



SAINT PETER'S COLLEGE CLIMATE ACTION PLAN

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2010

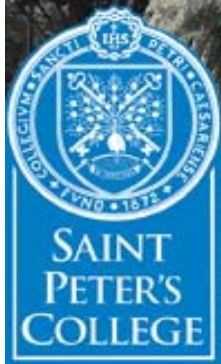


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I. INTRODUCTION

Saint Peter's College is proud to submit its Climate Action Plan in support of the American College and University Presidents' Climate Commitment (ACUPCC) that was signed in 2008 by College President, Eugene J. Cornacchia, Ph.D. This report summarizes the main elements of the College's plan to achieve climate neutrality. The Climate Action Plan (CAP) is regarded as a living, evolving map to guide Saint Peter's College as an environmentally responsible institution of higher education and to prepare the next generation of environmental leaders and stewards.

II. COLLEGE PROFILE

Saint Peter's College, one of the twenty-eight Jesuit colleges and universities in the United States, has a unique institutional profile that reflects its commitment to full engagement with the community in which it resides. Founded in 1872, Saint Peter's enrolls approximately 3,100 full-time and part-time students in undergraduate and graduate degree programs. The main campus is located in Jersey City, NJ, in the most densely populated county of the nation's most densely populated state. A branch campus for adult learners is located in Englewood Cliffs, NJ, and programs are offered at several off-site locations in the metropolitan area. Our remarkably diverse student body originates from throughout the United States and from more than 60 countries around the world. Saint Peter's is the most ethnically diverse of all the Jesuit schools, serving a large percentage of first-generation and low-income students.

Saint Peter's was recognized in 2009 by the President's Honor Roll for Community Service and in 2008 by The Carnegie Foundation for the Advancement of Teaching as a *Community Engaged Institution* for demonstrating both "Curricular Engagement" and "Outreach and Partnerships." Saint Peter's College is a member of the John Templeton Foundation Honor Roll for Character-Building Colleges that "exhibit a strong and inspiring campus-wide ethos that articulates the expectations of personal and civic responsibility in all dimensions of college life." Reflective of its commitment to diversity, the College is a federally designated Hispanic-Serving Institution, is a recognized Non-Governmental Organization (NGO) by the United Nations, and was ranked third in ethnic diversity among comprehensive universities in the north by *U.S. News and World Report* (2008).

III. STRATEGIC PLAN

The College's ACUPCC pledge is an institutional commitment supported by the recently adopted five-year Strategic Plan: *VISION 2015: Power by Faith, Reason, Service and Justice*. The strategic plan establishes four major directions to advance the mission of Saint Peter's College. Two of the directions, "Promoting Jesuit mission and identity" and "Advancing excellence in living and learning," contain goals and activities that address the College's commitment to environmental responsibility and climate neutrality. Initiatives include:

- developing a new Campus Facilities Master Plan that is environmentally responsible and community-engaging and that will contribute to the College's growth and development plans;
- building a Student Center that is Silver Leed certified;
- expanding campus sustainability and green efforts by establishing a clear policy and supportive programs that reflect the College's commitment to the responsible and ethical use of campus facilities and resources;
- demonstrating progress by 2019 toward fulfilling American College Presidents Climate Commitment through building efficiencies: heating & cooling, lighting, solar panels and co-gen (green electricity);
- Establishment of a centralized database to track and reduce transportation emissions;
- And dissemination of an awareness and education program, including program development in Environmental Studies, and educational programs through campus ministry, community service, student activities and other offices.

IV. CATHOLIC AND JESUIT IDENTITY

As a Jesuit, Catholic institution, Saint Peter's College is in a special position to foster student awareness of, and commitment to, environmental responsibility. The mission of the College is as follows:

Saint Peter's College, inspired by its Jesuit, Catholic identity, commitment to individual attention and grounding in the liberal arts, educates a diverse community of learners in undergraduate, graduate and professional programs to excel intellectually, lead ethically, serve compassionately and promote justice in our ever-changing urban and global environment.

Caring for our home—the Earth—is core to Catholic Social Teaching and Jesuit ministry, and is affirmed in the Mission at Saint Peter's College. To “excel intellectually, lead ethically, serve compassionately...” is to understand and attend to essential ecological needs of individuals and communities. In the words of Pope Benedict XVI, “The environment is God's gift to everyone, and in our use of it we have a responsibility toward the poor, toward future generations and towards humanity as a whole.” *Caritas in Veritate*, No. 48

The following Jesuit statement is taken from the most recent General Congregation of the Society of Jesus, GC 35 in 2008:

“#35. This Congregation urges all Jesuits and all partners engaged in the same mission, particularly the universities and research centers, to promote studies and practices focusing on the causes of poverty and the question of the environment's improvement. We should find ways in which our experiences with refugees and the displaced on one hand, and people who work for the protection of the environment on the other hand, could interact with those institutions, so that research results and advocacy have

effective practical benefits for society and the environment. Advocacy and research should serve the poor and those who work for the protection of the environment. This ought to shed new light on the appeal of the Holy Father that costs should be justly shared taking due account of the different levels of development.”

Saint Peter’s College is committed to academic excellence and to preparing students for leadership in shaping society’s response to social, technological and environmental change. The outcomes of a Saint Peter’s education include ethical leadership, a commitment to social justice and life-long learning. In all of its academic programs, Saint Peter’s seeks to advance ethical and moral values and personal responsibility as essential for the development of the whole person.

V. ACUPCC PROJECT LEADERSHIP

Upon signing the ACUPCC, President Cornacchia charged the College’s Green Committee with leading campus wide efforts to fulfill the terms of the commitment. The committee is co-chaired by Mr. Doug Demeo, Assistant Director of Campus Ministry, and Mr. Mark Graceffo, Associate Librarian. The committee includes members from the faculty, staff and student body. It works in close cooperation with facilities management, the office of college services, as well as R3 Energy consultants. Committee members include Michele Lacey (Webmaster), Cheryl Schenk (Admissions), Dan Murphy, Ph.D. (Philosophy), Joyce Henson, Ph.D (Business Administration), Paul Bartlett, MA (Economics), Laura Twersky, Ph.D (Biology), John Ruppert (EDM, Ph.D. Candidate in Ecology), WeiDong Zhu, Ph.D (Physics), Jonathan Weiss (OneCard Manager), Ernabel Demillo (Communications), Carolyn Weaver (Advancement), Dale Hochstein (Chief Information Officer), Daisy DeCoster (Librarian), Engrid Silva (2012, President of S.A.V.E.), Wilmot Wilson (2013), and Lory Mentor (2011). The committee is supported by Virginia Bender, Ph.D., Special Assistant to the President for Institutional Planning.

VI. PROJECT TIMELINE

As specified in the ACUPCC, the College has already fulfilled the following terms of the commitment:

- Within 2 months of their Implementation start date, signatories are committed to submitting information on the institutional structure for developing their climate action plans, including designating the institutional liaison. **COMPLETED.**
- Within 1 year, signatories are committed to reporting the results of their GHG emissions inventories; **COMPLETED.**
- And two tangible actions that will be implemented before the end of year 2 **COMPLETED.** Saint Peter’s committed to 4 of the 7 tangible actions recommend by ACUPCC:

1. Campus Construction: Planning for new Student Center as Silver LEED certified **COMPLETED**
2. Energy Efficient Appliance Purchasing: Committed to purchasing Energy Star products in areas where the ratings exist. **COMPLETED**
3. Public Transportation: College offer free shuttle service to the nearest transportation center and promoted the NJ Transit program. **COMPLETED**
4. Electricity Consumption from renewable sources: The College has a one-year commitment to 100 % Wind Power and is planning to install solar panels on flat building rooftops. *In progress*
5. Within 1 year, signatories are committed to reporting the results of their GHG emissions inventories. **COMPLETED**

VII. COMPONENTS OF THE CLIMATE ACTION PLAN

EDUCATIONAL, RESEARCH, COMMUNITY OUTREACH AND OTHER EFFORTS

In this section of the Climate Action Plan, Saint Peter’s College describes its plans to make climate neutrality and sustainability a part of the curriculum and other educational experiences for all students as well as actions to expand research, community outreach and/or other efforts toward the achievement of environmental health.

