit University, Santa Clara has a growing concern for the environment that is linked to our understanding of social justice. We recognize that the world's poor and marginalized suffer from lack of access to natural resources and often bear the brunt of environmental harms. Contemporary Catholic theology and social teaching articulate a concern for human beings that inherently entails a concern for their environment, and an unbroken relationship between the two. As Pope Benedict XVI has written, "The way humanity treats the environment influences the way it treats itself, and vice versa."

In 2007, Santa Clara University's President signed the American College & University Presidents' Climate Commitment, which required the University to establish a focused plan to achieve climate neutrality and broader plans to integrate sustainability into our education (teaching and research), outreach to others, and stewardship of natural resources. This Climate Neutrality Action Plan has emerged from over two years of broad consultation with the University community—including administrators, faculty, staff, and students—coordinated by the University's Office of Sustainability and its Sustainability Council.

The University is in a time of transition: we inaugurated a new President in 2009 and are in the process of completing a new strategic plan, a capacity review, and finalizing our campus master plan. Considering these factors, and the opportunity to integrate this climate neutrality action plan into our campus planning documents, we have outlined the University's climate neutrality and sustainability goals in broad, aspirational terms so we can later define our specific education, stewardship, and operation goals based on our University's planning process.

As a Jesuit institution in Silicon Valley, Santa Clara is in an excellent position to illuminate the connections among a healthy environment, just societies, and an economy that meets all people's fundamental needs, especially those of the global poor. We will do so by inspiring a broad and enlivening range of activities and perspectives, rather than imposing a narrow and exclusive agenda on the University community. This plan is an important step toward realizing Santa Clara's vision of educating people of competence, conscience, and compassion to foster a more humane, just, and sustainable world.

History of sustainability at SCU

Figure 1. Timeline of Santa Clara University sustainability initiatives

2004	<ul style="list-style-type: none"> Santa Clara University adopted a Comprehensive Policy on Sustainability (http://www.scu.edu/sustainability/aboutsustainability/policy.cfm), devoting the University to sustainability through stewardship, education, and outreach.
2005	<ul style="list-style-type: none"> SCU's commitment to sustainability was highlighted in its strategic planning as one of SCU's "Future Directions." (http://www.scu.edu/strategicplan/futuredirections/themes/environment.cfm)
2006	<ul style="list-style-type: none"> The first sustainability coordinator was hired to augment on-going University sustainability efforts.
2007	<ul style="list-style-type: none"> The first Campus Sustainability Assessment was completed, focusing on University waste production, water use, energy consumption, and use of toxic chemicals (http://www.scu.edu/sustainability/newsandevents/assessment2007.cfm). SCU joined Sustainable Silicon Valley (http://www.sustainablesiliconvalley.org) in a pledge to reduce greenhouse gas emissions to 20 percent below 1997 levels by the end of 2010. University President Paul Locatelli, S.J. became a signatory of the American College and University Presidents' Climate Commitment (http://www.presidentsclimatecommitment.org), declaring the University will develop a plan to reach climate neutrality.
2008	<ul style="list-style-type: none"> The Office of Sustainability was formally established to support campus efforts, coordinate initiatives, serve as the clearinghouse for campus sustainability data, and to showcase University sustainability programs to the public. The Sustainability Council was formed to guide the efforts of the Office of Sustainability.
2009	<ul style="list-style-type: none"> SCU Climate Neutrality Action Plan was drafted and reviewed.
2010	<ul style="list-style-type: none"> SCU Climate Neutrality Action Plan was conditionally adopted, pending revisions based on integration with campus master planning documents.

A Comprehensive Policy on Sustainability at Santa Clara University

Preface

During the summer of 2003 an ad hoc task force (**figure 2a**) convened to consider possible courses of action regarding sustainability. The task force noted that the University had a number of ongoing sustainability programs in resource conservation, education, and service. These programs resided in Facilities, Planning and Projects, the Environmental Studies Institute, University Support Services, the School of Engineering, Student Life, the Centers of Distinction, and other organizations. The task force concluded in its report: *A Sustainability Policy for Santa Clara University*, that a more coordinated and integrated approach could be a resource multiplier in dramatically enhancing the University's sustainability efforts. Following a presentation to the President's Administrative Leadership Group on September 30, 2003, President Locatelli charged an expanded task force (**figure 2b**) with developing a draft policy on sustainability for administrative review by year's end. The following is the approved policy statement.

A Comprehensive Policy on Sustainability at Santa Clara University

Sustainability - "meeting the needs of the present without compromising the *ability of future generations to meet their needs*."

As a Jesuit and Catholic University, we have the responsibility to provide leadership in developing a more sustainable way of living. By embracing sustainability, the University furthers its mission to act as a voice of reason, conscience, and service to society.

The following statements, adopted in 2004, affirm SCU's commitment to a more sustainable way of living through environmental stewardship, education, and service:

Environmental Stewardship

- We seek ways to reduce our use of non-renewable resources, minimize pollution, and live more lightly on the land.
- We are mindful of the need to share equitably the natural resources on which all life depends.
- We strive to instill a broader awareness of the values of sustainability.
- We consider the economic, social, and environmental consequences of our actions.

Environmental Education

- We seek to prepare our students by integrating sustainability into the goal of educating the whole person.
- We seek to support scholarship that advances our understanding and practice of sustainability.
- We recognize our role in educating the university community about the importance of both individual and institutional environmental responsibility.

Environmental Service

- We assist communities, businesses, governments, and non-profit organizations to develop in sustainable ways.
- We support the efforts of the Centers of Distinction and outreach programs to integrate sustainability into the community.
- We support research that expands the understanding and practice of sustainability.

- We promote public dialogue on sustainability.

In adopting this policy, SCU further acknowledges its leadership and commitment to the practical application of sustainability by:

- Integrating sustainable practices into the daily administration and operation of the University.
- Providing a voice for sustainability in the development of strategic planning and capital expenditures.
- Encouraging the University community to build upon this policy statement by identifying opportunities, formulating strategies, and implementing initiatives to further the move toward a more sustainable future.

Figure 2a. Members of the ad hoc task force formed in the summer of 2003.

Member	Office/Program
Don Akerland	Director, Planning and Projects
Steve Brodie	Consultant, MPM
Jeffrey Charles	Director, Facilities Department
Lester Deanes	Resident Director, Education for a Sustainable Future Residential Learning Community
Leslie Gray	Faculty, Political Science Department/Environmental Studies
Michelle Marvier	Faculty, Biology Department
Chad Raphael	Faculty, Communication Department
Amy Shachter	Associate Dean, College of Arts and Sciences Executive Director, Environmental Studies Institute
Joe Sugg	Assistant Vice President, University Operations
Shana Weber	Director, Campus and Community Programs Environmental Studies Institute

Figure 2b. Members of the sustainability taskforce formed in September 2003.

Member	Office/Program
Don Akerland	Director, Planning and Projects
Steve Brodie	Consultant, MPM
Jeffrey Charles	Director, Facilities Department
Lester Deanes	Resident Director, Education for a Sustainable Future Residential Learning Community
Jorge Gonzalez-Cruz	Faculty, Mechanical Engineering
Mark Goodell	Student, Community Facilitator, Education for a Sustainable Future Residential Learning Community
Lisa Kealhofer	Faculty, Anthropology and Sociology Department / Environmental Studies
Michelle Marvier	Faculty, Biology Department
Chad Raphael	Faculty, Communication Department
Amy Shachter	Associate Dean, College of Arts and Sciences Executive Director, Environmental Studies Institute
Joe Sugg	Assistant Vice President, University Operations

Paul Locatelli, S.J., (past President, current Chancellor)

Letter to SCU Community, October 2008

Dear University Community:

As a Jesuit University, we are committed to fashioning a more humane, just, and sustainable world. The University's adoption of the Sustainability Policy in 2004 institutionalized our commitment to improve our campus environmental stewardship, education, and outreach. A Sustainability Coordinator was hired in 2006 to foster campus collaboration and support University programs. The sustainability program has since grown from efforts of a few dedicated individuals to a demonstrated university-wide commitment. In fact, I signed the American College and University Presidents Climate Commitment (ACUPCC) in 2007, declaring that we will reach carbon neutrality.

