

GreenROUTES Climate Action Plan for Colby-Sawyer College



green
ROUTES

The Pathway to Carbon Neutrality & Whole Systems Sustainability

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Executive Summary

Inherent in the mission and learning outcomes of Colby-Sawyer College is a commitment to our larger community, the natural environment, and a sustainable lifestyle. When President Galligan signed the American College and University Presidents' Climate Commitment (ACUPCC) in 2007, he made that pledge explicit on behalf of the entire college community and set us on a path to a carbon neutral future. The ACUPCC presents us with a personal and an institutional challenge, as well as the opportunity to take a leadership role alongside other colleges in setting benchmarks for a thriving and environmentally-sound society. Our Climate Action Plan, in addition to being a requirement of the ACUPCC, provides our campus community with a roadmap for reducing our greenhouse gas emissions and embodying whole systems sustainability in all of our decisions and actions. It is also a step towards the broader goal of being a community committed to sustainability.

Colby-Sawyer College has always been guided in its decision-making process by the answer to one question, "How will students benefit?" To perennially increase that benefit our response has been to improve the experience we offer in our classrooms, on campus, and beyond. In this age of globalization we recognize that there is a level of connectedness and consequence that exists beyond the boundaries of our community, and we believe that students will benefit if we engage ourselves in taking responsibility for those outcomes as well. We have always been good at caring for each other within our community; committing to sustainability and signing the ACUPCC is one significant way in which we can extend that locus of care beyond our walls to people and species around the globe, and to future generations who will inherit the outcome of our choices.

Our students, and their children and grandchildren, all benefit as we progressively model global citizenship in our infrastructure, operations, culture, and curriculum. In that mindful setting they begin to learn first-hand how to find satisfaction and success in a society that is moving towards a clean-energy economy and responsibly addressing the origins and impacts of climate change and other social and environmental issues. As we embody the skills and characteristics that reflect the real changes occurring in the world, our students become the very people that the world needs.

Recently several student groups conducted research projects on campus to help the college understand its environmental impact and begin to outline strategies to reduce that impact.¹ In developing our Climate Action Plan we drew upon those findings and worked with people in our campus community to determine the types of carbon reduction goals that were feasible given our infrastructure, budget, and culture. This is a living document designed to evolve as our knowledge grows and as technologies improve and become more accessible. Based upon the information available to us today we have developed the following emission reduction milestones to help coordinate and inspire our efforts.²



Colby-Sawyer's Emission Reduction Milestones

50% emissions reduction by 2015
70% emissions reduction by 2020
100% emissions reduction by 2050

¹ See the 2007 & 2009 GreenROUTES Reports for more detail: <http://www.colby-sawyer.edu/greenroutes/>.

² Reductions are relative to Colby-Sawyer's baseline greenhouse gas emissions from 2008.

Introduction

Around the globe governments and organizations are drawing upon all of their resources and expertise to address the monumental challenge posed by climate change, a challenge widely recognized as one of the greatest that humanity as a whole has ever faced. Worldwide, entities from all sectors of society are instituting mitigation and adaptation strategies to reduce anthropogenic greenhouse gas emissions that are leading to rising sea levels, more extreme weather patterns, shifting disease vectors, destruction of ecosystems, loss of species, social and economic upheaval, and threats to human health and wellbeing. Organizers of the American College and University Presidents' Climate Commitment (ACUPCC) realized that educational institutions have an unprecedented opportunity to model the leadership, discover the solutions, and train the generations that will best resolve these challenges.

Each organization that has joined the ACUPCC will face a different set of barriers in achieving its goal of carbon neutrality, but we all share the limits that an uncertain economic climate places on institutional decision-making and we all must work within the boundaries posed by the technology that is available and affordable to us at any given moment. We also believe that rapidly discovering practical, prudent and creative ways to overcome these obstacles is everyone's responsibility and is essential for ensuring a livable future. In some cases we may have to make uncomfortable decisions in the short-term that will ultimately generate long-term social, economic, and environmental benefits.

As we strive to reduce our greenhouse gas emissions we will make wiser choices about energy use, transportation, food procurement, investments, resource consumption and more. And while we believe it is absolutely essential to reduce our contribution to climate change we also know that some of the shifts we make will also help to reduce air and water pollution as well as habitat destruction, both locally and globally. Many of our proposed policies and actions also have the additional advantage of being smart fiscal decisions that can make us more self-sufficient and keep us out in front of changing regulations and increasing fossil fuel costs. We have chosen to use this Climate Action Plan (CAP) to lead us towards two related visions: the quantitative achievement of climate neutrality and the qualitative embodiment of whole systems sustainability.

This Plan begins with the text of the American College and University Presidents' Climate Commitment and then provides a history of the GreenROUTES student projects and our emerging sustainability movement. Though Colby-Sawyer only joined the ACUPCC in 2007 it had taken many independent steps prior to that to reduce its environmental impact, and we offer a brief summary of those actions here as well. The CAP also describes the holistic strategic approach we have adopted, which will serve to guide our decision-making process and invoke a shared vision of our future destination.

We have conducted two Greenhouse Gas (GHG) Inventories as a part of our ACUPCC requirements using the Clean Air-Cool Planet Campus Carbon Calculator and those results are outlined in more detail later in this document.^{3,4} We based our emission reduction milestones on the results of our 2008 GHG Inventory, which indicated that our emissions were 7,944.3 MTCO₂e (Metric Tons of Carbon Dioxide

³ See Clean Air-Cool Planet's website: <http://www.cleanair-coolplanet.org/toolkit/inv-calculator.php>.

⁴ See Colby-Sawyer College's 2008 and 2009 GHG Inventory for more detail, <http://acupcc.aashe.org/index.php?abs=&q=Colby-Sawyer%20College>.

equivalent). This value includes our emissions from Scope 1 (gasoline for campus fleets and propane for heating), Scope 2 (electricity consumption), and Scope 3 (commuting, travel, waste, paper consumption, and other indirect emissions.)

Where possible, feasibility studies were conducted on some of the proposed projects in our CAP, and we also utilized the projection feature in the Clean Air-Cool Planet spreadsheet to estimate both the carbon impact and economic implications of other policies and actions. Our long-term carbon reduction strategy parallels those recommended by many experts who suggest that organizations focus first on conservation, then on efficiency, next on renewable energy and finally, as a last resort, on offsets to mitigate the impact of emissions that cannot be otherwise prevented.⁵

A large proportion of our baseline emissions (3,386.3 MTCO₂e) are derived from our purchase of electricity from Public Service of NH and the coal-dominant fuel mix they offer. Because there is a limited “green power” network available in New Hampshire and New England at the moment, we have chosen in the short-term to seek to rely more heavily on the purchase of Renewable Energy Credits (RECs) as a temporary option to reach our milestones. As we continue to employ more technological and behavioral methodologies on campus to reduce our emissions at their source, and as local renewable energy alternatives become more affordable and accessible, we will be able to shift away from RECs to the more favorable option of regionally and locally-produced power and electricity.

Our policies and actions are divided into six interconnected areas: Energy, Transportation, Water & Biodiversity, Food, Waste & Consumption, and Culture, Curriculum & Investment, and we have further divided our CAP into short, mid, and long-term time frames so that we can use those metrics to motivate our efforts and track our progress. We feel more certain about the actions proposed in the next five years between 2010 and 2015, and believe that those steps will begin to lay the foundation for a shifting culture and a growing momentum. Our goal is for a 50% reduction in our 2008 baseline emissions by 2015, which could be achieved primarily through the purchase of Renewable Energy Credits for our electricity consumption and the use of biofuels to replace some of our propane use.

Our goal for our mid-term time frame from 2015-2020, is to reduce our emissions an additional 20% below our 2008 benchmark, which represents a 70% decrease from our baseline. This will be largely accomplished through a decrease in propane usage via improved efficiencies and more biofuel and renewable fuel applications; behavioral changes via cultural and curricular outreach; working in partnership with Sodexo dining and facilities services to reduce waste, consumption, propane, fuel, water and electrical use; and offsets for the emissions from faculty, staff and student air travel.

Extending our view out beyond 2020 to 2050 it becomes more challenging to develop a specific and realistic strategy that we know we can hold ourselves to; therefore our plan into 2020 becomes more flexible and open to opportunistic adjustments. Certainly as we continue utilizing more alternative sources of heating, generating our own electricity onsite, and reducing vehicle miles traveled by all members of our community it is feasible to reduce our emissions another 10-30% by our benchmark of 2050. We discuss all of our actions and policy proposals in more detail later in this document.