A. EDUCATION: THE CURRICULUM

The recent history and current actions and policies of Saint Peter’s College have seen many members of the college community affirm a strong, renewed commitment to making climate neutrality and sustainability a vital part of the SPC curriculum. This year the College established the Environmental Studies major. As an interdisciplinary major, the program is housed in the Chemistry Department, but has course requirements in many disciplines, including: chemistry, biology, media and communications, and politics. The major allows students to integrate theory and practice both on campus and in off-campus internships, and will also prepare them for careers in sustainability and a healthy environment. We expect the new major to accelerate the adoption of sustainability learning across the general curriculum just as we have experienced in the past with gender and race studies.

Building upon the strong foundation in the natural sciences at Saint Peter’s, a new environmental science concentration within the biology major takes an interdisciplinary approach on the topic, offering opportunities for practical experiences, with a solid grounding in science and mathematics. The department introduces students to environmental issues beginning in the first year General Biology sequence. Elective courses include Ecology; Human Evolution, Ecology and Adaptation; and Medical Botany, which focuses on the medicinal uses of plants, along with implications for conservation.

Several academic departments are frequent partners in green curricular initiatives. The Sociology and Urban Studies Program offers a course in Contemporary Social Ideas which examines social ecology: the study of human as well as natural ecosystems in their interrelationships; an examination of the problems of pollution, food and hunger, nuclear power, alternative technologies such as wind and solar, and the environmental crisis. In the Business Administration department, each year Dr. Joyce Henson's Senior Seminar in Business Marketing focuses on projects to help prepare students for careers in energy conservation and recycling.

Since 2007, the College has participated in climate-related educational initiatives, such as the Green Jobs Conference and *Focus the Nation*, a national forum dedicated to promoting climate change awareness and the creation of the clean energy economy. In 2008 and 2009, *Focus the Nation* drew together faculty members from nine disciplines discussing "green" practices and ideas. Panels included professors in Biology, Physics, Communications, Political Science, Business and Economics, Fine Arts, Theology, Philosophy and English. This year, Mr. Omar Freilla, the founder of Green Worker Cooperatives, was the Earth Week Lecturer. He spoke on *Green Jobs and Environmental Justice*. Ernabel Demillo, lecturer of communication, spoke on *the Greening Movement, U.S.A.* Saint Peter's College plans to continue and expand its programs in interdisciplinary collaboration in sustainability learning.

To support the academic programs, the SPC Library offers a link to [Green File](#), a free research database focusing on the relationship between human beings and the environment, with well-researched but accessible information on topics ranging from global warming to recycling to alternate fuel sources and beyond.

Despite its small size, Saint Peter's College offers a wide array of conference and special lectures throughout the year. Many of these programs support awareness of the commitment to climate neutrality. Recently Dr. Jennifer A. Francis was the featured speaker at the *57th Annual Mendel Lecture* on April 23, 2009; the *Mendel Lecture* is the longest running lecture series in the College's history. Her presentation was entitled, "Winds of Climate Change: Are We Sailing Off the Chart?" Dr. Francis is a Research Professor at Rutgers University-New Brunswick, in the Institute of Marine and Coastal Sciences. Her research is focused on the Arctic climate system, and the application of satellite information to investigate the causes for, and implications of, the Arctic's rapid change in recent decades. Saint Peter's College plans to continue and expand such lectures and conferences.

Community engagement and service are fundamental drivers of the College's strategic plan. A strategic goal is "to be involved in the development of our location, city, and region and beyond as citizens committed to service in the contemporary world." To achieve this goal, the College seeks to integrate community engagement and social justice in the academic, campus life and local community experiences. Saint Peter's College is in the process of revitalizing its commitment to integrating service learning across all disciplines, to begin in AY 2010-11. As a result of this intensified focus, faculty members will have increased and more visible

opportunities to connect service learning with many important issues, including air quality and other sustainability projects. Saint Peter's College plans to continue and expand its programs in this area.

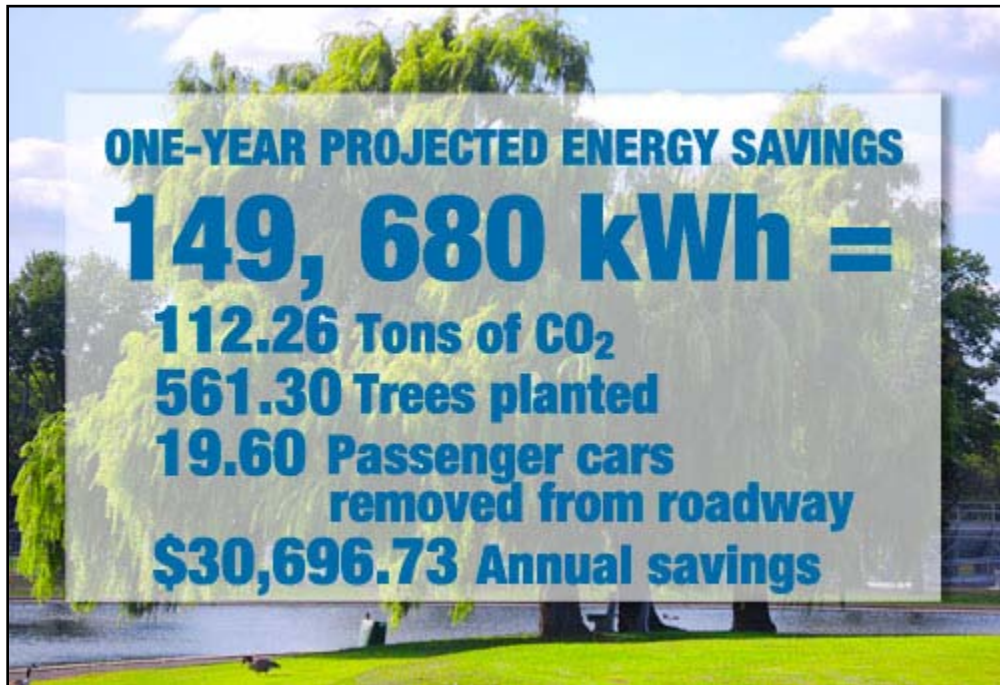
B. EDUCATION: EXTRA-CURRICULAR ACTIVITIES

Saint Peter's College is committed to the development of the whole person and academic life is enriched by many student-led programs, services, activities and events. Students can take an active role in almost 50 extracurricular clubs, all of which are required to complete community service in at least one event per academic semester. The College often funds student attendance at leadership conferences in community engagement and service. This past June, students and faculty participated in the national conference "Engaging Students in Humanitarian Actions" sponsored by the Jesuit Universities Humanitarian Action Network.