Due to the efforts of numerous students, faculty, and staff, the University is now recognized as a leader in campus sustainability among institutions of higher education. You may have seen the recent acknowledgements by the Kaplan Guide and Princeton Review, or the Energy Innovator Award given by Silicon Valley Power. You might have also seen one of the many stellar student research projects focused on campus sustainability. The Solar Decathlon is also an excellent example of the University's commitment to sustainable engineering and community outreach.

To further institutionalize our sustainability efforts, I am formally establishing the Office of Sustainability. Composed of the full-time Sustainability Coordinator (from whom you receive monthly e-newsletters) and undergraduate interns, the Office is located in the Environmental Studies Institute. The Office of Sustainability will continue to support campus efforts, coordinate initiatives, serve as the "clearing-house" for campus sustainability data, and represent University sustainability programs to the public.

Further to develop a culture of sustainability throughout the entire University community, I am also establishing the Sustainability Council to guide efforts of the Office of Sustainability.

Please join me in celebrating our achievements in campus sustainability. Thank you for your support and your commitment to developing a culture of sustainability for all students, faculty, and staff at Santa Clara University.

Paul Locatelli, S.J.

The Sustainability Council

The Sustainability Council was established in fall 2008 to guide the Office of Sustainability in the development of a culture of Sustainability at SCU. The Sustainability Council meets quarterly, and has drafted this University Climate Neutrality Action Plan.

Figure 3. List of Sustainability Council members and the University programs they represent

Office/Program	Council Member
Associated Students	Ryan O'Connor, '12
Auxiliary Services	Jane Barrantes
College of Arts and Sciences Dean's Office	Terri Peretti
Communication	Chad Raphael
English, CyPhi Residential Learning Community	Sherry Booth
Environmental Studies Institute	Leslie Gray*
Facilities	Jeffrey Charles
Information Services	Ron Danielson
Leavey School of Business	Stephen Smith
Office of Sustainability	Lindsey Cromwell Kalkbrenner
Provost Office	Michelle Marvier
School of Engineering	Tim Healy
School of Law	Kenneth Manaster
Student Life	Jeanne Rosenberger
University Operations	Joe Sugg*
University Relations	Connie Kim Coutain
* <i>co-chairs</i>	

The Office of Sustainability

The Office of Sustainability develops and implements programs to foster a culture of sustainability at Santa Clara University. This includes coordination of the annual Campus Sustainability Day in October, publication of the monthly "Sustainability Update"—the campus-wide e-newsletter, and coordination of the SCU Student Sustainability Convergence. The Office supports sustainability initiatives of Colleges, Centers, departments, etc. This includes SCU's Sustainability Council, Facilities and Operations, Residential Learning Communities, Centers of Distinction, and academic programs.

The Office of Sustainability also serves as an information hub for SCU sustainability data and knowledge on campus. Sustainability Interns conduct annual greenhouse gas emissions inventories and report publicly, including to the ACUPCC, as well as compile campus sustainability initiatives for annual public reporting and for the Sustainability Tracking, Assessment, and Reporting System (STARS). The Sustainability Coordinator represents SCU's sustainability programs to the media and public, and shares best practices with peer institutions.

The Office of Sustainability is funded jointly by the College of Arts and Sciences and University Operations. The Office of Sustainability is located at the Environmental Studies Institute and is composed of a Sustainability Coordinator and student interns.

Michael E. Engh, S.J., Inaugural Speech

An excerpt of Fr. Engh's Inaugural speech on April 24, 2009:

"We teach ethics, so that students and faculty together reflect on justice or on its absence. Across the curriculum, in the classroom and beyond, we engage in that moral questioning that leads to protecting the weak and guiding the strong to right action. Happily, this university has earned a distinguished record for teaching ethics and promoting social justice. Santa Clara grounds its commitment to ethics and justice in its Catholic intellectual heritage. We welcome, however, everyone who shares our concerns for moral reckoning and our attention to the neediest in society.

In our ethical reflection we consider the needs of our world. We see with increasing clarity the fragility of our planet: the depletion of the soil, the destruction of its forests, and the pollution of air and water. Probing more deeply into these issues, we learn that the poorest of the poor suffer the most. They lack the resources and access to basic necessities when the natural world is so corrupted. And we might ask ourselves: Who hears the voice of the needy and listens to their concerns about exploited lands and economies? Who is the voice for the defense of the assaulted world? Who trains the leaders we need to understand the intricacies of biodiversity and who are also equipped to discern the ethical dimensions of their decisions? Who, indeed?

Santa Clara University is uniquely positioned to make a significant contribution to achieving a more just and sustainable future. I propose that we become a major center for discussions of environmental justice, and for examining the ethical dimensions of how we treat the physical world. I believe we can lead in the development and promotion of practices, businesses, and technologies that will ensure a viable and just future for all.

We are blessed by our location. As the Jesuit University of Silicon Valley, we can lead and participate in the Valley's fast-growing interest in sustainability, green energy, and environmental protection. We can partner with institutions and corporations with the potential to solve the world's problems through invention and innovation of all kinds. The value-added element that Santa Clara can and should bring to this "Green Wave" is the voice of environmental ethics, built on theological and philosophical foundations that are fundamental to our Catholic, Jesuit tradition.

I believe that Santa Clara can and should lead in initiatives for just environmental policies and practices. We already are using ethics language "to frame responses to environmental problems" [Warner, 2008: 133]. Catholic social and environmental teaching has broadened our understanding of our "social responsibility for the economically marginalized" [Warner, 2008: 133]. Drawing on this intellectual heritage, we must now strategically link our long commitment to justice to the growing efforts to protect our environment and ensure a sustainable future for all.

Santa Clara is an ideal environment for this initiative. Here we can sort through complex issues and debate vigorously the tough trade-offs and decisions our society must make. We bring an intellectual rigor to such dialogue because of our strength in law, engineering, business, the sciences, philosophy, and theology. I see an immense opportunity for Santa Clara to champion environmental justice, and to do so explicitly for the sake of and alongside the poorest in our world."

Citation

Warner, O.F.M., Keith Douglas. "The Greening of American Catholicism: Identity, Conversion, and Continuity." Religion and American Culture: A Journal of Interpretation, vol. 18, No. 1: 113-142.

American College and University President's Climate Commitment (ACUPCC)

From the ACUPCC Implementation Guide:

The ACUPCC is a high-visibility effort to make campuses more sustainable and address global warming by garnering institutional commitments to reduce and ultimately neutralize greenhouse gas emissions on campus and to accelerate the research and educational efforts of higher education to equip society to re-stabilize the earth's climate.

Building on the growing momentum for leadership and action on climate change, the ACUPCC provides a framework and support for America's colleges and universities to go climate neutral. The Commitment recognizes the unique responsibility that institutions of higher education have as role models for their communities and in training the people who will develop the social, economic and technological solutions to reverse global warming.

Presidents signing the Commitment are pledging their institution to eliminate its contribution to global warming over time. This involves:

- Establishing an institutional structure to oversee the development and implementation of the schools program to comply with the ACUPCC.
- Completing an emissions inventory within a year;
- Within two years, establish a climate neutrality action plan and set a target date and interim milestones for becoming climate neutral;
- Taking immediate steps to reduce greenhouse gas emissions by choosing from a list of tangible action options;
- Integrating sustainability into the curriculum and making it part of the educational experience; and
- Making their Climate Neutrality Action Plan, inventory and progress reports publicly available.

The college and university presidents and chancellors who are joining and leading the Commitment believe that, in addition to social and environmental benefits for their communities and society at large, exerting leadership in addressing climate change will stabilize and reduce their long-term energy costs, attract excellent students and faculty, attract new sources of funding, and increase the support of alumni and local communities.

The full text of the Commitment can be found on the ACUPCC website (<http://www.presidentsclimatecommitment.org/>).