⁵ See p. 18 in “Getting to Zero” by Clean Air-Cool Planet and Forum for the Future, <http://www.cleanair-coolplanet.org/documents/zero.pdf>.

Colby-Sawyer College's commitment is to achieve carbon neutrality, or a 100% reduction in our carbon emissions from 2008 levels, by 2050. At this time most organizations are acknowledging that it is impossible to achieve neutrality without the use of carbon offsets, but it is our intention to reduce our emissions on-site at the source wherever possible first, and then use offsets as a long-term strategy of last resort. For instance, we would prefer to immediately install renewable energy systems on campus or purchase renewable energy from a local provider, but since those options aren't affordable or achievable right now we intend to use Renewable Energy Credits to decrease our emissions from our electricity use as we continue to actively investigate other opportunities as they arise.

Throughout this entire process we will be empowering passionate faculty who are interested in developing engaging methods for incorporating sustainability principles into their curricula and teaching methodologies, and we will be encouraging staff to apply their expertise and creativity to reducing the college's environmental impact in the course of their day-to-day operations and long-term planning. An essential part of the success of these initiatives in the short and long-term is of course the involvement and excitement of our students; and our implementation of this Climate Action Plan will utilize their interests and benefit, as always, as both its touchstone and compass.

Education, outreach and collaboration are other vital elements along our pathway to carbon neutrality and whole systems sustainability. As an academic institution we have the expertise and resources to share what we learn through this process with our students, staff, faculty, alumni and extended college family. The development of a comprehensive communication and outreach program is crucial if we hope to build a culture of sustainability and collectively solve the challenges we are all facing. In all aspects of our Plan we look forward to strengthening our partnerships with the Town of New London, as well as area businesses, schools, organizations, and residents to discover ways that we can synergize our efforts and to create a thriving local and global community, together.

The GreenROUTES Climate Action Plan for Colby-Sawyer College is a living document that we know will evolve as rebates and funding opportunities grow, as technologies improve and become more accessible, as we expand our understanding and our culture shifts, and as we conduct more onsite research into feasibility and new opportunities. The College is developing a Five Year Strategic Plan and this process coincides with the first time frame under consideration in the CAP. The version of the Climate Action Plan submitted to the ACUPCC on January 15, 2010 is a draft pending the final approval of the Colby-Sawyer College Board of Trustees. Even after being ratified by the Board, we intend to revisit the plan at least every other year in conjunction with our Greenhouse Gas Inventory to compare our progress against our goals and adjust our trajectory as needed.

ACUPCC Commitment

The following is the full text of the American College and University Presidents' Climate Commitment.⁶

We, the undersigned presidents and chancellors of colleges and universities, are deeply concerned about the unprecedented scale and speed of global warming and its potential for large-scale, adverse health, social, economic and ecological effects. We recognize the scientific consensus that global warming is real and is largely being caused by humans. We further recognize the need to reduce the global emission of greenhouse gases by 80% by mid-century at the latest, in order to avert the worst impacts of global warming and to reestablish the more stable climatic conditions that have made human progress over the last 10,000 years possible.

While we understand that there might be short-term challenges associated with this effort, we believe that there will be great short-, medium-, and long-term economic, health, social and environmental benefits, including achieving energy independence for the U.S. as quickly as possible.

We believe colleges and universities must exercise leadership in their communities and throughout society by modeling ways to minimize global warming emissions, and by providing the knowledge and the educated graduates to achieve climate neutrality. Campuses that address the climate challenge by reducing 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. These colleges and universities will be providing students with the knowledge and skills needed to address the critical, systemic challenges faced by the world in this new century and enable them to benefit from the economic opportunities that will arise as a result of solutions they develop.

We further believe that colleges and universities that exert 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.

Accordingly, we commit our institutions to taking the following steps in pursuit of climate neutrality.

- 1. Initiate the development of a comprehensive plan to achieve climate neutrality as soon as possible.*
 - a. Within two months of signing this document, create institutional structures to*

⁶ See the ACUPCC website: <http://www.presidentsclimatecommitment.org/about/commitment>.

guide the development and implementation of the plan.

- b. Within one year of signing this document, complete a comprehensive inventory of all greenhouse gas emissions (including emissions from electricity, heating, commuting, and air travel) and update the inventory every other year thereafter.*
- c. Within two years of signing this document, develop an institutional action plan for becoming climate neutral, which will include:
 - i. A target date for achieving climate neutrality as soon as possible.*
 - ii. Interim targets for goals and actions that will lead to climate neutrality.*
 - iii. Actions to make climate neutrality and sustainability a part of the curriculum and other educational experience for all students.*
 - iv. Actions to expand research or other efforts necessary to achieve climate neutrality.*
 - v. Mechanisms for tracking progress on goals and actions.**

- 2. Initiate two or more of the following tangible actions to reduce greenhouse gases while the more comprehensive plan is being developed.
 - a. 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.*
 - b. Adopt an energy-efficient appliance purchasing policy requiring purchase of ENERGY STAR certified products in all areas for which such ratings exist.*
 - c. Establish a policy of offsetting all greenhouse gas emissions generated by air travel paid for by our institution.*
 - d. Encourage use of and provide access to public transportation for all faculty, staff, students and visitors at our institution.*
 - e. Within one year of signing this document, begin purchasing or producing at least 15% of our institution's electricity consumption from renewable sources.*
 - f. Establish a policy or a committee that supports climate and sustainability shareholder proposals at companies where our institution's endowment is invested.*
 - g. Participate in the Waste Minimization component of the national RecycleMania competition, and adopt 3 or more associated measures to reduce waste.**
- 3. Make the action plan, inventory, and periodic progress reports publicly available by providing them to the Association for the Advancement of Sustainability in Higher*

Education (AASHE) for posting and dissemination.

In recognition of the need to build support for this effort among college and university administrations across America, we will encourage other presidents to join this effort and become signatories to this commitment.

A Brief History of GreenROUTES

In 2006 a group of students in the Environmental Studies Department enrolled in their required “Community-Based Research Project” class; and, instead of the usual “outside” community partner, they turned their attentions and talents toward Colby-Sawyer College’s operations. Newly arrived, President Tom Galligan charged the students with the task of conducting a sustainability assessment of the college. As part of their work the students formed GreenROUTES, which developed a final report containing specific recommendations for policies and initiatives that would Redirect Our campus Toward Environmental Sustainability (ROUTES). A year later in September 2007, consistent with the GreenROUTES recommendations President Galligan signed the American College and University Presidents’ Climate Commitment (ACUPCC), and soon after that the college Strategic Plan included, for the very first time, a commitment to sustainability.

Also in September 2007, the President established a Campus Sustainability Advisory Committee that met four times a year and identified priorities, planned events, suggested policies, and provided input and advice. In partnership with many others on campus they introduced a number of activities specifically aimed at reducing our carbon emissions, increasing awareness, and fostering a sustainable lifestyle. As a result of these efforts initiatives were implemented or continued in several areas across the campus. Just a few of these are listed below:

- More high performance windows installed in most residence halls.
- “Tray-less” meals offered in dining hall to save on food waste and energy.
- College Strategic Plan updated to include: “Committed to creating an environmentally sustainable campus community.”
- Recycling efforts on campus increased.
- Incandescent lights replaced with more energy efficient compact fluorescents.

To that point, the college had demonstrated an increased commitment to carbon reduction through its new institutional structures and related actions, but it lacked a baseline inventory of its carbon emissions and a way to measure its progress. In 2008 another Environmental Studies class decided to revisit the 2006 GreenROUTES Project results and compare those outcomes with our current needs. At this stage the college was already a Charter Signatory of the American College and University Presidents’ Climate Commitment (ACUPCC), sustainability initiatives were beginning to have an impact on our carbon dioxide emissions, and the first required Greenhouse Gas Inventory was coming due.

To file that inventory, the students began collecting data for the completion of the Clean Air-Cool Planet Campus Carbon Calculator™ to measure our current resource use and energy consumption and identify the source and quantity of our emissions. President Galligan asked this group of students to provide the college with a set of specific, pragmatic policy recommendations that would reduce the college's overall carbon dioxide emissions.

The results of Colby-Sawyer's first Greenhouse Gas Inventory indicated that the college emitted approximately 7,637 metric tons of carbon dioxide in the 2008 financial year.⁷ The good news was that this quantity represented a 5% reduction from 2006 emissions, but on an emissions-per-student basis we were still higher than many other colleges of similar size and we still had a long way to go to achieve carbon neutrality. Acting on the findings and recommendations of the 2006 GreenROUTES group and with the intention of acquiring support in meeting its obligations under the ACUPCC, Colby-Sawyer College hired its first Sustainability Coordinator in September of 2009.