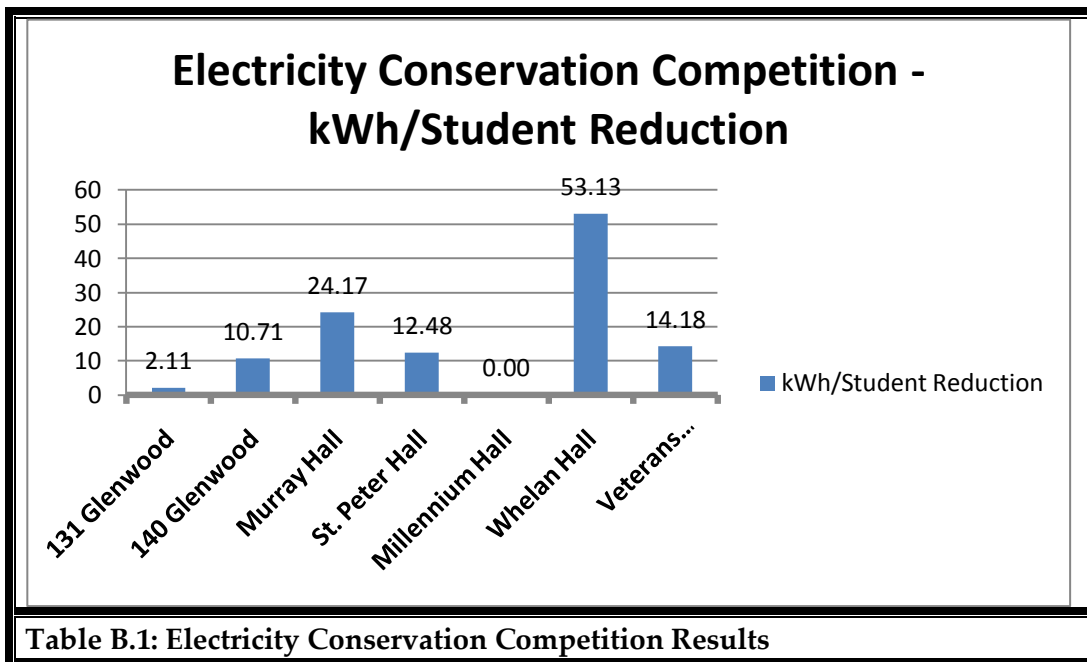
Several student activities have focused on environmental issues and plans call for increasing the number of these opportunities. Some examples include:

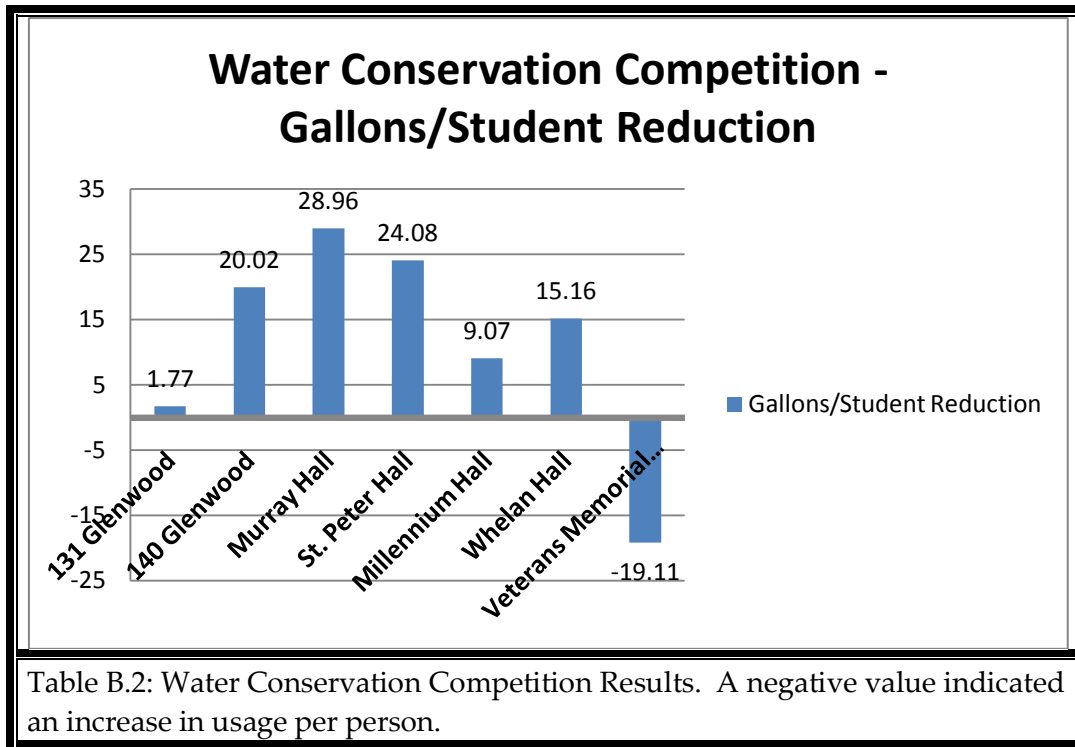
- SPC Students can join **S.A.V.E.** (Students Against Violating the Earth), which sponsors environmental activities which are often service-based. This environmental club sponsors an annual Earth Day festival, hikes, and environmental field trips.
- A small vegetable, herb and flower garden was planted behind the King-Kairos House.
- Students are serving on the Student Center Building Committee to provide input on building and construction, operations, and facilities in this projected Silver LEED certified building.
- During new student orientation, student leaders are trained in a workshop on campus greening and disseminate knowledge of 'SPC Goes Green' during summer orientation.
- With grant money received from GreenFaith, in May 2009 Campus Ministry held its first annual Ocean retreat, which has as its focus *care for Creation*. On the last day of the retreat the students made four skits about stewardship of water and electricity, and recycling. This Youtube video is used in workshop training of Summer Orientation leaders and Resident Assistants. Saint Peter's College plans to continue to expand its programs in this area. <http://www.spc.edu/greenmultimedia>
- In 2008 and 2009 seven SPC Residence Halls competed in two campus **conservation contests** in an effort to attain the highest percentage reduction in electricity and water usage. The students competed to reduce water and electricity use over a three month period during the fall semester, which saved the College approximately \$8,000 in utility costs – projecting more than \$30,000 in annual savings. The winners for the 2009 Conservation Competition were Whelan Hall for electricity conservation, with 53.13 kWh reduction per student, and Murray Hall for water conservation, saving 28.96 gallons of water per student. The savings compare each residence hall's water and electricity usage during three months in 2009 (September 15-December 15) to its own usage over the same period in 2008, factoring in the number of students living in each residence hall for both years. During the fall semester, our residence halls reduced

energy consumption by **37,420 kWh**. Based on these savings, the one-year projected savings are broken down this way:



Detailed results of the 2009 competition:





C. RESEARCH: CLIMATE NEUTRALITY AND SUSTAINABILITY

Saint Peter’s College faculty has a long history in making important contributions to the environmental health and sustainability of New Jersey local environs. The Chemistry Department, led by Patricia Redden, Ph.D., conducted environmental sampling and analytical analysis with the College’s Atomic Absorption spectrometer (AA) to discover hazardous levels of chromium contamination. This research, in collaboration with exposed communities, has led to the clean up of a number of contaminated sites and reduced public exposure to chromium. The Chemistry Department has courses in forensics, which consists of skills and instrumentation that can also be used to determine the source of environmental contamination and exposure. Jessica Epstein, Ph.D., also in the Chemistry Department, is doing research on renewable energy. This project seeks to develop environmentally friendly and cost effective technology to ferment large amounts of ethanol from waste plant material such as grass or wheat straw.

The new Environmental Studies major will involve faculty from social and natural sciences that have a diverse skill set and multi-disciplinary expertise and experience in Community Based Participatory Research (CBPR), as well as international collaborations. SPC statistician Paul Bartlett is presently training Mexican university faculty and government staff on environmental modeling and is participating as a co-author of the the UN Task Force Assessment on the Hemispheric Transport of Air Pollutants (HTAP).

Faculty in the Biology Department are also active researchers in this field. Dr. Michael Held's area of specialization is forestry, while Dr. Laura Twersky's research on phytochemicals examines the medicinal uses of plants and related conservation issues. John Ruppert is pursuing research on Brownfield succession in order to improve our trajectory models for the ecosystem services these sites may provide in the future.