Santa Clara University's Commitment

Father Locatelli became a signatory of the ACUPCC in 2007, committing to transform SCU into a climate-neutral campus. Our deliverable deadlines for the ACUPCC are:

- a) Create institutional structures to guide development of the plan. (Completed September 2007).
- b) Complete a greenhouse gas emissions inventory. (Completed September 2008).
- c) Develop an institutional Climate Neutrality Action Plan (this document, due September 2009—extended to January 2010).

These documents are all publically available, online, on the ACUPCC web site (<http://www.presidentsclimatecommitment.org/>).

Santa Clara University has set a goal to reach climate neutrality by 2015. Santa Clara has also partnered with Sustainable Silicon Valley (SSV), (<http://www.sustainablesiliconvalley.org>) in 2007, by committing to an interim goal of emissions reductions 20 percent below 1997 levels by the end of 2010,

which is an overall decrease of 34 percent from 2006 emissions. SSV is a partnership of businesses, cities, educational institutions, and non-governmental organizations committed to improving sustainable development in Silicon Valley, California.

Our commitment to sustainability includes not only becoming a carbon-neutral campus, but also to instilling a culture of sustainability among our students, faculty, staff, and the regional and global community. We see climate neutrality as a combination of efforts related to stewardship, education, and outreach.

Immediate tangible actions

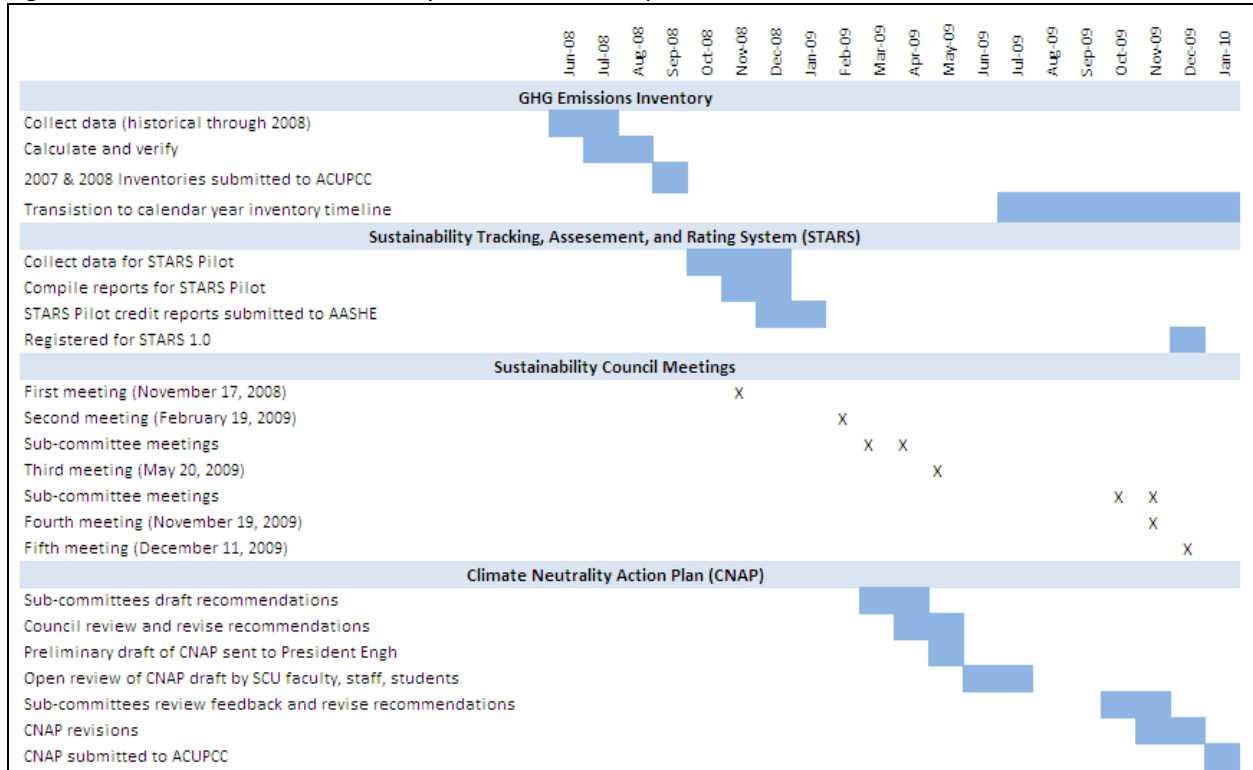
Upon signing the ACUPCC in 2007, we took several immediate tangible actions. These include:

- *Establish a policy that all new campus construction will be built to at least the U.S. Green Building Council's LEED Silver standard or equivalent.*
 - Use LEED as guide for establishing sustainable design criteria for all new buildings and major renovations. Major areas of interest are air quality, energy and water savings, and use of recyclable/re-cycled and/or rapidly renewable materials. Example: Lucas Hall (our new business school building) is 10% better than current California Title 24 criteria for energy efficiency.
- *Encourage use of and provide access to public transportation for all faculty, staff, students and visitors at our institution.*
 - University employees receive discounts on monthly public transportation passes. This is advertised monthly through campus e-mail.
- *Within one year of signing this document, begin purchasing or producing at least 15% of our institution's electricity consumption from renewable sources.*
 - On July 1, 2007, began purchase of wind generated energy for approximately 25% of campus electrical needs and installed 50 kW of solar photovoltaic panels on campus.
 - Our renewable energy comes from a combination of on-site generation (50-kW photovoltaic array), funding wind power via Silicon Valley Power's Green Power Program (8,040 megawatt-hours of wind-power in 2007), and our electricity provider Silicon Valley Power provides a base renewable energy mix of 20 percent.
 - Energy from renewable sources constitutes over 30% of campus energy sources.
- *Participate in the Waste Minimization component of the national RecycleMania competition, and adopt 3 or more associated measures to reduce waste.*
 - We established a goal to divert 95% of California Redemption Value (CRV) containers from the waste stream.
 - We hired a student Recycling Intern to develop and implement recycling education programs for students, faculty, and staff.
 - We replaced old recycling instructional signs at all campus residence halls with clear instructions and educational information to teach students about recycling (the signs not only tell them what to recycle, but also where those items go, and what happens to them in the recycling process). Progress is measured by periodic waste characterizations.
 - Recycle construction waste. Required in all construction contracts. Recycled 90% by weight of recently demolished building. Contractors collect and sort recycled material on site to ensure maximum exposure and facilitate waste audits.
 - We set a goal to establish a food composting program during 2008-09 year for food waste from campus dining facilities.

For more actions taken since 2007, please see **Noteworthy Progress** on p. 17.

Climate Neutrality Action Plan Development Process

Figure 4. Timeline of Climate Neutrality Action Plan development



The Office of Sustainability completed Santa Clara University's greenhouse gas emissions inventories for 2007 and 2008 during the summer of 2008. SCU participated in the pilot study of the Association for the Advancement of Sustainability in Higher Education's new Sustainability Tracking, Assessment, and Rating System (STARS) during the fall of 2008. Both studies helped the University identify our strengths in sustainability programs as well as areas for improvement.

The Sustainability Coordinator presented the results of both the greenhouse gas emissions inventory and STARS to the Sustainability Council in November 2008. The Council was then charged with developing the core of the University's Climate Neutrality Action Plan (CNAP). Since the University has a Comprehensive Policy on Sustainability, the Council decided to shape our Climate Neutrality Action Plan around this policy. Santa Clara University's CNAP therefore involves developing a culture of sustainability through actions and metrics in stewardship (campus operations), education (including academics, research, and student life), and outreach (leadership in the local, regional, and global communities). The following sections will summarize the goals to lead the University to climate neutrality.

Education

Sustainability is a broad area of study and practice, encompassing the relationship of environmental protection, economic development, and social justice. Students need greater preparation to engage in this area in their lives as professionals, citizens, and individuals. We will increase faculty development to teach and conduct research on sustainability issues. We will also expand and develop new curricular and co-curricular experiences and research opportunities that develop a culture of sustainability. While

many disciplines can contribute to an understanding of sustainability, each department and faculty member need not make a contribution. Because of our commitment to academic freedom, many viewpoints on sustainability, including skepticism of widely-held views on the topic, will be welcomed and encouraged.