The role of the Sustainability Coordinator, in addition to assisting in the creation of the Climate Action Plan, is to provide guidance and advice to the President, Senior Officers, and college community on ways to make Colby-Sawyer College a leader in sustainability and to coordinate sustainability projects, education and outreach on campus. To reflect a shift in focus from planning to action President Galligan retired the Campus Sustainability Advisory Committee and it was reborn as the Sustainability Task Force. Building upon the initial success of the original GreenROUTES student projects and the campus-wide association of the name "GreenROUTES" with sustainability, Colby-Sawyer College has chosen the GreenROUTES brand as the umbrella for all of its future sustainability initiatives. In order to engage and inform the college community Colby-Sawyer has established a GreenROUTES website and will continue to develop outreach materials, programs and opportunities which include faculty, staff, students and local residents.⁸



The Pathway to Carbon Neutrality & Whole Systems Sustainability

⁷ The discrepancy between this number and our 2008 baseline emissions of 7,944.3 metric tons occurs because we adjusted that value to make it more consistent with the data collection process from 2009 so that accurate comparisons could be made from year-to-year. A number for waste was included which was unavailable to us previously, adding 277.8 metric tons to 7,637.1; and then 29.3 metric tons were added to reflect the actual data for student commuting.

⁸ Visit the GreenROUTES website: <http://www.colby-sawyer.edu/greenroutes/>.

Understanding Carbon Neutrality & Whole Systems Sustainability

"We currently view the array of health, economic, energy, political, security, social justice, and environmental issues we have as separate, competing, and hierarchical when they are really systemic and interdependent. For example, we do not have environmental problems, per se. We have negative environmental consequences of the way we have designed our social, economic, and political systems. We have a de facto systems design failure. The twenty-first century challenges must be addressed in a systemic, integrated, collaborative, and holistic fashion."

-Anthony D. Cortese, Sc.D., President of Second Nature, Co-Organizer of the ACUPCC, and Co-Founder of the Association for the Advancement of Sustainability in Higher Education⁹

As part of the requirements for the American College and University Presidents' Climate Commitment (ACUPCC), participating institutions must measure, track, reduce, and report upon their Greenhouse Gas (GHG) emissions. This periodic inventory provides a quantitative means for identifying mitigation strategies, estimating cost savings, and evaluating progress towards carbon neutrality. Achieving carbon neutrality means that Colby-Sawyer College must eliminate its net greenhouse gas emissions from all sources, including on-campus energy production, transportation, waste, purchased electricity, agriculture, and refrigerants.

Being mindful of our environmental impact goes beyond simply eliminating our greenhouse gas emissions, because as we reduce our overall consumption of resources, use of fossil fuels, and generation of waste, we also address air pollution, water pollution, and habitat destruction. In that process we prepare ourselves for an energy constrained future, which is bounded by the approach of peak oil and the limited supply of other natural resources that we share with an expanding population. When we address our levels of consumption we bring them into alignment with the regeneration rates of renewable resources and the tolerance levels of our ecosystems. As we learn to live "closer to home" by sourcing our energy, food and other needs more regionally, we also increase our resilience and make ourselves less susceptible to global economic instabilities.

In addition to carbon neutrality, two other aspects of the ACUPCC are pledges to "take actions to make climate neutrality and sustainability a part of the curriculum and other educational experience for all students," and "actions to expand research or other efforts necessary to achieve climate neutrality."¹⁰ Borrowing from Colby-Sawyer's own statement about its Strategic Plan: as we continue "educating students for both life and livelihood" and embodying our values of "excellence, responsibility,

⁹ Cortese, A. (2009) "Higher Education's True Role: Creating a Healthy, Just and Sustainable Society," <http://www.climateneutralcampus.com/whitepaper/american-college-university-presidents-climate-commitment.html>.

¹⁰ See ACUPCC Text here: <http://www.presidentsclimatecommitment.org/about/commitment>.

community and connectedness” we may find that the philosophy and infrastructure of our existing Pathways Program may become the perfect guideposts for “integrating this ‘new’ knowledge across disciplines” and throughout the larger campus context.¹¹ It is our intention to engage interested faculty in developing a process by which Colby-Sawyer can begin to integrate sustainability more fully and formally into additional aspects of its curriculum. These faculty will have the benefit of such organizations as the Association for the Advancement of Sustainability in Higher Education and Second Nature, whose express purpose is to share experiences and offer guidelines as colleges negotiate and embrace these curricular evolutions.^{12, 13}

The ACUPCC also places emphasis on the importance of striving toward whole systems sustainability when it states that the commitment is a “jumping off point to promote a learning environment that provides the awareness, knowledge, skills and values to achieve a future where current and future generations achieve good health, economic security, social fairness and stability while restoring and sustaining the Earth’s life support systems.”¹⁴ We can compare this aim with aspects of Colby-Sawyer’s own Strategic Plan: “develop healthy, active habits of mind and body in our community; build financial strength for the present and future; become more diverse and more inclusive of people from different backgrounds, cultures, experiences, sexual orientations, and views; and create an environmentally sustainable campus community.”¹⁵

“The ACUPCC is a jumping off point to promote a learning environment that provides the awareness, knowledge, skills and values to achieve a future where current and future generations achieve good health, economic security, social fairness and stability while restoring and sustaining the Earth’s life support systems.” -ACUPCC

Our guiding principle in all of our decisions has always been the answer to the question, “How will students benefit?” As we examine our mission and strategic plan we recognize that we are not just striving to “sustain” some minimal condition of sufficiency, or a life of mediocrity for our students and employees, we are instead intending to “claim, practice and aspire to new levels of excellence.” Our renewed commitment to creating a culture of whole systems sustainability will give us the tools we need to help students and our entire community “realize their full intellectual and personal potential so they may gain understanding about themselves, others and the forces shaping our rapidly changing and pluralistic world.”¹⁶ Our Climate Action Plan does not take us in a new direction so much as it validates the path that we are already on and makes explicit some of the embedded values that have determined our route so far.

As we recognize that we are truly global citizens and that our personal actions can have consequences over large distances and long spans of time we can begin to approach our decision making progress in a more holistic and systemic way. Colby-Sawyer College has always had an investment approach that

¹¹ See Colby-Sawyer’s Strategic Plan: http://www.colby-sawyer.edu/about/governance/strategic_plan.html.

¹² See AASHE website: <http://www.aashe.org/>.

¹³ See Second Nature website: <http://www.secondnature.org/>.

¹⁴ See ACUPCC FAQ’s: <http://www.presidentsclimatecommitment.org/about/faqs#3>.

¹⁵ See Colby-Sawyer’s Strategic Plan: http://www.colby-sawyer.edu/about/governance/strategic_plan.html.

¹⁶ See Colby-Sawyer College Mission: <http://www.colby-sawyer.edu/about/governance/mission.html>.

considers an infinite investment horizon. Interestingly, this strategic philosophy is consistent with what is needed for making choices that in Gifford Pinchot's words benefit "...the greatest good, for the greatest number, for the longest time."¹⁷

As we embark on this process we all have the opportunity to reexamine our day-to-day actions to uncover simple (and grand) ways that we can make a positive difference in both our personal and professional lives. We can consider whether there are wiser choices we might make at the office with regard to resource use or energy consumption or transportation. We may ask ourselves how our current stress level, the food we eat, or the time we take to listen to somebody in need helps or hinders our wellbeing and/or the wellbeing of others now and in generations to come.

Every academic department can explore how their particular passions and expertise provide a unique lens through which to approach and achieve whole systems sustainability...what is the role of an artist or a sales manager or a writer or a parent or a biologist or an educator or a health care practitioner in creating a genuinely fulfilling present and a vibrant and livable future? Students can discover ways to organize and engage in this process of creating the kind of future they want to see, and provide the positive pressure we need to keep all of us dedicated to attaining these ideals. With this renewed vision we can stand together when it comes time to make difficult decisions that require short-term sacrifice but reap far-reaching long-term benefits that support our community's shared mission.

It is possible that some of the problems we are facing with regard to personal wellbeing, social justice, economic security, and environmental sustainability are related to our cultural tendency to think about these issues as separate from one another when they are in fact deeply connected. Our level of success in achieving our long-term sustainability goals will depend in part on our ability to develop and apply a systems view of the world. Many of the issues facing current and future generations are complex problems which require a different skill-set than have been taught in traditional discipline-focused academia. Colby-Sawyer College has taken the lead in preparing our students for this new paradigm by introducing our Pathways Program that allows them to integrate knowledge across disciplines. And by further committing to sustainability on all levels we are beginning to show students what that integration looks like in practice.