In 2009, the College established the Center for Microplasma Science and Technology (CMST), which serves as the National Center of Excellence in this emerging scientific field. The research agenda involves more environmentally sound techniques of air and water purification along with various other environmental remediation methods. Under the leadership of Physics Professors WeiDong Zhu, Ph.D. and Jose Lopez, Ph.D., the CMST is developing ways in which to turn waste water into potable water without the use of harmful chemicals. Some of these same processes may be used to clean medical waste or petroleum by-products and thus turning them into harmless liquids. The use of microplasma has the potential to revolutionize the renewable energy industry.

Saint Peter's College plans to continue and expand its programs in this area. Proposed collaborative environmental research for the near future is discussed in the following section.

C. COMMUNITY OUTREACH

Events promoting awareness and action include lectures on environmental issues, screenings of documentaries, community clean-up projects, and contests encouraging green action and awareness.

Partnerships. Through the Institute for the Advancement of Urban Education, Research and Action and the Public Policy Program, Saint Peter's College seeks to develop community partnerships essential for the work of sustainability. Among the Community Block Organizations that have been collaborative in the development of neighborhood surveys are Fairmount Housing Coalition, Bergen Community United, and the Jersey City Episcopal Community Development Corporation. We plan to work with New Jersey-based GreenFaith, an inter-religious environmental stewardship organization, to build a coalition with CBOs around air quality monitoring and analysis, and public advocacy for clean air.

Global Learning. The Offices of Campus Ministry and Community Service have designed global learning models for justice and cultural appreciation in the developing world, with increasing attention to the need for the integration of environmental sustainability. Semester long preparation for a two-week immersion experience to Honduras or Ecuador includes student presentations in history, political economy, culture and geography. Our longer term goal is deepening relationships with our partner communities toward progress in global sustainability. For example, our students can connect the Latin American struggle to prevent environmentally destructive practices of extractive industries (e.g. oil and gold) with the U.S. struggle to prevent coal companies from engaging in Mountain Top Removal (MTR) operations.

In addition to Latin America, as part of our Global Outreach program, we prepare students for a week-long immersion over Spring Break in West Virginia and Kentucky where they learn about MTR. During the cultural immersion trips to Appalachia or Latin America, students engage in daily reflection and analysis. Upon return to campus, students disseminate global solidarity/sustainability insights through engagement with professors and peers in their class work. For example, students increasingly conscious in global issues may help lobby for adaptation of our Investment Policy. Possibilities include divestment or shareholder advocacy efforts reflecting solidarity with Latin American resistance to gold mining or Appalachian struggle against Mountain Top Removal—or whatever corporate-community sustainability issue is most pressing at the time.

We recognize the extraordinarily high carbon use associated with long-distance travel; therefore, in addition to travel-based educational opportunities, we will consider promoting the development of digital conference rooms. These conference rooms would be used to communicate and share ideas with people from around the world for classroom projects, research communication, and outreach initiatives.

Urban Sustainability Leadership Center. Plans are underway to secure funds for a Silver-LEED renovation demonstration project—a first step toward creating an Urban Sustainability Leadership Center. The Center will serve as a resource for teaching about sustainability to urban housing groups, area businesses (for example, construction), the civic community, and local schools. Plans associated with the Center include a community vegetable garden. Sociology, Biology, Economics or Education classes, or Student Academic Clubs, may assist in the organizational work of welcoming neighborhood groups or primary or secondary school classes on field trips. In visiting Saint Peter’s Humanitarian Garden, communities will learn about the many advantages of local, organic gardens and innovative green designs such as rainwater capture and reuse in gravity-fed drip irrigation.

Earth Day. Saint Peter’s College routinely celebrates this event and this year marked the 40th anniversary of Earth Day with a variety of activities for the campus community. On Tuesday, April 20, 2010, Saint Peter’s welcomes Mr. Omar Freilla, who preaches environmental justice and “green-collar jobs” in the defense of poor communities. The founder of Green Worker Cooperatives, Mr. Freilla developed the South Bronx-based organization in response to high unemployment and decades of environmental injustice, whereby poor communities are targeted as pollution sites. The organization is dedicated to addressing environmental and economic problems in the community, and implementing new sources of income in ways that are not damaging to workers or the earth. On Thursday, April 22, 2010, an Earth Day Festival was sponsored by the biology department and Students Against Violating the Earth (S.A.V.E.). A nature photography exhibit displayed approximately 30 photos taken by Saint Peter’s students. Additionally, there were posters presented by biology majors relating to environmental health. Topics include air pollution, water pollution, and mold and asthma. Lastly, nutrition students analyzed recipes and shared how phytochemicals (healthy components in plants) may convey health benefits.

Junkyard Dogs. Care and respect for the city in which you live, work, or attend school in, is vital to the creation of a strong community. The goals of this group are to set an example of care and responsibility for our surroundings; to interact with the residents of Jersey City and strengthen our community ties, campus to neighborhood and neighborhood to campus; to interact with the children of Jersey City and create a consciousness and practice of “green behavior”; and to provide a more humane and healthier environment in Jersey City. The requirement for membership is a pledge to participate in our monthly clean-up day in a section of the city, working to clean the streets, sidewalks etc. and to visit a local school once a semester to present on the issue of civic responsibility and self-awareness.

Kresge Fellowship. Saint Peter’s College was granted a 2009 Kresge Fellowship Award. A total of 15 fellowships were presented by Second Nature, a national nonprofit organization focused on sustainability in higher education, to advance campus green building at under-resourced institutions: “This fellowship program provides schools with the opportunity to learn about the resources and networks available to construct and renovate campus buildings in ways that save money, reduce environmental and health impacts, serve as educational tools, and increase student enrollment.”

Tree Campus USA. The Saint Peter’s College Englewood Cliffs campus recently hosted a tree planting with the Sisters of Saint Joseph of Peace and the Englewood Cliffs Shade Tree Commission. The tree planting is the first step that the College is taking to be recognized by Tree Campus USA, an organization that recognizes college and university campuses that effectively manage their campus trees and work with the local community in doing so.

We will continue to seek out and fortify relationships with various community organizations seeking also to promote the greening of Jersey City and beyond.

D. OTHER EFFORTS: CAMPUS INITIATIVES IN ENERGY MANAGEMENT AND RECYCLING

Through its business partnerships with Sodexo Dining Services, Collins Building Services and R3 Energy Management, Audit & Review, Saint Peter’s College has leveraged campus greening efforts in a variety of ways.

ENERGY MANAGEMENT

- Beginning January 1, 2010, the Office of Finance has locked in a one-year agreement with Con Edison Solutions to receive 100% wind energy for all electrical needs on campus. The wind power is certified by Green-e, the nation’s leading independent certification program for renewable energy.
- In 2009-2010, two 100 percent electric Mini Cooper vehicles, for use by Admissions and Campus Safety, have been leased.