Outreach

Santa Clara University has the opportunity to leverage our experiences and participation in the Association for Jesuit Colleges and Universities (AJCU), to become a leader among Jesuit and Catholic institutions of higher education, and encourage more colleges and universities toward climate neutrality. We will also identify our strengths and opportunities for growth based on sustainability assessments. To further expand our community outreach, we will develop more community programs and cultivate existing relationships with community partners. We will develop more internal structures to support sustainability at SCU, including incorporating sustainability into employee responsibilities as well as increasing the online presence of Santa Clara sustainability initiatives.

Stewardship

The University has made great strides toward energy conservation, efficiency, and sustainable design. This Climate Neutrality Action Plan serves to build upon these efforts by documenting greenhouse gas emissions reduction goals, and has identified several University Operations projects to further develop a culture of sustainability among the University community. We have the opportunity to improve the sustainability of our campus by reducing our greenhouse gas emissions, reducing our reliance on fossil fuels, improving purchasing policies, clearly defining our sustainable design standards, reducing campus waste production, and reducing water consumption.

Campus Greenhouse Gas Emissions Inventory

Process

The Office of Sustainability used Clean Air-Cool Planet's Campus Carbon Calculator (<http://www.cleanair-coolplanet.org>) for our greenhouse gas emissions inventory. This robust tool is used by the ACUPCC, and we saw value in using a data collection mechanism consistent with our reporting structure. We used version 5 for our inventories up to 2008, and recently moved all data to the 6.2 version.

Inventory boundaries

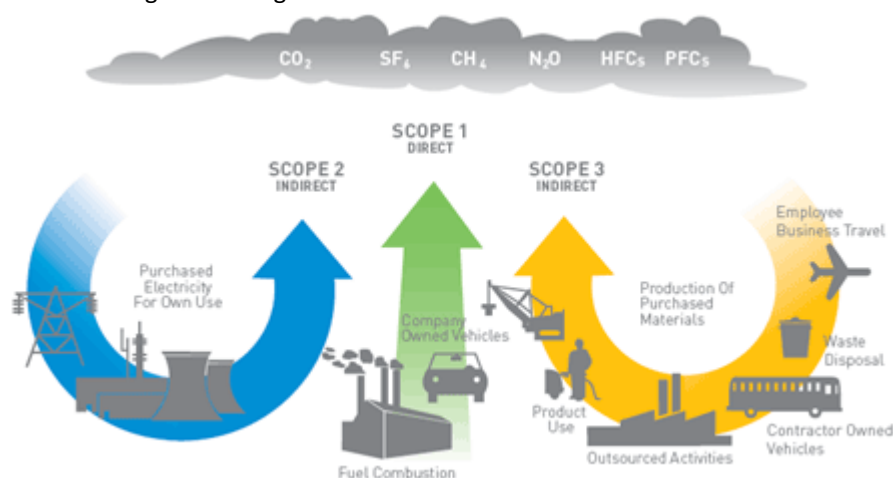
Temporal boundary: The fiscal year 2008 started on July 1, 2007 and ended on June 30, 2008. Beginning in 2009, we inventory by calendar year.

Organizational boundary: The Santa Clara University campus in Santa Clara, California, including departments off-campus. This does not yet include the Jesuit School of Theology in Berkeley.

Major Sources of Emissions and Scopes

We began by identifying the sources of direct and indirect emissions we would need to analyze. Direct greenhouse gas emissions are from sources owned or controlled by the University. Indirect greenhouse gas emissions are the consequence of activities for the University, but occur at sources owned or controlled by another entity.

Figure 5. Image from the Greenhouse Gas Protocol Initiative



The greenhouse gas protocol categorizes these emissions into three scopes:

- **Scope 1:** Direct greenhouse gas emissions. For Santa Clara, these emissions are associated with heating our buildings (natural gas consumption on campus, provided by Pacific Gas and Electric) and our University fleet vehicles.
- **Scope 2:** Indirect greenhouse gas emissions from consumption of purchased electricity, heat, or steam. For Santa Clara University, these emissions are solely from our purchase of electricity from Silicon Valley Power.
- **Scope 3:** Other indirect emissions not covered in Scope 2. For SCU, this scope includes emissions associated with waste disposal and transportation (air travel as well as daily commuting to campus).

We were able to gather historical electricity and natural gas values through 1997. Since these two sources are usually the largest sources of greenhouse gas emissions at Universities, we are fairly confident with our historical emissions estimates (prior to 2007). We were unable to document Silicon Valley Power's fuel mix prior to 2000, so we assumed the energy mix was the same as in previous years.

Greenhouse gas emissions inventories for 2007 and 2008 are our most robust, since we have more data available to incorporate into the inventory. Like many institutions completing their first emissions inventories, we found some data was impossible to collect. We were able to complete data collection in Scopes 1 and 2, but lack complete data related to emissions in Scope 3. Since our analysis in the summer of 2008 was our first attempt at a campus emissions inventory, we decided to complete the inventory though we lacked some indirect emissions information. We have looked into developing systems to determine this information for future emissions inventories. Though we are not required to report Scope 3 emissions, knowing more about these emissions sources informs our decisions to reduce overall University emissions.

Figure 6. SCU emissions sources, including those not yet included in the University's emissions inventory

Scope	Description of SCU Emissions Sources	Years included in inventory
Scope 1	Natural gas consumed for building heating, cooling, and air conditioning systems Purchased from Pacific Gas and Electric	1997-present
Scope 1	Gasoline and diesel fleet vehicles (electric vehicles are accounted for in purchased electricity)	2006-present
Scope 1	Fertilizer (Landscaping)	2007-present
Scope 2	Electricity purchased from Silicon Valley Power	2000-present
Scope 2	Transportation & Distribution Losses associated with purchased electricity	2000-present
Scope 3	Solid waste	2005-present
Offsets	Green power certificates*	2005-present
Applicable emissions sources not yet included:		
Scope 3	Faculty, staff, and student commuting	
Scope 3	Air travel, including athletics and SCU employee, and study abroad travel	
Scope 3	Waste water	
Scope 3	Paper	

* See **figure 10** for our renewable energy certificate/offset guidelines.

Results of Greenhouse Gas Inventories

Our greenhouse gas inventories were submitted to the ACUPCC based on Clean Air-Cool Planet Campus Carbon Calculator, version 5.0. This data differs from the inventory summaries reported in this document because we transferred information to the latest version of the tool (version 6.2). The newer version of the Carbon Calculator is more robust and uses slightly different emissions factors than the previous tool. For consistency purposes, we will use version 6.2 for this document.

Our greenhouse gas inventories, as well as this document, can be found on the ACUPCC reporting web site (<http://acupcc.aashe.org>).