Many of the actions we might take to reduce our environmental impact may have positive personal, social and/or financial outcomes as well. For instance riding our bikes to campus can save us money on fuel, provide an opportunity to exercise, and reduce the discomfort experienced by those with respiratory issues from air pollutants. Eating fresh, organic, local food that has not been highly processed, sprayed with petroleum-based fertilizers, or shipped a thousand miles can reduce our carbon footprint, but also offer us a more nutrient-dense meal which boosts the local economy and doesn't contribute to water pollution or threaten the health of farmers. Making the choice to purchase organic cotton sweatshirts that were produced by people earning a living wage means that we kept our emissions lower while protecting the health and well-being of workers who manufacture those garments day in and day out.

¹⁷ Char Miller, & V Alaric Sample. (1999). Gifford Pinchot: A life in progress. *Journal of Forestry*, 97(1), 27. Retrieved December 7, 2009, from Career and Technical Education. (Document ID: 38182246).

Over the coming decades as we revisit our Climate Action Plan we recognize that if we continue to take a long-term, global, systems view of the issues we're tackling, we're more likely to make the best decisions and for the right reasons. We have set a goal to reduce our carbon emissions, but we know that personal wellbeing, social justice, economic security, and overall ecological stability are all equally essential aspects of creating a sustainable future.

Greenhouse Gas Inventory Results for 2008 & 2009

In 2008 the college submitted its first Greenhouse Gas Inventory in accordance with the American College & University Presidents' Climate Commitment. Students in the GreenROUTES project spent a year collecting and compiling data in a form to be useful for calculating the carbon dioxide profile of the college. They used the "Clean Air-Cool Planet Campus Carbon Calculator" spreadsheet for both input and calculation. Figure 1 indicates that the estimated amount of carbon dioxide emissions created during the 2007-2008 financial year was 7,944.3 MTCO₂e (Metric Tons CO₂ equivalent).

Figure 1 also shows the emissions from each source and provides other reporting data such as Colby-Sawyer's operating budget, the number of students and our square footage. Figure 3 groups our emissions into their Scope 1-3 categories by percentage values as follows:

- 34% from Scope 1: 2,737.6 MTCO₂e (gasoline for campus fleets and propane for heating)
- 43% from Scope 2: 3,386.3 MTCO₂e (electricity consumption)
- 23% from Scope 3: 1,820.4 MTCO₂e (commuting, travel, waste, paper consumption, and other indirect emissions)

In 2009 students in the "Sustainable Organizations" course worked to collect data for the calculation of the 2008-2009 carbon emissions for the college; this value was 7,803.8 MTCO₂e. This group of students did not have the same amount of time and resources as the previous group. They did, however, encounter many of the same obstacles and problems with finding data in the appropriate format for the completion of the inventory. The GreenROUTES group addressed data management in their comprehensive report and made some recommendations and suggestions, some of which appear here in our CAP.

There was little change in the total amount of carbon dioxide emitted by Colby-Sawyer College over those two years, however, the amount per student dropped by 6% - the college was decreasing its carbon footprint even as it experienced a growth in student numbers. This comparison can be seen in Figure 2. For more accurate year-to-year comparisons between 2008 and 2009 and future years, the 2008 inputs were adjusted to reflect the additional information recorded in the 2009 report. The biggest adjustment was to include a "landfill waste" number in the 2008 results that was previously unavailable; this added 277.8 metric tons to our initial value. The 2008 baseline was further adjusted to account for data recently obtained regarding student commuting, adding another 29.3 metric tons.

This brought our total adjusted baseline emissions for 2008 to its current amount: 7,944.3 MTCO₂e. The encouraging news is overall carbon emissions for the college are on a downward trend since 2007, despite growing student numbers (see Figure 4). Clearly, the college is heading in the right direction.

More detail about the nature of this data can be found in Colby-Sawyer's Greenhouse Gas Inventories from 2008 and 2009 submitted to the ACUPCC.¹⁸ Some of our data lacks consistency and accuracy and is difficult to obtain because it is not kept in a central location or recorded in the units needed by the ACUPCC. As we improve our data recording and collection process we will fine tune our results; which will likely increase the emissions we report in some cases. In spite of this we will still be able to demonstrate our reductions over time and adequately track our progress.

The Clean Air-Cool Planet Campus Carbon Calculator™ takes into consideration the six greenhouse gasses (GHG) recognized by the Kyoto Protocol and the GHG Protocol.¹⁹ These gasses include: carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulphur hexafluoride (SF₆). The Calculator reports emissions in the internationally standard units of CO₂e or Carbon Dioxide Equivalents, which factors in the Global Warming Potential (GWP) of each of the greenhouse gasses and reports their climate change impact relative to the GWP of Carbon Dioxide. An additional unit utilized here is MTCO₂e, or Metric Tons of CO₂ equivalent, where one MT is equal to 2204.62 pounds of CO₂.

2008 Greenhouse Gas Inventory Results

Data	INPUT	CO ₂ emissions in Metric Tons
Operating Budget	\$ 38,909,722	
Energy Budget	\$ 1,307,200	
Full Time Students	928	
Part Time Students	24	
Number of Faculty	107	
Number of Staff	178	
Physical Size	584,000 sq. feet	
Propane	469,769 gallons	2,550.0
Gasoline	18,906 gallons	168.7
Diesel	No information	
Refrigerants	No Information	
Organic Fertilizer	8,650 pounds	

¹⁸ See Colby-Sawyer College's 2008 and 2009 GHG Inventory for more detail, <http://acupcc.aashe.org/index.php?abs=&q=Colby-Sawyer%20College>.

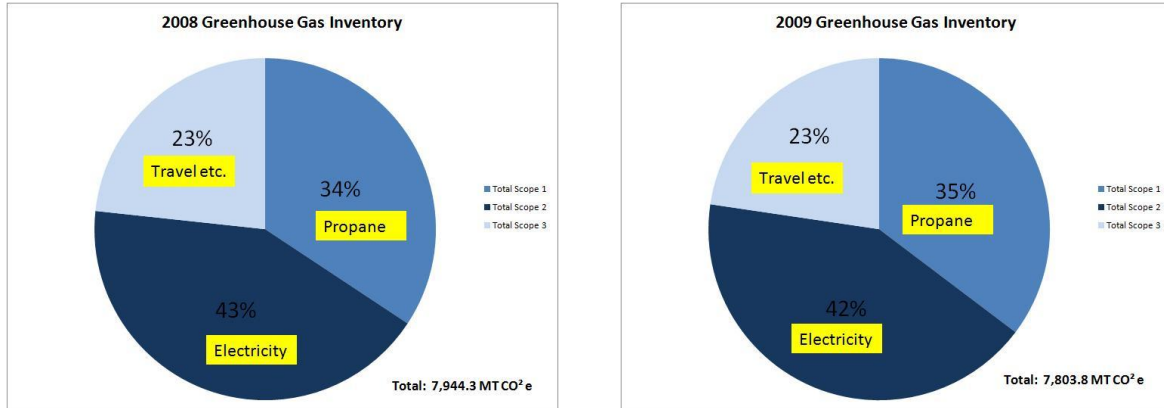
¹⁹ See <http://www.ghgprotocol.org>.