- The laundry rooms in the Residence Halls were equipped with Maytag Neptune front load high-efficiency, Energy Star washers and dryers. Each of these washers will save approximately 15,000 gallons of water a year.
- Absorption chillers at the Recreational Center and McDermott Hall were replaced with state-of-the-art premium efficiency electric chillers with Variable Frequency Drives (VFDs). These were the first chillers of its kind to be installed within an educational facility in the state of New Jersey.
- From 2004 - 2007 the College reduced the total energy consumption for the main campus (i.e., #2 fuel oil, natural gas and electricity) by 29%. This measure avoided expulsion of 1,450 tons of harmful CO₂ emissions into our atmosphere. (That's the equivalent of 225,000 trees grown or the displacement of 350 cars from the road.)
- Sub-meters were installed in select locations throughout campus to better account for energy use and determine the origins of energy usage issues.
- College Services has upgraded much of the lighting to increase efficiency, and the increasing use of occupancy sensors generates additional energy and carbon savings.
- The installation of motion sensor controlled water fixtures in bathrooms throughout campus saves water as well as the unused electricity.
- R3 has "plugged in" Saint Peter's College to the network of available public and utility initiatives that encourage and economically support sound energy/ environment projects, including New Jersey SmartStart Buildings and Converge Demand Response Reduction. This latter program, where Saint Peter's agrees to turn off air conditioning for one hour at peak use times, has brought substantial financial savings.
- A comprehensive greenhouse gas emissions report of all College emissions, including transportation, has been compiled.
- The new Student Campus Center is being designed as a Certified LEED-Silver "green" building.
- IT has installed a Pharos Pay-for-Print System—whereby beyond 200 sheets of "free" printing paper per semester, 10 cents per sheet will be charged to student IDs. This is expected to reduce paper usage by 40 percent.
- Office of Finance is working with R3 Energy to move forward with installation of solar panels on select rooftops on campus.
- Plans are being drawn up to convert 20 ft. by 125 ft. of yard space (130 Glenwood) into Saint Peter's College Humanitarian Garden, including raised beds for vegetable and herb garden.
- Plans are moving forward to partner with Rutgers University Solid Waste Resource Renewal Group (SWRRG) to recycle large daily portions of organic good waste.
- Continued capital retrofits and improvements in lighting/ HVAC for existing buildings and new ones certified by Leadership in Energy and Environmental Design through the U.S Council for Green Buildings.

RECYCLING OUR RESOURCES

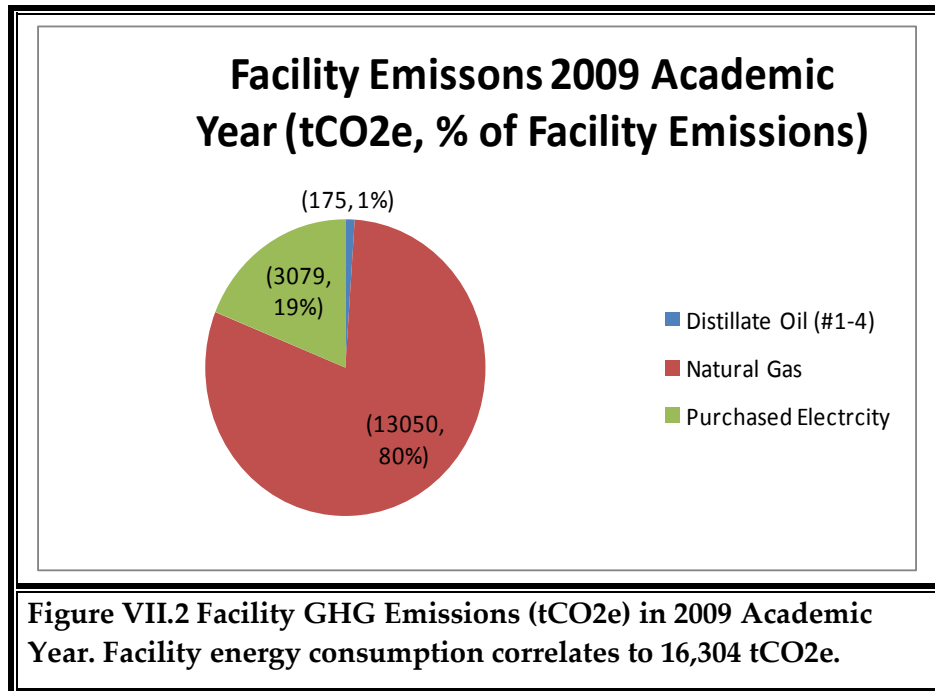
- All College offices, including student computer labs, are only permitted to purchase recycled paper (minimum 25% recycled paper) for printers and copy machines.
- Collins Building Services has switched its cleaning products to green seal formulas.
- Sodexo, our campus food service, has banned Styrofoam cups and plates.
- Sodexo has begun committing a small percentage of whole foods purchased through local sources. This has a significant effect not only on food freshness but lowering thousands of “food miles” and greenhouse gases (GHG).
- Increased choices in Fair Trade coffee that favor direct, just relations with farming communities and organic production methods.
- Tray-free dining: for every 2000 persons enjoying a meal, 200 gallons of water are saved. Plus enormous amounts of food waste are prevented from going into landfills and producing methane gas, a potent GHG.
- Enrollment Services now provides course schedule information using SPIRIT Online, eliminating the consumption of tens of thousands of sheets of paper used to print course schedules each semester.
- The Office of Admission is committed to the use of recycled products for publications as well as working with vendors respectful of the environment.

Saint Peter’s College plans to continue and expand its programs in these areas.

VIII. CAMPUS EMISSIONS

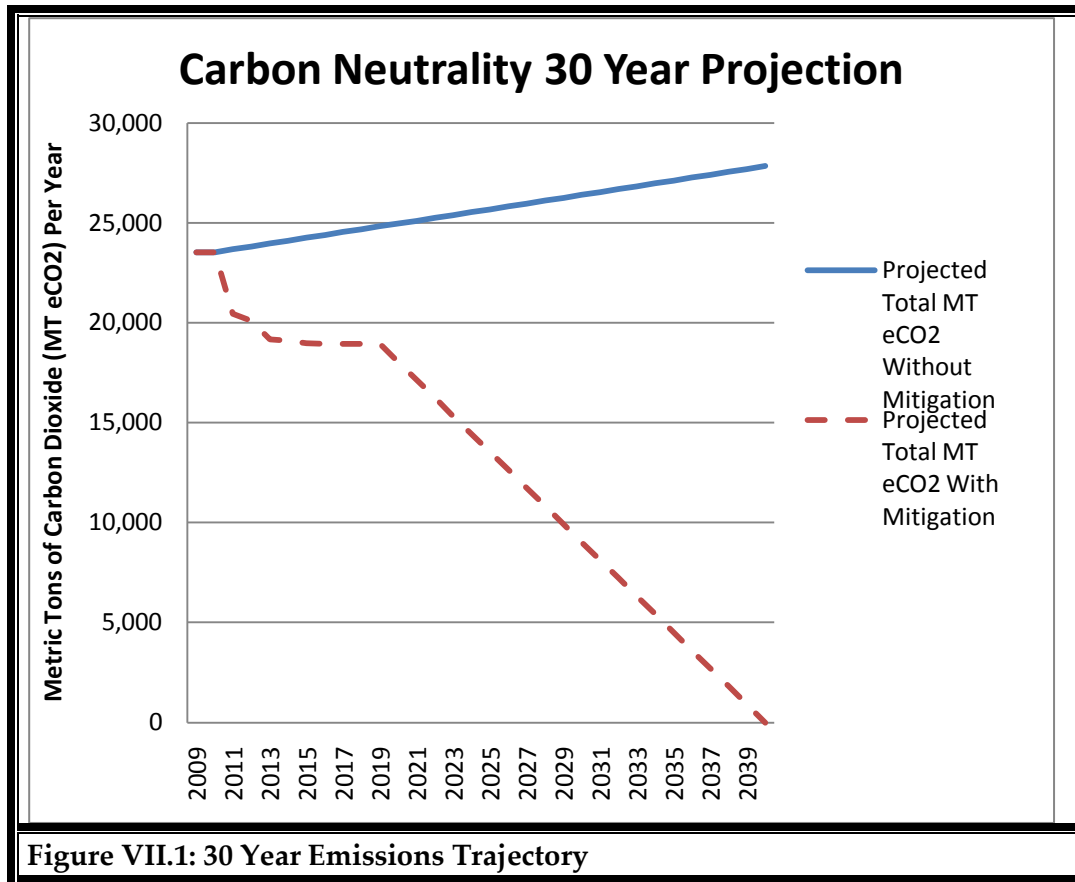
In 2009, roughly 75% (16,394 tons of CO₂e) of Saint Peter’s College’s total emissions (21,674 tCO₂e) were attributed to energy consumed by campus facilities, with purchased electricity and stationary combustion respectively comprising 61% and 14% of total emissions, respectively. Reducing facility emissions is likely to be the most challenging obstacle to carbon-neutrality given the considerable time and investment needed to upgrade older systems and retro-commission existing buildings.