Figure 7. Santa Clara University's total greenhouse gas emissions 1997-2008

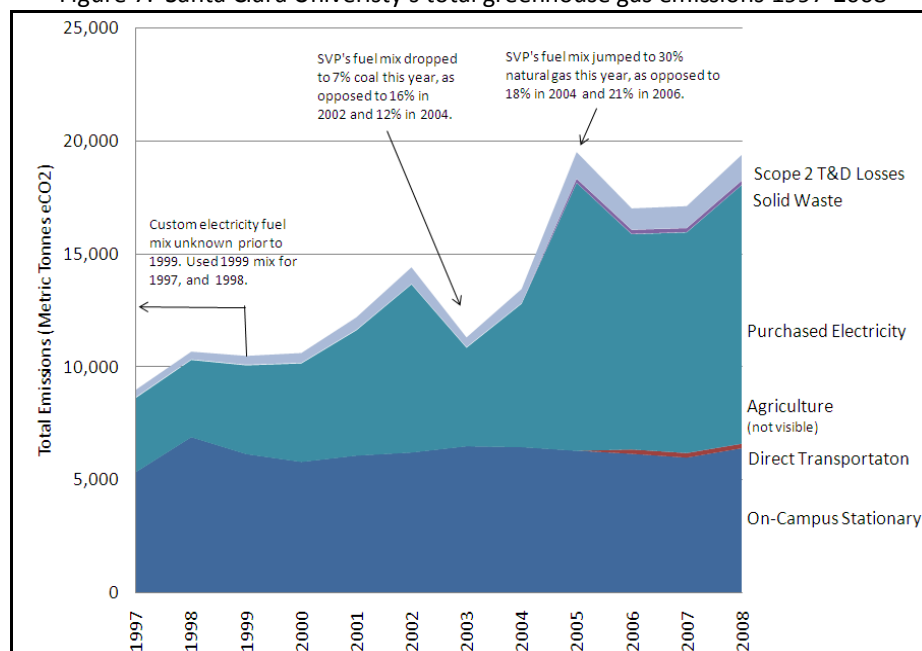


Figure 8a. Emissions by source, 2007

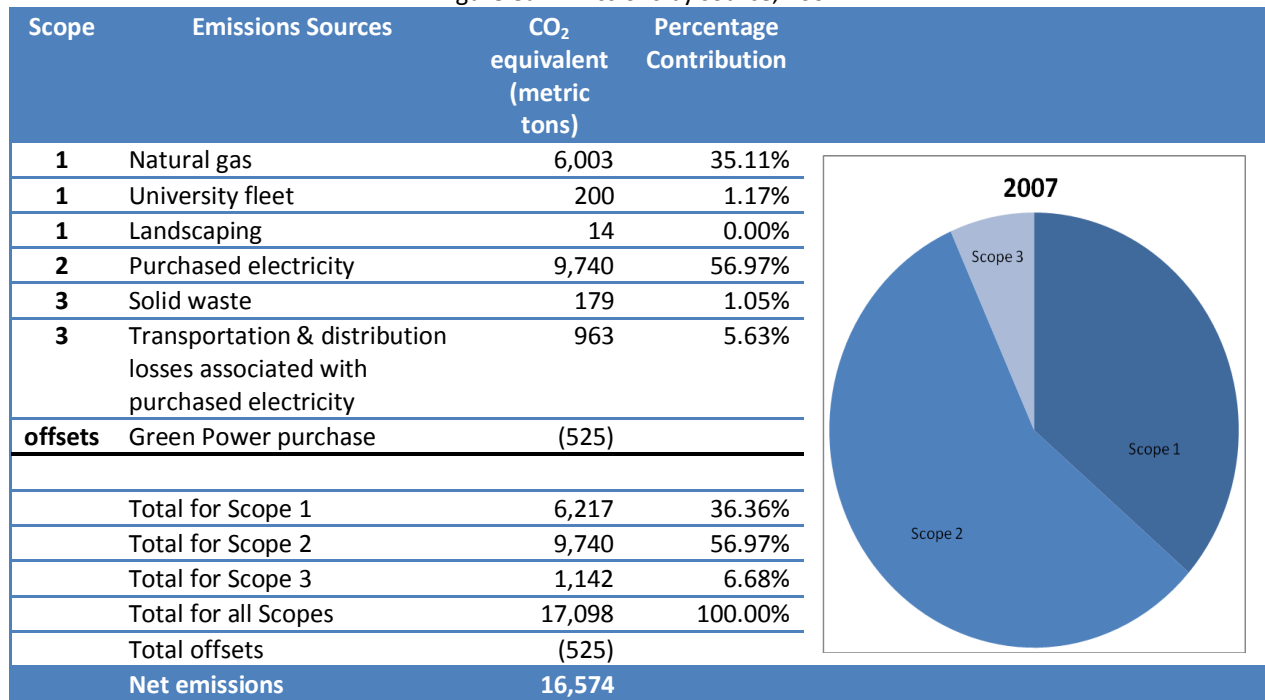


Figure 8b. Emissions by source, 2008

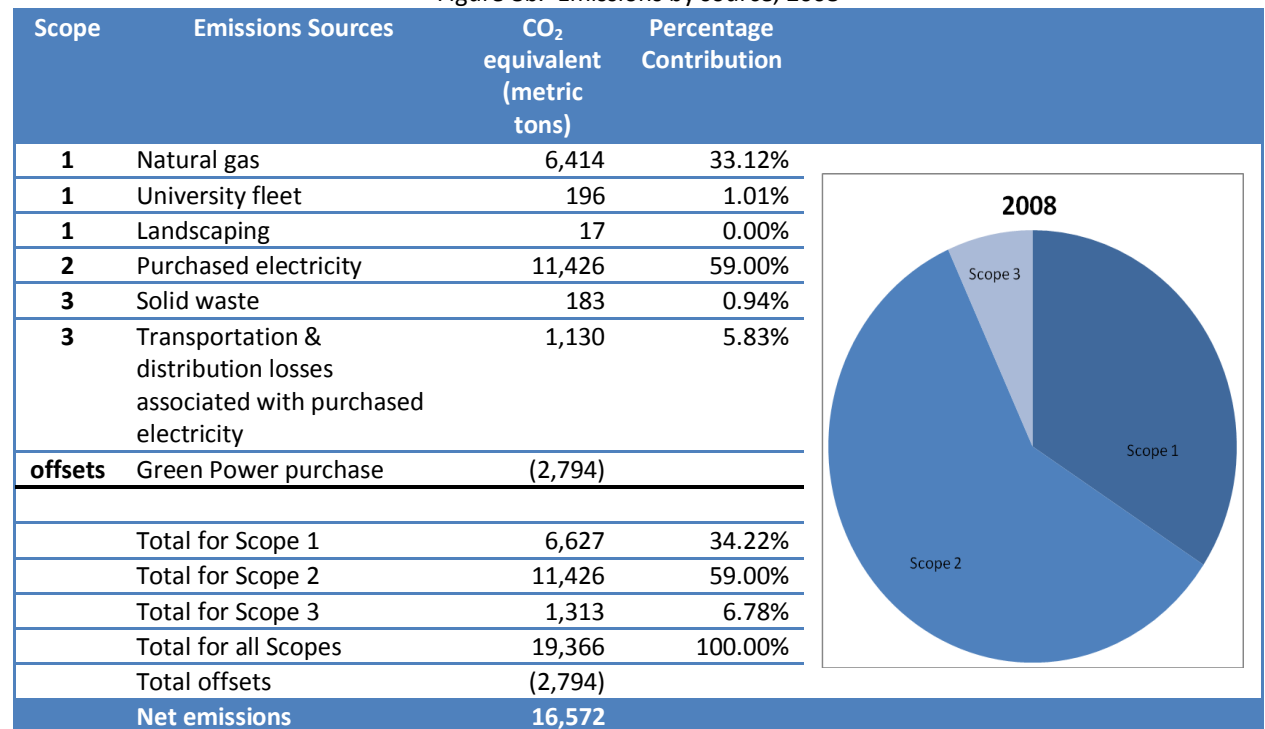
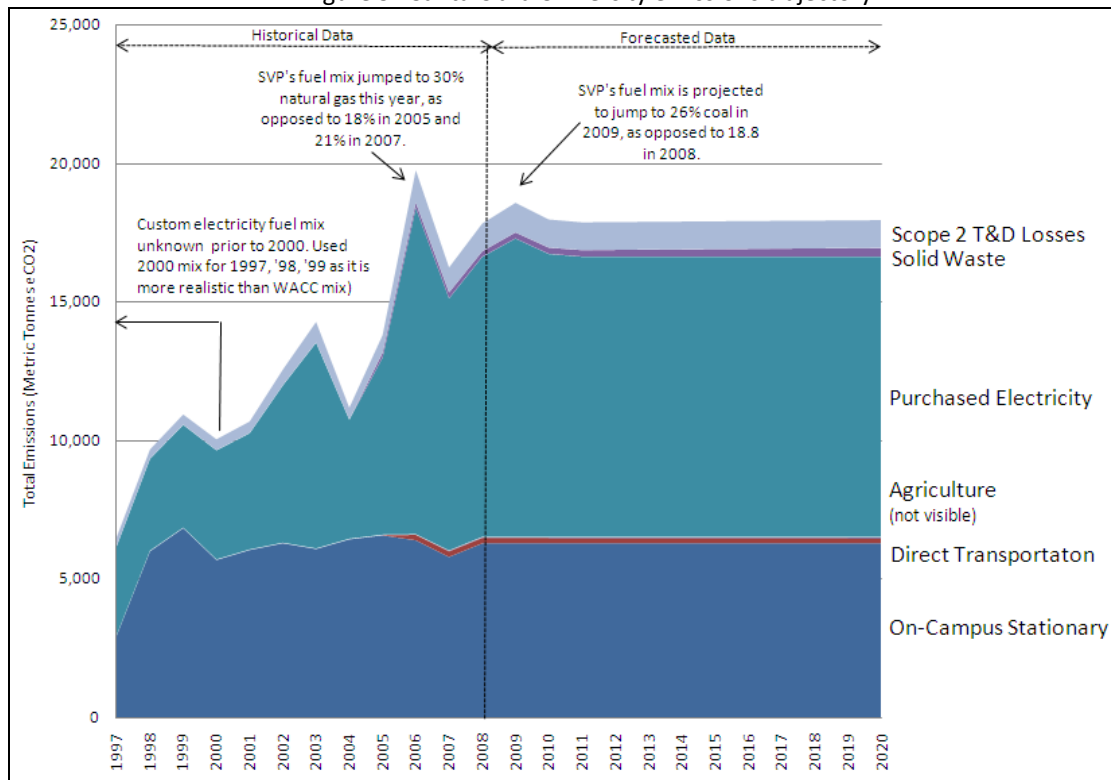