GreenROUTES Climate Action Plan for Colby-Sawyer College

Inorganic Fertilizer	7,355 pounds	
Total Fertilizer emissions		13.9
Electricity	3,484,209 kWh	3,386.3
Faculty/Staff commuting	1,541,446 miles	622.4
Student Commuting	347,424 miles	153.0
Faculty/Staff air travel	272,598 miles	
Student Air Travel	12,986 miles	
Total Air Travel emissions		221.7
Student Bus Travel	15,090 miles	3.8
Student Study Abroad Airmiles	20,6048 miles	160.0
Solid waste	256.25 short tons	277.8
Waste Water	11,673,000 gallons	50.7
Paper	27,856 pounds	35.9
Electricity distribution losses		334.9
Carbon offsets: forest preservation	80 acres	(40.0)
	TOTAL	7,944.3

Figure 1: 2008 Greenhouse Gas Inventory Results

Comparison of 2008 and 2009 Greenhouse Gas Inventories



MT CO₂e = Metric tons of CO₂ equivalent

Figure 2: Comparison of 2008 and 2009 Greenhouse Gas Inventory Results

2008 Emissions by Scope

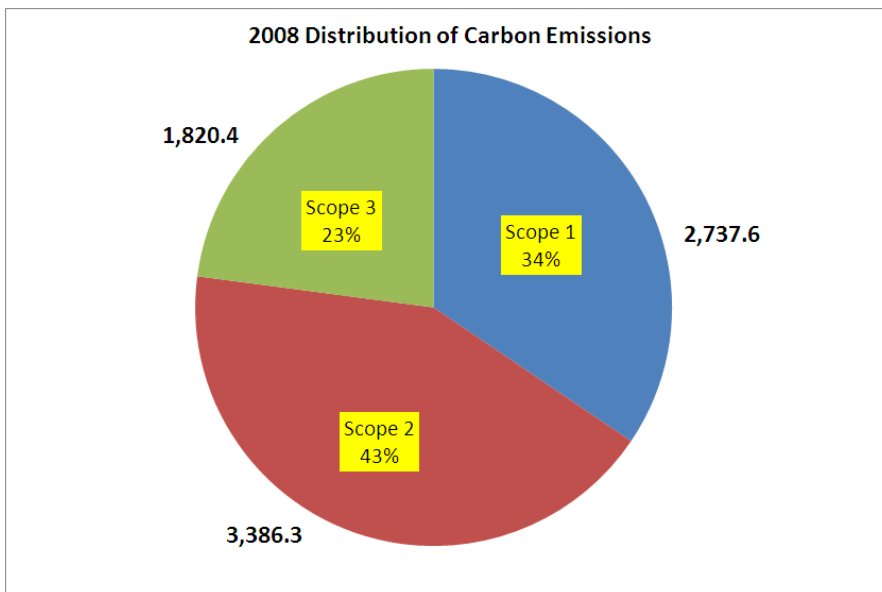


Figure 3: 2008 Emissions by Scope** in Metric Tons CO₂ equivalent

**Scope 1: On campus emissions from gasoline for fleet and propane for heating. Scope 2: Emissions from electricity consumption. Scope 3: Commuting, travel, waste, paper consumption and other indirect emissions.

Change in Emissions Over Time

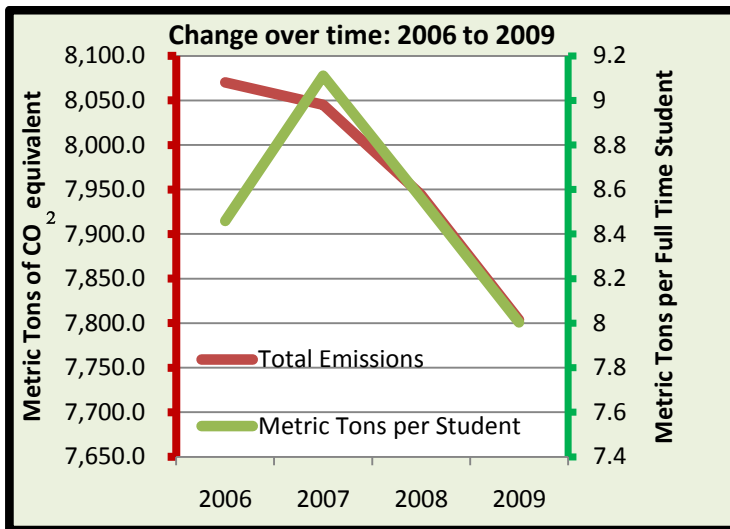


Figure 4: Change in Emissions from 2006 to 2009 (In Total Metric Tons and Metric Tons per Student)

Looking Back at Where We Have Been

The remarkable setting of Colby-Sawyer College and the beauty surrounding it have always inspired those involved to instinctually foster respect and stewardship for the land. The wellbeing of students, employees and the greater college community are at the forefront our strategic planning, and our surroundings have been recognized as both an asset to the college and a source of pleasure for its members. The fact that Colby-Sawyer College's official commitment to environmental sustainability emerged only a few years ago did not preclude us from already exemplifying the long-term perspective that the ACUPCC recommends.

In order to develop a strategic plan for moving the college toward its goals of carbon neutrality and whole systems sustainability it is essential to understand where we have been and what we have already accomplished. The partial list below captures some of the actions the college and its members have taken over the years to practice social, fiscal and environmental responsibility.

Energy

- Changed from heating oil to more efficient and cleaner-burning propane
- Upgraded lighting across much of campus, including replacing many incandescent lights with more energy efficient compact fluorescents
- Installed automation systems for many boilers, heating valves and A/C units
- Installed pumps for heating circulators in dorms that use 50% less energy than existing pumps
- Installed more high performance windows in most residence halls (nearly 1100 representing almost half of campus)

- Facilities received Public Service of New Hampshire Energy Efficiency Award
- Added insulation in attics of many buildings
- Upgraded underground utilities
- Increased purchase of Energy Star Appliances
- Replaced older faculty computers with Energy Star compliant and EPEAT Gold-certified models



Transportation

- Initiated no idling policy for visiting busses and for campus vehicles at away games
- College President drives hybrid vehicle



Water & Biodiversity

- Upgraded water and sewer lines
- Tree nursery planned for campus
- Use of Eco-Lab non-toxic cleaning supplies in Facilities for Housekeeping & Maintenance/Grounds



Food

- “Tray-less” meals offered in dining hall to save on food waste and energy
- “Chows for Sows” buckets used to collect food scraps for local pigs, keeping organic materials out of the landfill
- Recycled napkins in dining hall
- Reusable mugs issued to first-year students
- Eco-friendly Green Mountain to-go cups offered in dining hall
- Black River Produce provides vegetables from local farms
- Replaced takeout boxes w/paper wrappers
- Using Eco-Lab environmentally friendly cleansers in Dining Hall
- Replaced frozen and canned vegetables with fresh options



Waste & Consumption

- Part-time Recycling Coordinator provided education to campus community, supervised student workers, gathered statistics regarding materials collected, facilitated collection of hard-to-recycle items, and set up recycling areas in buildings and for special events
- Recycling efforts increased so that collection bins are now available in every building
- Options exist on campus to recycle paper, cardboard, cans, paper and glass
- Periodic collection of inkjet cartridge and batteries for recycling
- Vermiculture compost bin in Environmental Studies “Green Suite”

- Several departments exploring and/or instituting “paperless” options for many processes such as employee applications, admissions, and internal communications
- Students for a Greener Campus painted recycling bins for dorms
- Facilities composts grass and leaves for use in landscaping
- Instituted print count software to build awareness about paper usage
- Received Document Imaging grant to reduce paper consumption and streamline online data storage
- Internal recycling program for office supplies and furniture
- Eco-friendly paper and inks used in Colby-Sawyer Alumni Magazine



Culture, Curriculum & Investment

- College Strategic Plan updated to include: “Committed to creating an environmentally sustainable campus community”
- Added Environmental Studies Department, including majors in Environmental Science and Environmental Studies
- Several Environmental Studies courses developed, including an exploration area in Environmental Literacy
- Students in Free Enterprise (SIFE) include environmental sustainability as a focus area for projects (won Regional Award for their “Bring Your Own Mug” Project, see: <http://www.colby-sawyer.edu/business/team.html>)
- Students for a Greener Campus (SGC) Club initiated
- Student Athlete Advisory Committee (SAAC) exploring ways to “go green”
- “Lights Out” event with dorm competitions to reduce electricity use and raise awareness
- Student Government Association (SGA) involved in sustainability discussions including print quota and paper cup usage in dining hall
- Workshops conducted for faculty on using Blackboard to reduce paper usage in the classroom and “go green”
- Committee for Faculty Development and Research sponsored discussion on sustainability
- Colby-Sawyer representation on New London Energy Committee
- Environmental Studies “Community-Based Research” course conducting Natural Resources Inventory for the Town of New London
- Hired Sustainability Coordinator
- Created Sustainability Task Force

Emission Reduction Strategy

The route to carbon neutrality is for the most part uncharted territory as there are very few organizations who have as yet attempted to achieve this goal. Though each institution will encounter different barriers, Clean Air-Cool Planet and Forum for the Future offer an emission reduction strategy that has become recognized industry-wide as one of the most preferable pathways for approaching this work. This Carbon Management Hierarchy (see Figure 5 below) offers a framework to guide our decision-making and prioritize our actions.²⁰

Through this Hierarchy organizations are encouraged to first reduce and eliminate emissions at their source via conservation efforts. This “avoidance” strategy can involve simple actions such as turning off lights, driving fewer miles, keeping thermostat temperatures lower, and using fewer resources, or it can evolve into a complete overhaul of operations in order reduce carbon-intensive activities by shifting building occupancy during down-times and changing work patterns through telecommuting and flextime. The next step is to look for more energy efficient ways to conduct business such as installing CFLs, buying high efficiency appliances, and/or using vehicles with better gas mileage.