Figure II.1 presents the emissions associated with facilities energy consumption from the 2009 academic year.



The emission profile at Saint Peter's has changed slightly since first reporting in 2008. The reduction in oil burning mechanical equipment resulted from a conversion to more energy efficient natural gas burning boilers. These capital investments along with additional emissions reducing strategies have allowed Saint Peter's to significantly reduce Scope 1 and 2 Emissions over the past 2 years.

Saint Peter's is committed to continuing this trend. The mitigation strategies described in Section VIII: Mitigation Strategies have been taken into account when developing the following Emissions trajectory.



IX. MITIGATION STRATEGIES

In the following section Saint Peter’s College outlines how the campus intends to achieve climate neutrality by 2040.

To reduce Scope 1 & 2 emissions, Saint Peter’s will continue its efforts to systematically identify, document and implement cost-effective energy conservation measures that maximize the energy efficiency of all existing facilities. This involves conducting an energy audit of each facility to establish an energy baseline and a schedule of energy reduction measures to be performed, including, but not limited to:

- Weatherize and insulate building envelope
- Upgrade HVAC and hot-water systems
- Install energy metering and control upgrades

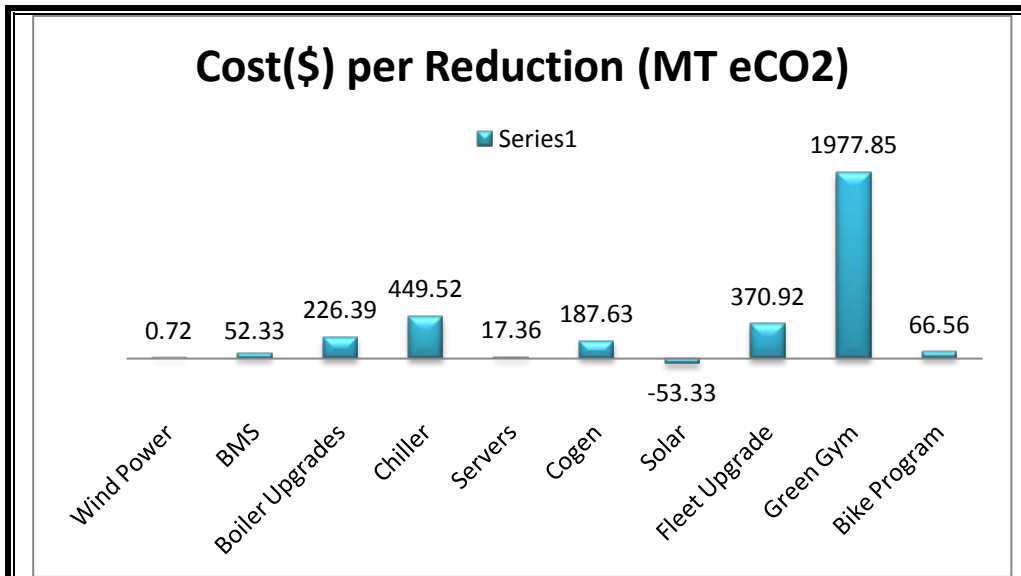


Figure VII.3 Cost per year of one metric ton reduction in CO₂ per mitigation strategy

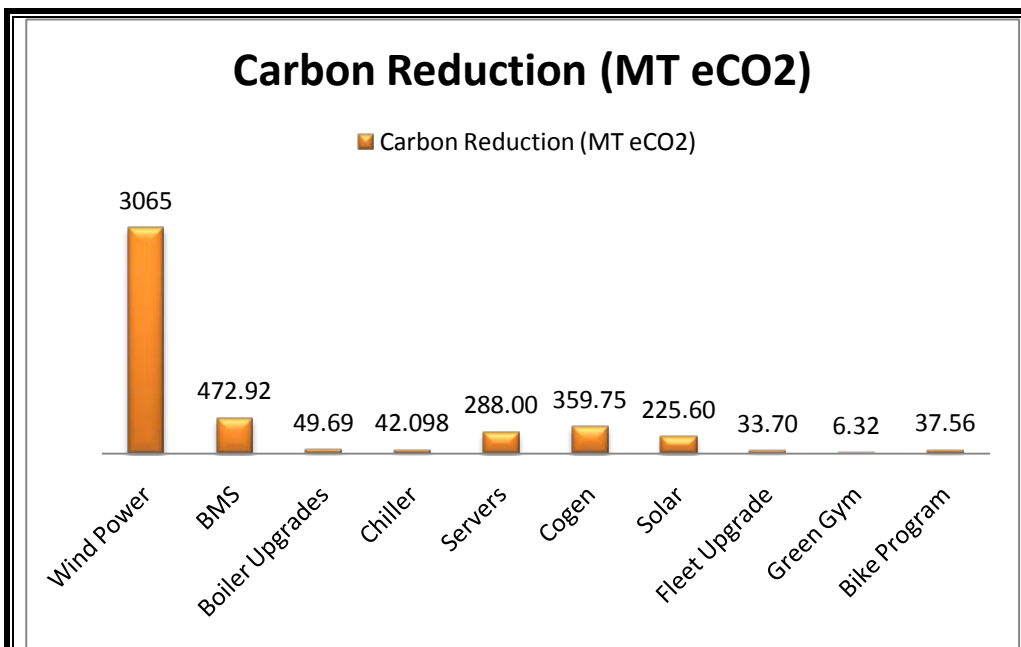


Figure VII.4 Total yearly carbon reduction per mitigation strategy

Wind Energy

Beginning January 1, 2010, the electricity purchased for all buildings on the Saint Peter's College Jersey City campus is 100 percent renewable "green" energy. Saint Peter's is the second private college in the state of New Jersey to purchase green energy as its sole source of electricity, thereby displacing an estimated 3,085 metric tons of carbon dioxide throughout the year, which

is the equivalent of planting 2,761 acres of trees or removing 7,697,000 miles of vehicle travel from roadways. The green energy is an attractive alternative to the typical use of fossil fuels to create electricity. The electricity generated by wind turbines prevents the contamination of air by omitting environmentally destructive pollutants. Saint Peter's has plans to renew the contract for wind energy every year for the foreseeable future. This offsets 100% of the Scope 2 Emissions previously generated by SPC.

BMS

The current Building Management System (BMS) is outdated: it has a limited number of control points; Gannon Hall is the only building that has interior temperature gauges; and all other buildings only provide control points at the air-handling units. The only control the BMS has is the ability to activate or deactivate the air handling units and air conditioning in Dinneen Hall. Plans call for a new BMS that will have full control over HVAC systems utilizing interior temperature sensors. Remote interior temperature sensors will be integrated to allow a more comprehensive control over interior climates. The BMS will include a more detailed night and holiday setback for HVAC systems and connect to the newly installed VFD's, which will allow the ability to control and monitor fan and pump motors. Through eQuest modeling, by R3 Energy, it was determined that the BMS will reduce electricity usage by 8% and natural gas usage by 27%.

Boiler Upgrades

Pope Hall currently has four boilers, which provide space heating to a cluster of buildings: Pope Hall, Gannon Hall, and Yanitelli Rec Center. These boilers are all older models that are not capable of modulation. Removal of the existing four boilers and installation of two new field erected boilers will combine the capacity of four into two boilers and reduce the efficiency losses associated with pre and post purge cycles. Two new boilers will be of higher efficiency and load following with a 10-1 turn down. The boilers can be integrated into the newly installed BMS which will provide accurate and real-time heating load requirements to the boilers. The new boilers will be capable of full modulation to be able to meet the load of the buildings.