Figure 9. Santa Clara University emissions trajectory



Strategies for reducing GHG emissions

University Operations targets our buildings as opportunities to use energy more efficiently. We will commit to reducing emissions wherever possible, generating our own renewable energy when financially feasible, zero emissions growth, and lastly, offsetting the remaining greenhouse gas emissions needed to achieve climate neutrality. Retrofits to existing buildings improve their mechanical efficiencies, while new buildings are designed to be as energy efficient as possible. Besides ongoing efficiency retrofits and projects to reduce energy demand, Green Power purchases have helped us reduce our net emissions.

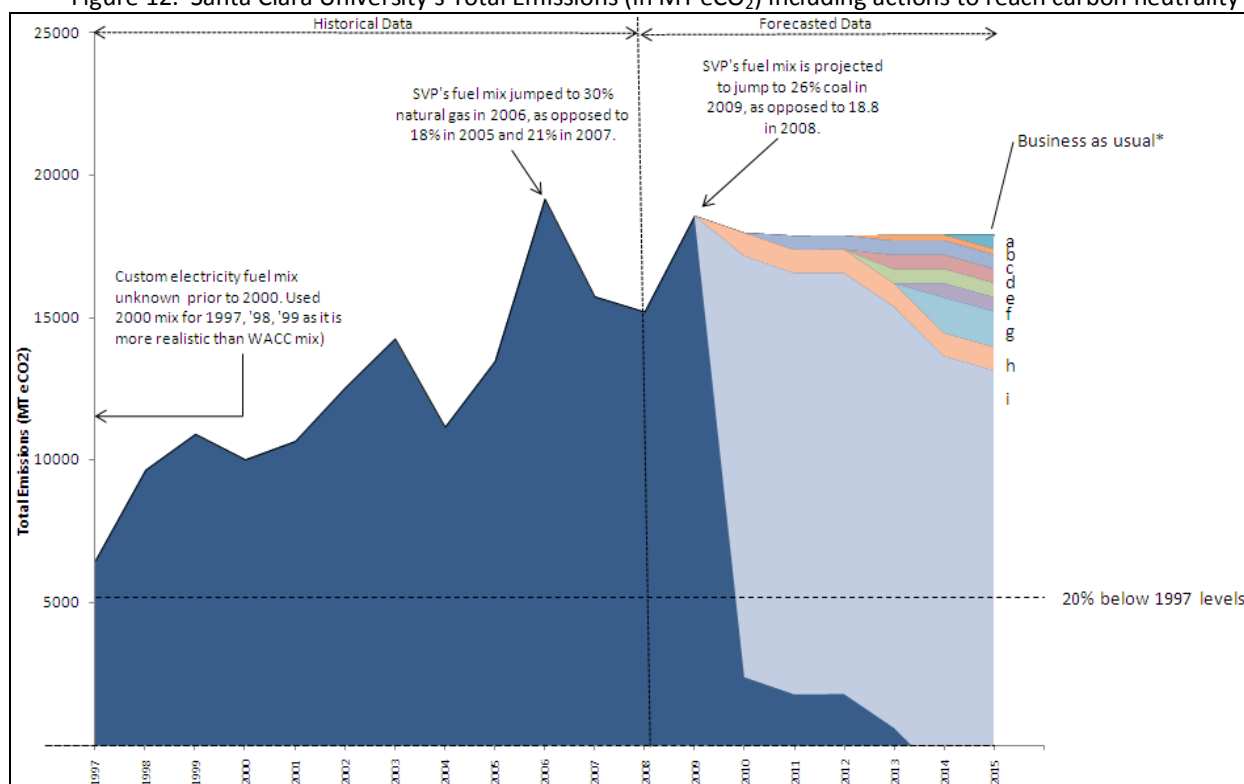
Figure 10. Santa Clara University's overarching plan to reach climate neutrality



* Knowing the renewable energy certificate and offset markets are still being defined, we seek to choose carbon offset providers which state in quantifiable terms how much each credit purchased mitigates emissions, which invest in permanent rather than temporary solutions to mitigate carbon, which invest credits in projects that would not be undertaken otherwise, and which use a credible third party to provide independent verification of its effectiveness. Currently, we purchase our Green Power Renewable Energy Certificates from Silicon Valley Power, which are third-party certified by Green-e. We also plan to reduce our Green Power purchases as soon as possible, as we continue to drive down our campus emissions.

Figure 11. Santa Clara University emissions reduction projects and their associated emissions

Action	Estimated metric tons eCO ₂ eliminated
New technology (a)	500 tons eCO ₂
Purchase from sustainable suppliers (b)	200 tons eCO ₂
Manage peak demand (c)	500 tons eCO ₂
Install solar hot water panels (d)	500 tons eCO ₂
Develop on-campus wind energy (e)	500 tons eCO ₂
Cultural change (f)	500 tons eCO ₂
Building/lighting system improvements (g)	1,250 tons eCO ₂
Install 1 megawatt of solar photovoltaic (h)	820 tons eCO ₂
Purchase Green Power (RECs) for 80% of electricity needs over next 5 yrs. (phase out to maintain zero net emissions) (i)	14,800 tons eCO ₂
Total	19,570 tons eCO₂

Figure 12. Santa Clara University's Total Emissions (in MT eCO₂) including actions to reach carbon neutrality


*"Business as usual" assumes no net increase in emissions associated with electricity or natural gas consumption, since new projects will be mitigated or offset, where appropriate.

Noteworthy progress

Since the energy strategy's implementation, nine buildings' systems have been retrofit to be more energy efficient, surpassing California building standards in each case. In addition, Santa Clara University installed a 50kW photovoltaic array in 2007.

Increased participation in our local utility's Green Power Program has led to the purchase of 22,512 MWh during FY 2010, up from 11,256 MWh (FY 2009) and 8,040 MWh (FY 2008).

Shifting the campus culture is an ongoing process that includes energy awareness initiatives like student research in residence halls as well as the Sustainable Office Assessment Program.

All residence halls currently have real-time online energy consumption tracking. In the future, these energy graphs will be displayed on monitors in campus building lobbies, including residence halls. Moreover, individuals, departments, colleges, and campus organizations who exemplify this culture shift are recognized monthly in the campus sustainability e-newsletter. The “Program Highlight” section recognizes campus sustainability achievements and publicizes sustainability initiatives.