After reducing extraneous emissions through conservation and efficiencies the next phase is to explore renewable energy alternatives such as geothermal, biofuels, solar and wind. The best choice is to generate one’s own power locally, or derive that power from regional grid-tied sources. In the absence of those options one can consider the purchase of Renewable Energy Credits (RECs) from another location. (RECs are explained in more detail in Figure 6 below). These three strategies (avoid, reduce, replace) are often considered to have a more significant and long-term effect on emissions, and ultimately climate change, since they actually prevent greenhouse gasses from entering the atmosphere at all through direct means.

Though it is widely recognized that achieving carbon neutrality without the use of offsets is virtually impossible given the technologies available today, organizations are still encouraged to use that option as a last resort when emissions can’t be directly prevented through the first three measures. Offsets represent the reduction of a certain amount of greenhouse gases through a carbon reduction project. There are different qualities of offsets available in the market and many now are third-party certified, but they are still best seen as a short-term solution until more direct reductions are available. Emission reductions anytime and anywhere have a positive impact on the global atmospheric climate that affects us all, but direct emissions reductions close to home are the better long range solution.

²⁰ Burtis, B. and Watt, I. (2008) “Getting to Zero: Defining Corporate Carbon Neutrality.” Clean Air-Cool Planet and Forum for the Future. Portsmouth, NH. Accessed December 2009. www.cleanair-coolplanet.org.

The carbon management hierarchy

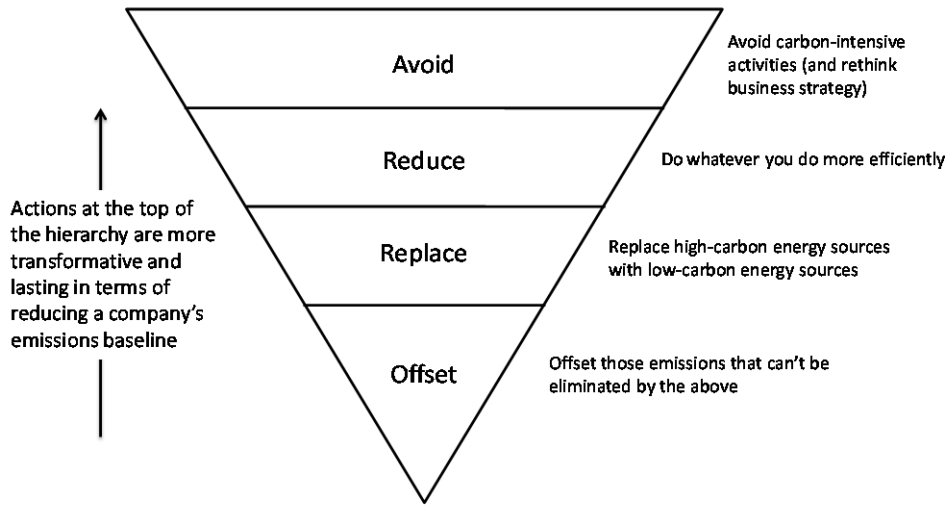


Figure 5: The Carbon Management Hierarchy, Clean Air-Cool Planet & Forum for the Future

Explanation of Renewable Energy Certificates (RECs)

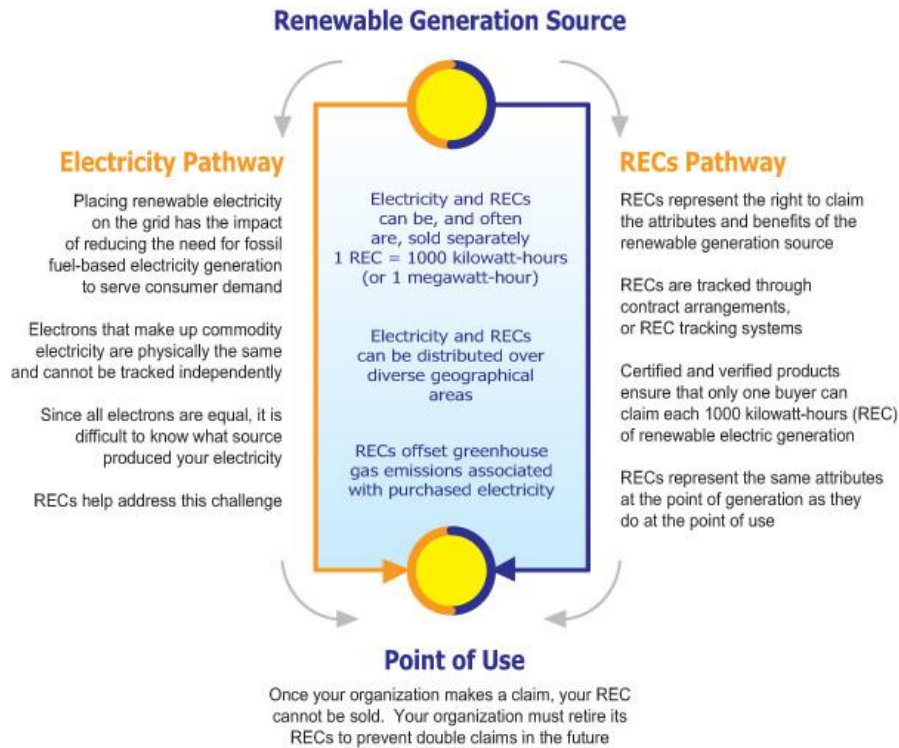


Figure 6: Renewable Energy Certificates Chart, EPA

Developing a Framework for Climate Action and Sustainability

A document entitled “Overview of a Climate Action Plan” was introduced in an All Campus Meeting in October 2009 and the college community was invited to share their comments and ideas with their respective Senior Officers. This input was collated by those staff members and passed along for consideration and inclusion in our final Plan. Each of the senior staff was also asked to prioritize the actions and policies under consideration and place them into one of three categories: short, mid, and long-term. The Sustainability Coordinator met with all of the senior staff to gather this information and incorporate those priorities into the final Plan.

Although lacking the time and resources to conduct extensive research into the outcomes of each of the initiatives under consideration prior to January 15, 2010, each possibility was placed in a priority matrix to identify its feasibility. For each action the following factors were analyzed and given a weight from 1 to 3 (1: high, 2: medium, 3: low): its emergent priority amongst Senior Staff, its contribution to carbon reduction; the cost of the project, and level of resistance it might encounter. The research conducted by the GreenROUTES student groups, the results of the GHG Inventories, projection models created in the Clean Air-Cool Planet Campus Carbon Calculator, and feedback from our community were utilized to estimate weights for each initiative. With a few exceptions policies/initiatives that scored 1-1.50 were placed in the short-term time frame (2010-2015), those that scored 1.51-2.0 were placed in the mid-term time frame (2015-2020), and those scoring 2.1 or above were placed in the long-term time frame.

In March 2009 our home state of New Hampshire released its own Climate Action Plan, and the commitments outlined there can serve as a useful reference as we continue to develop our own long-term goals. The NH Plan identifies several milestones with regard to statewide carbon emissions, including achieving a 20% reduction in emissions below 1990 levels by 2025, and 80% reduction below 1990 levels by 2050. The New Hampshire Climate Action Plan states:

“In order to move toward this long-term goal and provide the greatest economic opportunity to the state of New Hampshire, the Task Force recommends 67 actions to:

- *Reduce greenhouse gas emissions from buildings, electric generation, and transportation.*
- *Protect our natural resources to maintain the amount of carbon sequestered.*
- *Support regional and national initiatives to reduce greenhouse gases.*
- *Develop an integrated education, outreach and workforce training program.*
- *Adapt to existing and potential climate change impacts.”²¹*

We also have the good fortune of partnering with Sodexo via our Facilities Department and Dining Services. Sodexo is a company that believes very strongly in service and it has recently developed a “Better Tomorrow Plan” through its Office of Sustainability & Corporate Social Responsibility in North

²¹ See New Hampshire Climate Action Plan:

http://des.nh.gov/organization/divisions/air/tsb/tps/climate/action_plan/documents/nhcap_xsum.pdf.

America. Their independent efforts and the support they offer will be an excellent resources as we strive to meet the commitments of our Climate Action Plan. Reviewing their initiatives it is clear that Colby-Sawyer and Sodexo's goals are in direct alignment, and that many of our policies and actions also overlap with theirs.