Chiller Upgrades

The current chiller installed in O'Toole is a 1966 model Carrier steam absorption chiller. The chiller receives steam from the boilers in O'Toole to produce chilled water for cooling. The chiller is past its expected life and is running at a very low efficiency. The chiller constantly malfunctions which causes the cooling system to be inactive for extended periods of time during the cooling season. No mechanical connection exists between Pope Hall and O'Toole Library. Plans call for the existing steam chiller and cooling tower will be removed. A new hot water absorption chiller will be installed in the mechanical room of Pope Hall. A connection from the Pope Hall mechanical room to O'Toole will be installed to feed chilled water and heating hot water to the library. Pope Hall was chosen for the hot water absorption chiller installation because of the recommended CHP that is being installed. The chiller will offset the waste heat during the summer months and will also include a heating hot water feed to O'Toole

Library from Pope Hall. Performance ratings and efficiency will be no less than that of a Carrier/Sanyo model 16LJ 110 ton chiller. The chiller will be sized to meet the building's design cooling load and will be connected to the newly installed BMS, which will allow for full remote control and operation.

Behavioral Changes

It is advised that the maintenance staff and operating engineers undergo additional training that would improve operational efficiency while minimizing the environmental impacts of all buildings. Comprehensive operational plans and procedures specifically designed for use at Saint Peter's College include, but are not limited to: a Building Operating Plan, a System Narrative, a Preventative Maintenance Plan, a Sequence of Operations Plan, and an Indoor Air Quality Management Program. Once created, these plans would serve to educate all maintenance staff and operating engineers on the proper procedures and use of mechanical equipment at Saint Peter's College.

IT Network Upgrades

Saint Peter's Library and Information Services are applying a new energy saving policy to administrative desktops. This policy sets machines to hibernate, limiting interruptions to staff productivity while maximizing energy conservation. Normally, staff computers are left on after-hours to allow for system and security updates. With the new policy, all machines will automatically go into hibernation mode after a period of inactivity. In a hibernating state, computers consume less than 3 watts of power.

Also, a policy will be implemented to set all monitors and hard disks to standby mode when not in use. These policies will save an estimated 50 megawatts of power, which is more than 35 metric tons of carbon dioxide per year.

Finally, Saint Peter's is in the process of updating all of their routers and building switches across campus. The new routers and switches will use less energy and be much faster than those they are replacing. This will take a large stress off the IT network and will also allow for a smooth transition to a "cloud" based server set-up.

Servers

There are currently 40 standalone Dell servers on campus that are seven years old. Over the next five years the servers will be phased out. The learning management systems and campus e-mail will be moved to an off campus "cloud" computing system. The remainder of the server's services will be moved to five larger capacity, high efficiency servers on campus. By removing the old servers, replacing some of the servers with high efficiency models, and moving most of the server traffic off-campus to a "cloud" facility the campus will save over 20,000kWh a month and 288 metric tons of carbon dioxide per year.

Cogeneration Unit

Installation of a 300 kW gas burning cogeneration unit is under consideration to reduce electric demand from the supplier and gain benefit from waste heat generated space heating and space cooling. The unit would be installed in the Pope Hall mechanical room. The Pope Hall central plant provides space heating for 3 buildings including Gannon Hall, Yanitelli Rec Center, and Pope Hall. There would also be a newly installed Hot Water Absorption chiller which serves O’Toole Library. The Hot Water Absorption chiller planned in Pope Hall would serve O’Toole Library and utilize waste heat from cogeneration during the cooling season (summer). During heating season (winter) the cogeneration would provide low pressure steam into the heat distribution system for space heating the cluster of buildings.

Solar Photovoltaic Installation

A preliminary study overseen by Saint Peter’s energy consultants, R3 Energy, was conducted to determine the feasibility of large scale solar PV panels on flat roofs throughout the campus. Due to the urban location and current campus utilization, it was determined that the only feasible locations throughout the campus would be on applicable flat roofs. The initial survey concluded that multiple solar arrays with 150kW – 300kW total capacity are feasible investments. ROI analysis and Solar Requests for Proposal are still in development. A realistic estimate of a 200kW array at Saint Peter’s would yield 300,800 kWh generated annually. This would reduce the site energy usage by 6%. The solar timeline estimates the final installation going online by the end of 2011. This reduction in site energy usage will translate into an estimated 6% reduction in Scope 2 Emissions.

Fleet Vehicles

Saint Peter’s operates a fleet of approximately 6 vehicles for use by public safety, admissions, and shuttle services. The table V.1 below summarizes the vehicles. Although fleet emissions constitute a comparatively small source of Saint Peter’s total emissions, fleet operations and vehicle composition are highly visible, and are thus capable of having an impact on St. Peter’s visual campus landscape. Therefore, special consideration should be given in regard to new vehicle purchases, the decommissioning of old vehicles, and the efficient use of existing vehicles. Through a future purchasing plan of exclusively hybrid and/or electric vehicles and the addition of bicycles to the fleet for short trips, Saint Peter’s is considering phasing out all gasoline only vehicles as they reach the end of their useful lives.

Campus Fleet Vehicles			
Count	Vehicle Type	Vehicle Year	Passengers
1	Honda CRV	2007	5
1	Ford F-150	2001	5
2	Ford Econoline Van	2002	15
2	Ford Econoline Van	1997	15
1	Ford Minibus	1998	15
2	Mini Cooper Electric	2010	2
1	Ford Min-van	2005	7

Figure VII.5 – Campus Fleet Vehicle Inventory. This inventory includes vehicles from the following categories: Campus Safety, Student Activities, and Athletics.

Green Gym

A green gym is under consideration which would require significantly less grid electricity than the current fitness center. Students would generate energy by either running or pedaling energy-producing cardio equipment. The energy generated would be used to power the majority of the remaining lighting and plug loads within the fitness center. Additionally, treadmills that use 30% or less electricity than regular models are planned to be cycled into use as old machines reach the end of their useful life. The figure below illustrates the difference in the carbon emissions between Saint Peter’s current gym and the planned green gym.

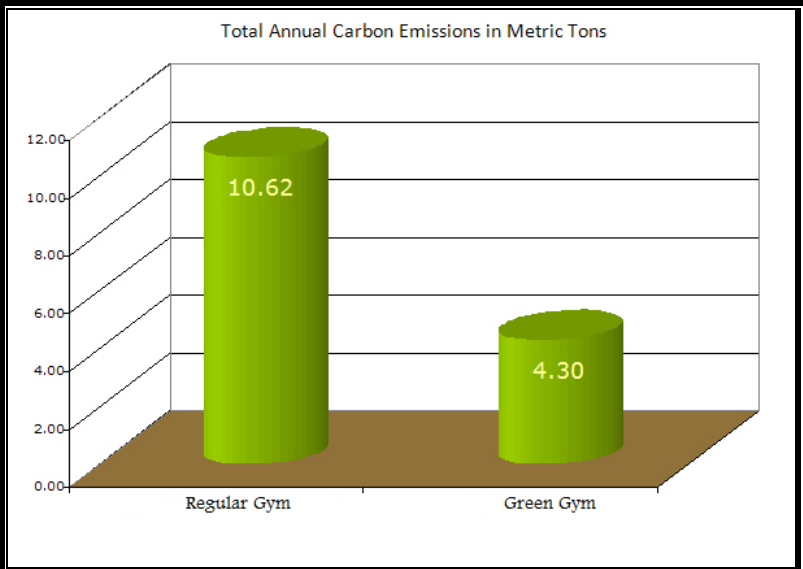


Figure VII.6 – Comparison of the total carbon emissions of a regular gym versus a green gym.