Buildings and grounds

- 90% of construction and demolition waste from the Learning Commons was recycled.
- The Paul L. Locatelli, S.J. Student Activities Center will be a LEED Silver building.
- Buildings’ mechanical systems’ controls are centralized, optimizing performance and energy conservation.
- The Support Services building is testing a new building paint, said to reduce cooling costs by 21%.
- Recently upgraded low nitrogen oxide boilers in O’Connor, Ricard, and Heafey Law Library are more efficient.
- Landscaping reduces water needs by using drought-tolerant plants.
- Green waste is broken down on-site for mulch or sent to a composting center.
- We are encouraging the use of the Facilities Customer Service Center (Facilities-CSC@scu.edu, 408-554-4742) for the University community to contact with campus issues or ideas for improvement.

Energy conservation

- New construction is based on LEED standards; buildings are designed as energy efficient as we can afford.
- Half of all beverage machines at SCU are Energy Star certified.
- Real-time energy display systems allow all residence halls and assorted campus buildings to monitor their energy consumption.
- SCU purchases 22,512 MWh of renewable wind energy from Silicon Valley Power (over 1/3 of the University's energy use).
- The Learning Commons is twice the size of the previous building but uses about the same amount of energy.
- Lucas Hall is 10 percent more energy efficient than required by Title 24, California's energy efficiency standard.
- Replaced 100 fixtures (1/3 of campus exterior light poles) saving 70 watts each. This produced an annual savings of roughly \$2,700.
- Replaced interior lighting that uses one-third less electricity than equivalent fluorescent bulbs – part of a pilot project in the Support Services building.
- New Zipcar partnership provides the University community with an on-campus car sharing program.

Water conservation

- Over 200 waterfree urinals throughout campus each conserve 40,000 gallons of water annually.
- Malley Center is testing dual-flush toilets. A low-flow flush uses 2/3 less water than a typical flush. In 2010, all women’s toilets will be retrofit to allow dual-flush capabilities.
- The Learning Commons’ toilets are flushed with recycled water.

- Roughly 95 percent of residence hall showers have low-flow shower-heads which use 2.5 gallons per minute. Almost all toilets are low-flow models. Sink aerators and front-loading washing machines also reduce water consumption in our residence halls.
- Automatic faucets have been installed throughout campus.

Recycling and waste

- Our recycling program diverted 30 percent of total waste in 2008. Over 700 electronic devices were donated for reuse or recycling.
- Students divert waste during Move-Out by donating items to local charities.

Education

- The Penstemon Project (2007 and 2009), encouraged faculty to integrate sustainability into existing courses in multiple disciplines. Nineteen academic departments offer a sustainability-related or focused course. Students have created documentaries about sustainability on campus, assessed barriers to greening campus offices, conducted cost/benefit analyses of implementing power strips at residence halls, explored the ethics of GMO crops, and more!
- SCU was one of 20 schools in the 2007 and 2009 Solar Decathlon. Over 100 SCU students designed, built, and operated an energy-efficient, sustainable solar-powered home. SCU earned 3rd place in both competitions!
- The Environmental Studies Institute offers an environmental science major, environmental studies companion major and minor, and an environmental studies minor for engineers. ESI houses the Penstemon Project, the sustainability pathway, and community outreach programs.
- Study abroad opportunities expose students to global dimensions of sustainability.
- The sustainability pathway in the Core Curriculum will enable students in all three schools to integrate sustainability into their studies.
- Students have many opportunities to get involved with sustainability on campus, both as undergraduate and graduates.
- CyPhi (Residential Learning Community focused on sustainability and the arts) is comprised of 15 percent of all campus residents.
- Campus Sustainability Day (Oct.), Focus the Nation (Feb.), and Earth Day (Apr.) allow students to celebrate campus sustainability and engage the University community.

Food

- Dining Services Bon Appétit serves local and organic produce (up to 80 percent seasonally), fairly traded coffee, sustainable seafood, antibiotic-free meats, cage-free and certified humane eggs. Vegan and vegetarian options are also offered every meal. Biodegradable catering and to-go containers/utensils have replaced disposable materials.

Centers of Distinction

- **Center for Science, Technology and Society**
STS has a sustainability research area. This past year, the STS gave research course releases to two faculty to conduct research on the economic impacts of climate change and one course release for supporting collaboration with ESI. In addition, STS is planning a major conference on sustainability. The Global Social Benefit Incubator (GSBI), supports social benefit entrepreneurs as they scale their endeavors.

- **Ignatian Center**

Arrupe Partnerships advance the Jesuit tradition of the service of faith and the promotion of justice. The Center's Spring Explore Journal will focus on sustainability. Over 46% of undergraduates participate in Arrupe Partnerships.

- **Markkula Center for Applied Ethics**

The Center facilitates an environmental ethics fellowship program (in its fourth year). Past Fellows have produced a review of ethical challenges in building a solar house, a case study on SCU's first sustainable building, and an examination of the culture of sustainability among SCU students. The Center has also facilitated the development of a short course on environmental ethics.

Research initiatives

- SCU will soon launch a strategic research initiative focused on sustainability. The initiative will be coordinated by the Office of Research Initiatives, ESI, and STS. Faculty and students who are actively engaged in sustainability research will be invited to participate. The Initiative will involve faculty reading groups, a colloquium series, writing retreats, and opportunities to form 5 interdisciplinary research teams. More than 25 percent of Santa Clara's internal research funds in 2007-2008 were devoted to sustainability research.
- The Sustainable Living Undergraduate Research Project provides undergraduates opportunities to conduct year-long studies of sustainability as it relates to residence life. SLURP is a joint project of ESI and the CyPhi RLC.
- The Center for Sustainable Studies in the School of Engineering strives to quantify sustainability. Faculty and students at the Center are committed to enabling sustainability through well-defined and rational metrics, system integration synergies, technologies to inform consumption choices, and industry/university collaboration to build on and enable sustainable living.
- SCU undergraduates developed the Sustainability Decathlon—a high school outreach component of the Solar Decathlon. ESI prepares SCU undergraduates to mentor local high school students as they explore sustainability and “green” their campuses in 10 categories. Seven schools participated in the 2009 competition (2 in Santa Clara, 4 in San Jose, and 1 in San Francisco).
- ESI is leading the development of a new half-acre education, demonstration, and community garden one block north of campus. The garden will be used as a living laboratory and training facility for the Bronco Urban Gardens (BUG) Program. BUG helps communities and schools in low-income neighborhoods in San Jose build and utilize new gardens.
- ESI developed the Bronco Environmental Education Program (BEE) to train and connect SCU students with local environmental education organizations including the Ulistac Natural Area Restoration and Education Project, Wild Zones, Full Circle Farm, Guadalupe River Park and Gardens, Santa Clara County Open Space Authority, Hidden Villa, Escuela Popular, BioSITE, the SF Bay National Wildlife Refuge, etc.
- SCU partners with Sustainable Silicon Valley, a collaboration of businesses, cities, and non-governmental organizations addressing environmental pressures in Silicon Valley. SCU also works closely with the Silicon Valley Leadership Group. SCU is a member of the Association for the Advancement of Sustainability in Higher Education (AASHE) and the United States Green Building Council (USGBC). SCU is a Founding Partner of the Northern California Children in Nature Collaborative. SCU is also a founding member of the Solar Tech Consortium, which is focused on creating a Solar Center of Excellence in Silicon Valley.

Climate Neutrality Action Plan implementation

The University community (students, faculty, and staff) were invited to review and comment on this document in June and July 2009, via e-mails from Leslie Gray and President Fr. Engh. Once this plan is formally adopted by the University, it will be available for download from the Santa Clara University and ACUPCC websites.

Santa Clara University's Climate Neutrality Action Plan is a fluid document. The Sustainability Council will oversee implementation and coordination of the plan, as well as the revision process of the document. The Sustainability Council meets quarterly, and will be responsible for updating the Climate Neutrality Action Plan as needed. Feedback from Santa Clara University faculty, staff, and students is encouraged. The University may submit feedback online any time, at <http://www.scu.edu/sustainability/climate neutrality.cfm>.

Tracking and communications strategy

The Office of Sustainability and Office of Marketing and Communications will share Santa Clara University's Climate Neutrality Action Plan with the campus and external community, after it is uploaded to the ACUPCC Reporting System (<http://acupcc.aashe.org>).