In the near future Sodexo will be leading a process to engage all of its managers and employees in identifying how the "Better Tomorrow Plan" can be implemented at their sites, including the following "14 Commitments" taken from their website:

- *We will reduce our carbon intensity across all our operations and clients' sites*
- *We will reduce our water intensity across all our operations and clients' sites*
- *We will develop and promote health and wellness solutions for our employees, clients and customers*
- *We will provide and promote varied and balanced food options*
- *We will source local, seasonal or sustainably grown and raised products*
- *We will promote choices with reduced sugar, salt and fats*
- *We will increase the purchase of products sourced from fairly and responsibly certified sources*
- *We will source sustainable fish and seafood*
- *We will source and promote sustainable equipment and supplies*
- *We will reduce organic waste generated at our sites and in our operations*
- *We will reduce non organic waste generated at our sites and in our operations*
- *We will ensure compliance with a Global Sustainable Supply Chain Code of Conduct*
- *We will support local community development*
- *We will fight hunger and malnutrition by engaging the entire Sodexo community including employees, customers, clients and suppliers²²*

Our college community needs to develop realistic, challenging and achievable short-term, medium-term, and long-term goals as well as accompanying policies/actions to achieve those goals. The policies and actions in our Strategic Timeline section that follows are divided into six interconnected areas: Energy; Transportation; Water & Biodiversity; Food, Waste & Consumption; and Culture, Curriculum & Investment. Our choices in each of these categories will have an impact on our goals of carbon neutrality and whole systems sustainability, but the policy areas (e.g. energy, transportation, curriculum, etc.) are not necessarily confined to departmental actions. In fact and practice, achieving these goals will require concerted interdisciplinary communication and cooperation. For example, the Vice President of Administration has a budget for electricity use and determines policies related to the providers, but the Vice President of Student Development may develop energy conservation objectives and residence hall-related competitions for resident hall electricity use.

Offered below are a series of implementation targets that are based on the information available to us at this time. We recognize that more data may become available in the future and/or the information

²² View the details of Sodexo's Better Tomorrow Plan on their website:
<http://www.sodexousa.com/usen/citizenship/thebettertomorrowplan/thebettertomorrowplan.asp>.

we have may change; as this happens we will make adjustments in our strategy in order to achieve the milestones we've identified. In some cases we indicate that more research must be done before the specifics of an action or policy can be determined; but its inclusion within a particular timeframe of the Plan indicates that we will conduct that research and make a decision to proceed or not within that timeframe. If it is determined that an action is not feasible within that timeframe it will either be postponed or another action will be identified to replace it and in an effort to keep us on target.

In developing a strategy for a 40-year time frame some assumptions are unavoidable. Where possible those assumptions are indicated, but there are many factors that still remain unclear. We are optimistic that the economic and technological resources for carbon reduction will improve over time, and as that happens and our assumptions change we will reconfigure our Climate Action Plan accordingly.

Strategic Timeline of Policies and Actions

2010-2015: 5 Year Plan

This short-term time frame coincides with our Five-Year Strategic Plan which is currently under development. Our emission reduction milestone for the period from 2010 to 2015 is a 50% reduction in our greenhouse gas emissions from our 2008 baseline levels. Our emissions in 2008 were 7,944.3 MTCO₂e and our new emission target by 2015 would be 3,972 MTCO₂e. From the policies/action areas below the greatest contributors to that reduction would be the purchase of RECs (Renewable Energy Credits) to reduce our electricity emissions to zero (3,386.3 MTCO₂e) and a biofuel option and efficiencies to replace/reduce approximately 100,000 gallons of our propane use (544 MTCO₂e).

Additional specific target areas and their corresponding emission reductions include: elimination of transmission and distribution losses for electricity use (45 MTCO₂e); 3% reduction in use of vehicle fuel per year (38.7 MTCO₂e); drop in water consumption to 5,000 gallons per student for 1,000 students (29 MTCO₂e); switch to all recycled paper coupled with a 10% per year reduction in usage (24.5 MTCO₂e); 50% reduction in landfill waste from current levels (139.1 MTCO₂e). All of these initiatives add up to 4,206.6 MTCO₂e, which gives us a 234.6 metric ton "buffer" for reaching our 50% reduction goal. The actions and policies for each area are listed below:

2015 target = 3,972 MTCO₂e (50% of 7,944.3 MTCO₂e)

50% emissions reduction by 2015

Reduction of 3,972 Metric Tons from 2010 to 2015

Energy

- Conduct an annual Greenhouse Gas Inventory using Clean Air-Cool Planet's Carbon Calculator™ to identify areas for improvement and stay in compliance with ACUPCC reporting requirements.
- Revisit our Climate Action Plan at least every other year in conjunction with the completion of our Greenhouse Gas Inventory in order to track our progress towards our carbon neutrality goals and make necessary adjustments to our strategy.
- Appoint an Energy Conservation Officer/Team to identify opportunities for energy savings and efficiency, and coordinate those efforts.

- Schedule a commercial energy audit to develop best next steps for conservation, efficiency, weatherization, insulation, and retrofitting opportunities on a building-by-building basis.
- Conduct campus-wide conservation efforts including an assessment of thermostat settings, disseminating information about turning lights/computers off, and developing positive norms.
- Reduce energy consumption from hot water usage through more efficient appliances, investigation of renewable energy alternatives, and behavior change initiatives.
- Investigate the feasibility of a campus-wide Energy Star appliance purchasing policy.
- Research the potential to use wood pellets to provide a portion of the heat on campus, specifically a system designed to supply Hogan and Ivey and decide whether or not to implement such use by September 2010.
- Engage World Energy to help us identify a vendor where we can purchase Renewable Energy Credits (RECs) for our electricity consumption by May 2010.



Transportation

- Consider creating a no-idling policy for Colby-Sawyer College fleet vehicles and vehicles visiting the campus and decide whether to do so by September 2011.
- Encourage carpooling and alternative transportation options for faculty, staff and students.



Water & Biodiversity

- Develop a plan to monitor/reduce water consumption in buildings.
- Develop a plan to monitor/reduce water consumption for landscaping.
- Create a native/edible species landscaping policy wherein purchases made for campus landscaping favor these types of plants and trees.
- Institute a campus-wide non-toxic cleaning policy, so that all products used in residence halls and other campus buildings are environmentally-friendly and not harmful to humans and/or other species.



Food

- Use Energy Star appliances for any new Dining Hall renovations.
- Look into eliminating 1948 conveyor system for dishes in Dining Hall.
- Continue to powerdown energy intensive equipment during less busy times and utilize smaller appliances instead.
- Divert all organic waste away from the landfill towards “Chows for Sows” and/or additional compost programs.
- Plant a fresh herb garden for use in Dining Hall meals.
- Educate students about recommended portions and taking only what they need to avoid leftover food (ort).
- Utilize SMART (Sustainability Measurement And Reporting Tool) developed by the Office of Sustainability & Corporate Social Responsibility to develop a baseline and identify performance

objectives consistent with Sodexo's Better Tomorrow Commitments in areas of: Carbon, Waste, Water, Nutrition, Health and Wellness and Local Community Development.

- Offer vending machines with healthful/organic alternatives.



Waste & Consumption

- Apply the 6 R's policy for resource use and purchasing decisions (Refuse, Reduce, Reuse, Repair, Recycle, Rebuy) to save money and reduce waste and consumption.
- Develop data collection system for measuring trash/recycling outputs. This is a requirement of the ACUPCC, as this value needs to be reported in the annual Greenhouse Gas Inventory.
- Utilize technology to decrease overall paper usage (Blackboard/Moodle, e-records management, etc.).
- Institute campus-wide policy for the purchase of 100% post-consumer recycled paper for printers/copiers.
- Utilize print counting software to raise awareness in all constituencies (faculty, staff, students) to reduce paper consumption. A hard print quota would be considered a last resort and may not be necessary if norms shift on their own.
- Shift towards recycled paper/non-toxic ink for all print materials (catalogs, business cards, magazines, etc.)
- Develop a comprehensive campus-wide recycling policy and program for cans, bottles, newspapers, cardboard, paperboard; including hiring full-time staff to manage this initiative.
- Develop a policy for hard-to-recycle items including batteries, Styrofoam, hazardous waste, metal, and print cartridges.
- Consider participating in RecycleMania beginning Sunday, January 17 through Saturday, March 27, 2010.