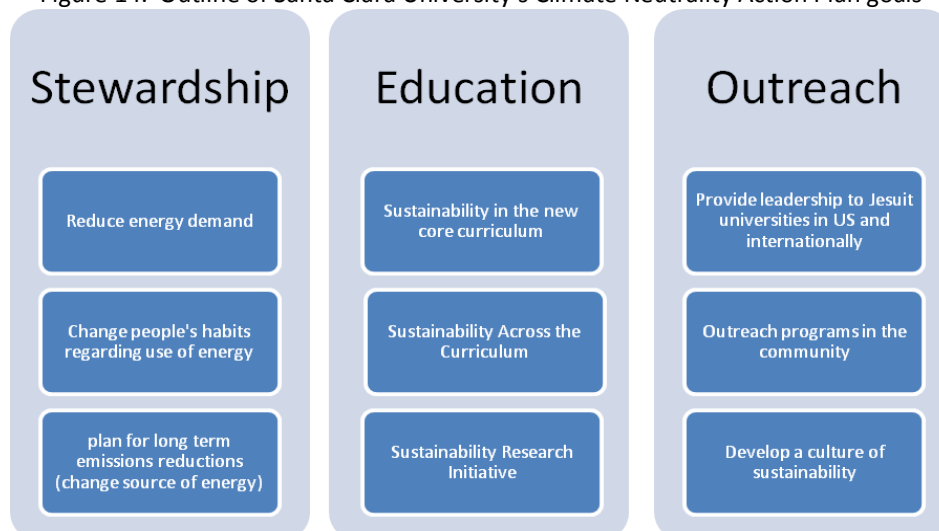
Members of the Sustainability Council and campus administrators will ensure components of the Climate Neutrality Action Plan pertaining to their programs are implemented. Stakeholders from pertinent University programs will be invited to form sub-committees to focus on implementing specific aspects of the Climate Neutrality Action Plan.

The Sustainability Council and Office of Sustainability will track the University's progress through direct communication with representatives of University programs. The Sustainability Council will report annually on the University's progress toward reaching our climate neutrality goals. The Sustainability Council will monitor progress and continue to assess unintended consequences. The Council will also determine appropriate measures if the University appears to get off track.

Conclusion

Santa Clara University is well on its way toward climate neutrality. This initiative is one example of how higher education is taking the actions necessary to create a more sustainable and better future for us all.

Figure 14. Outline of Santa Clara University's Climate Neutrality Action Plan goals



Glossary

Term	Definition
AASHE	Association for the Advancement of Sustainability in Higher Education (http://www.aashe.org). AASHE is an association of colleges and universities in the U.S. and Canada working to create a sustainable future.
ACUPCC	American College and University Presidents Climate Commitment (http://www.presidentsclimatecommitment.org) is a high-visibility effort to address global warming by garnering institutional commitments to neutralize greenhouse gas emissions, and to accelerate the research and educational efforts of higher education to equip society to re-stabilize the earth's climate.
AJCU	Association of Jesuit Colleges and Universities (http://www.ajcunet.edu) is a national organization to serve the 28 Jesuit colleges and universities in the United States. Through its various communication efforts and Conferences, the AJCU provides a forum for the exchange of information and experiences in the lively world of Jesuit higher education today.
Clean Air-Cool Planet (CA-CP)	Clean Air-Cool Planet is a science-based, non-partisan, non-profit dedicated solely to finding and promoting solutions to global warming. Santa Clara University uses the Clean Air-Cool Planet Campus Carbon Calculator to complete our greenhouse gas emission inventories.
Climate neutrality	For purposes of the ACUPCC, climate neutrality is defined as having no net GHG emissions, to be achieved by minimizing GHG emissions as much as possible, and using carbon offsets or other measures to mitigate the remaining emissions. To achieve climate neutrality under the terms of the Commitment, all Scope 1 and 2 emissions, as well as those Scope 3 emissions from commuting and from air travel paid for by or through the institution, must be neutralized.
Commuting	For purposes of the Commitment, commuting is defined as travel to and from campus on a day to day basis by students, faculty, and staff. It does not include student travel to and from campus at the beginning and end of term or during break periods.
Composting	The controlled aerobic decomposition of biodegradable organic matter, producing compost.
De minimis emissions	GHG emissions from one or more sources, for one or more gases which, when summed, are materially insignificant. For the purposes of the ACUPCC, the <i>de minimis</i> level is less than 5% of the institution's total emissions, as is the standard.
e-Stewards	The e-stewards eco-label (http://www.e-stewards.org) is comparable to LEED or Energy Star. There are several e-stewards qualified local recyclers in the Bay Area (Santa Clara, Los Altos, Hayward), who have pledged not to export e-waste to the developing world or to U.S. prisons, where health and safety conditions are terrible.
GHG emissions inventory	A baseline quantification of GHG emissions, from which emissions reductions can be measured and progress towards climate neutrality can be tracked.
Greenhouse gas (GHG)	For the purposes of the ACUPCC, GHGs are the six gases covered under the Kyoto Protocol: carbon dioxide (CO ₂); methane (CH ₄); nitrous oxide (N ₂ O); hydrofluorocarbons (HFCs); perfluorocarbons (PFCs); and sulphur hexafluoride (SF ₆).
Green Power	A popular term for energy produced from clean, renewable energy resources.
Heating Ventilation and Air Conditioning (HVAC)	HVAC is sometimes referred to as "climate control" and is particularly important in the design of medium to large industrial and office buildings where humidity and temperature must all be closely regulated while maintaining safe and healthy conditions within.
Kilowatt (kW)	A standard unit of electrical power equal to 1,000 watts, or to the energy consumption at

	a rate of 1,000 joules per second.
Kilowatt Hour (kWh)	A unit or measure of electricity supply or consumption of one thousand watts acting over a period of one hour. The kWh is a unit of energy. 1 kWh = 3,600 kJ = 3,412 Btu.
Leadership in Energy and Environmental Design (LEED)	A list of standards and certification scheme for environmentally-sustainable construction developed by the US Green Building Council (USGBC). The Leadership in Energy and Environmental Design (LEED) Green Building Rating System is presently the most popular and respected guide for green building in the United States. It evaluates environmental performance from a whole-building perspective over a building's life cycle, providing a definitive standard for what constitutes a "green building."
MTCO₂e	Metric Ton Carbon Dioxide Equivalent is equal to 1,000 kilograms or 2,200 pounds of Carbon Dioxide (IPCC, 2006).
Photovoltaic	The conversion of sunlight to electricity using photovoltaic (PV) cells, also known as solar cells, is based on the photoelectric effect discovered by Alexander Becquerel in 1839.
Operational boundaries	The boundary established for identifying emissions associated with the institution's operations. The process for establishing operational boundaries includes categorizing direct and indirect emissions, and choosing the scope of accounting and reporting for indirect emissions.
Organizational boundaries	The boundary established for identifying which aspects (departments, schools, joint ventures, etc.) of the institution that it owns or controls will be included under the ACUPCC.
Scope 1	A reporting category that accounts for direct GHG emissions from sources the institution owns or controls.
Scope 2	A reporting category that accounts for indirect GHG emissions from the generation of purchased electricity consumed by equipment or operations owned or controlled by the institution.
Scope 3	A reporting category that accounts for indirect GHG emissions from all other sources that occur as a consequence of the institution's activities but are not owned or operated by the institution.
STARS	Sustainability Tracking, Assessment, and Rating System (http://www.aashe.org/stars), a new sustainability assessment tool developed by the Association for the Advancement of Sustainability in Higher Education.
Sustainability	A dynamic state in which global ecological and social systems are systematically enhanced. Sustainable development is often defined as that which meets the needs of the present without compromising the ability of future generations to meet their needs. Sustainability is often evaluated using the 'triple bottom line' for ecological, social, and economic health because economic considerations are such a large and central aspect of social systems, and vital to the continued operation of individual organizations.
Temporal boundaries	The time period over which GHG emissions are evaluated. Santa Clara University evaluated our emissions based on fiscal year (July 1–June 30 of the following year) until 2009, when we switched to calendar year, recommended by the EPA.
Wind turbine	A wind energy conversion device that produces electricity.