Culture, Curriculum & Investment

- Expand the GreenROUTES section of the CSC website to include pages about education, events, projects, ACUPCC progress and more.
- Include information about climate neutrality and sustainability in all future orientations.
- Include information about climate neutrality and sustainability in new employee orientations.
- Expand our research on climate neutrality and sustainability and integrate those findings into our classrooms, operations, publications, and decision-making process.
- Incentivize creative sustainable actions with the entire campus community through recognition, awards and more.
- Offer educational opportunities and outreach programs for students, faculty, staff, alumni, and local residents for reducing carbon footprints and moving towards whole systems sustainability.
- Cooperate with external stakeholders including, but not limited to, the Town of New London, New London Hospital, local farms, grocery stores, schools and other businesses.
- Develop a tool and metrics for assessing how many classes already include sustainability principles.

- Convene a group of passionate faculty who wish to explore how CSC might eventually integrate sustainability into its curriculum.
- Empower interested faculty who wish to begin integrating sustainability into their curriculum to do so.
- Explore funding and/or faculty development opportunities related to environmental issues, “greener” teaching practices, new course topics, and integrating sustainability into existing classes.

2015-2020: 10 Year Plan

Our interim emission reduction milestone for the period from from 2015 to 2020 is a 70% reduction in our greenhouse gas emissions from our 2008 levels. Our emissions in 2008 were 7,944.3 MTCO₂e and our new emission target by 2020 would be 2,383 MTCO₂e. From the policies/action areas below the greatest contributors to that reduction would be a 25% reduction in our use of propane from our 2015 level through improved efficiencies, and more use of biofuel and renewable fuel applications (505.8 MTCO₂e); 5% broad-based reductions and improvements brought about via behavioral changes and Sodexo-related reductions in water, electricity, propane, fuel, and waste numbers (397.5 MTCO₂e); and the purchase of offsets for all air travel by faculty, staff and students (381.7 MTCO₂e).

Additional specific target areas and their corresponding emission reductions include: additional reduction in electrical transmission and distribution losses, perhaps corresponding to on-site generation of electricity (40.9 MTCO₂e); continue 3% per year reduction in fuel consumption for transportation (38.7 MTCO₂e); switch to 100% organic fertilizer and offset emissions by increasing on-site composting (14.2 MTCO₂e); rainwater capture for irrigation and greater saving from Sodexo efforts(4.3 MTCO₂e); more fuel efficient vehicles with no change in vehicle miles traveled (13.2 MTCO₂e); target of 500 pages of paper per student per semester (2.5 MTCO₂e); and 0.1 ton of landfill waste per student target (30.5 MTCO₂e). All of these initiatives get us just short of our 1,589 MTCO₂e target, but we still have a “buffer” of 234.6 from the 2015 reductions. Using that “buffer” to make up the shortfall and reach the 70% target, still leaves a 74.9 MTCO₂e remaining buffer.

2020 target = 2,383 MTCO₂e (30% of 7,944.3 MTCO₂e)

Reduction of 1,589 Metric tons from 2015 target

70% emissions reduction by 2020



Energy

- Improved individual building metering/energy tracking for data reporting and to facilitate residence hall competitions for energy conservation.
- Continue upgrades/retrofits for existing buildings to increase efficiency (weatherization, insulation, CFLs, etc.)
- Develop rigorous “green” building guidelines and/or policies for new and existing structures.
- Evaluate and upgrade HVAC systems wherever practical and affordable.

- Develop policy for indoor/outdoor lighting upgrades and purchasing policy that favors the most efficient technology available.
- Investigate options for on-campus electricity generation from renewable sources.
- Purchase electricity from a vendor supplying with renewable sources.



Transportation

- Create a bike-friendly campus and a bikeshare program so that students, faculty and staff have access to a bicycle that they can borrow for errands into town or across campus.
- Enable student RideShare programs for weekends and breaks.
- Enable/incentivize alternative transportation for staff/faculty including carpooling programs, telecommuting options, flex time, and encouraging bike-to-work days.



Water & Biodiversity

- Reduce emissions from lawn maintenance by incorporating natural landscaping, mowing fewer areas, using electric mowers, reducing use of leaf blowers, and planting wildflower fields.
- Develop an organic/non-toxic fertilizer and pesticide purchasing policy for all landscaping on campus.
- Research the viability of pervious (porous) pavement surfaces to decrease runoff.



Food

- Work with Sodexo to move towards sourcing all food from organic and/or local sources.



Waste & Consumption

- Favor locally-made materials from local vendors in all purchases wherever possible and practical.
- Develop a construction material recycling policy for all renovations and new buildings.
- Institute an electronic waste recycling program for the campus community.



Culture, Curriculum & Investment

- Decide whether to include the commitment to climate neutrality and sustainability in the Colby-Sawyer College (CSC) mission statement.
- Place the ACUPCC statement on the CSC homepage of the website.
- Begin including climate neutrality and sustainability theme in all CSC correspondence including recruiting, fundraising, values statements, etc.
- Engage interested faculty in developing a vision, protocol and long-term plan for the integration of sustainability into the curriculum.

- Provide multiple venues for integrating climate neutrality and sustainability into the total learning environment.
- Establish a green fund through student and/or alumni contributions that can be used to finance environmentally-friendly and/or energy efficient equipment or initiatives.
- Hold climate neutrality and sustainability-related competitions amongst students, faculty, staff, building-to-building, or with alumni.
- Pair an individual climate neutrality and sustainability pledge with the dissemination of reusable mugs or participation in a carbon footprint calculator.
- Consider developing “green-themed” housing or residence hall option for students.
- Initiate sustainable study abroad programs and opportunities.
- Include a line item in every administrative department budget for climate neutrality and sustainability.
- Encourage and educate sustainable behaviors at home.
- Develop a “green” peer education program.
- Identify and train sustainability mentors within each academic and administrative department.

2020-2050: 40 Year Plan

Our final interim emission reduction milestone for the period from 2020 to 2050 is a 100% reduction in our greenhouse gas emissions from our 2008 levels. Our estimates indicate that via the initiatives outlined below we should be able to achieve an 80% actual reduction, which would bring ourselves into alignment with the recommendations from the scientific community and the spirit of the ACUPCC. Whatever quantity of emissions remain at the close of the year 2049 we can eliminate via offsets, bringing us to our goal of a 100% reduction by 2050.

Our emissions in 2008 were 7,944.3 MTCO₂e and our new emission target by 2050 would be 1,587 MTCO₂e before offsets. It becomes more difficult to provide specific projections within this timeframe, but 10% of those emissions savings from our 2020 milestone (796 MTCO₂e) can come from additional positive behavior change, increased application of more efficient technologies, attention to alternative sources of energy for heating, reduction in the impact of faculty and student commuting, and a change in our electricity supply (perhaps from on-site generation) to reduce transmission and delivery losses. The balance can be reduced through the purchase of carbon offsets.

2050 target = 0 Metric Tons

Reduction of 2,383 Metric Tons from 2020 target

100% emissions reduction by 2050



Energy

- Explore additional alternative energy options and sources in order to derive 100% of our electricity from renewable sources.
- Consider the purchase of offsets to handle emissions that can't be reduced at the source.



Transportation

- Develop incentives, programs, and a plan to reduce student vehicle and air travel miles.
- Develop incentives, programs, and a plan to reduce faculty/staff vehicle and air travel miles.
- Explore distance learning options and begin instituting any that allow CSC to maintain its unique character and values.
- Institute a policy about minimum fuel efficiency standards for fleet vehicle purchases.
- Develop a policy to phase in alternative fuel vehicles.
- Consider the purchase of offsets for remaining emissions from air travel/vehicle miles.



Water & Biodiversity

- Develop a plan to eliminate all invasive species on campus.
- Explore green roof options for campus buildings.



Food

- Offer equal number of vegetarian and meat-based options for Dining Hall Meals.



Waste & Consumption

- Develop a plan to become a “zero-waste” campus that reuses, recycles, or composts all wastes created.



Culture, Curriculum & Investment

- Convene a committee which develops policies for socially responsible and environmentally sustainable investment guidelines.
- Rewrite all job descriptions for college employees to include a reference to climate neutrality & sustainability.

Conclusion

The ACUPCC binds us to a set of ambitious goals that will require the inspiration, creativity, knowledge, courage, cooperation and effort of every person in our extended campus community. If we remain true to Colby-Sawyer’s mission, while following the guideposts laid down in our GreenROUTES Climate Action Plan we should be able to navigate “The Pathway to Carbon Neutrality and Whole Systems Sustainability” and achieve our goal of 100% greenhouse gas emissions reduction by 2050.



Colby-Sawyer’s Emission Reduction Milestones

50% emissions reduction by 2015
70% emissions reduction by 2020
100% emissions reduction by 2050



green
ROUTES

The Pathway to Carbon Neutrality & Whole Systems Sustainability

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