Bike Friendly Campus

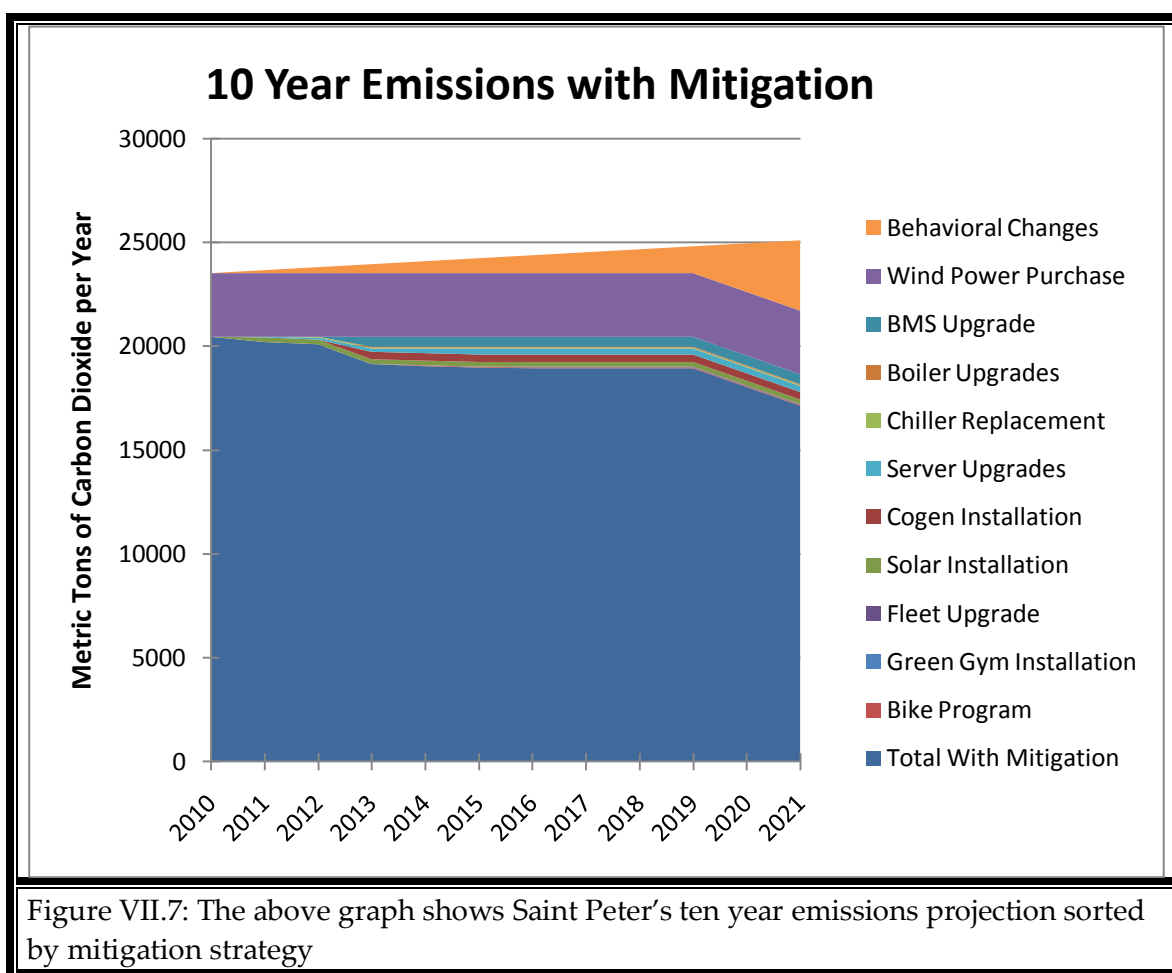
In order to further reduce Scope 3 Emissions from commuting to and around campus, SPC is considering instituting bicycle programs and policies. The main push of this initiative would be a bike rental and share program. The first step towards instituting this program would be to install bike racks outside of every educational building on campus. The LEED green building guidelines for bicycle storage would be used as a template for SPC’s campus. The basic guidelines provide secure bike storage with convenient changing/shower facilities for 5% or more of regular building occupants. Additional long term bike storage would be built for residents of the dorms. After the installation, there would be a bicycle marketing push that will target students, professors, and faculty members. The bike share program would be run jointly by the student government and the Green Committee. Once online, the \$50,000 startup program is expected to reduce current commuting rates by 1%, or an estimated 37.6 metric tons of CO2.

However, in order for Saint Peter’s College to be successful in creating a Bike Friendly Campus, cooperative efforts with Jersey City are necessary to establish abundant and safe bike lanes on local roads.

Summary

Due to the variability and unpredictability of today’s green technologies, Saint Peter’s mitigation timeline is only specifically defined for the next 10 years. Therefore, the carbon reduction plan is regarded as a living document which will be subject to updates and revisions as new technologies and management techniques become available.

See below for a breakdown of the total projected emissions reductions over the next 10 years. It is worth noting that many of the reduction measures will not be implemented immediately. The major mechanical upgrades and solar array are expected to be installed over the next 1 to 4 years, while the green gym, bike program, and fleet upgrade are estimated to become a reality in 5 years. The wind contract started on January 1, 2010 and is planned to extend until it becomes financial infeasible.



X. FINANCING

Careful financial planning is critical to the success of the Climate Action Plan. It is anticipated that many of the mitigation strategies (including solar, cogeneration, and other major capital projects) will be financed in collaboration with outside contractors and that the College will receive a market reduced rate buyback option. The College's participation in the New Jersey Pay for Performance Program should yield funds for 30% of the total capital upgrades (BMS, Cogen, etc) cost on the academic campus. Funding for future projects will be identified and financed from realized energy savings of previously implemented projects.

XI. TRACKING PROGRESS

Saint Peter's College will work with its Information Technology Department in designing a Sharepoint Portal Site for keeping track of various components of the Climate Action Plan.

- The site will contain a home page for general announcements and a master calendar of meetings, projects goals, etc.
- There will be a separate section of the site devoted to each component of the plan which will contain links to related website URL's, a document library, tasks, related forms, a photo library, etc.
- The finance section of the site will be devoted to vendor quotes, invoices, payment schedules etc., and will keep track of expenses for each phase of the plan.
- All members of the Green Committee will have access to their respective areas and will be able to upload and access documents as required.

XII. CHALLENGES AHEAD AND CONCLUSION

Like all ACUPCC Signatories, Saint Peter's College has made strides in addressing our environmental impact. Every department is slowly becoming aware that our usage of materials and energy has a deleterious effect on the environment, including peoples lacking in access to resources, and accordingly we have begun to make changes in our institutional practices, such as conversion of virgin copy paper to recyclable content paper. However, we remain a long distance from the summit of this climb.

A key goal is to spark excitement in all students and employees of Saint Peter's College to seek personal ownership of "SPC Goes green" and continued learning of the interconnectedness of all things, in particular as classroom activity interrelates with the real world of ecological challenge and opportunity. This can be supported by establishing faculty workshops and trainings on sustainability, and incorporating sustainability awareness and campus greening efforts during Freshmen Orientations, and through the yearlong activities of Student Clubs. In order to track progress in expanding knowledge and creative projects, we need to periodically disseminate professional surveys on sustainability education to faculty, administrators and staff.

We need to continue to strengthen our training in ecological literacy for Student Resident Assistants. As critical as it is the green leadership of our RAs, all resident students and commuting students can model the importance of recycling, smart energy usage and imagination in advocacy efforts for “going green.”

We may also need to hire a professional sustainability firm that specializes in green education across the curriculum and across student affairs. The company would facilitate institutional conversion by pushing us in auditing our environmental impact, and providing the necessary consultation for deep and lasting change.

Saint Peter’s College affirms its commitment to the principles of the ACUPCC. As articulated in the environmental pledge, *Peacock Green*, the campus community is asked,

“each one of us ... to participate, as creatively and collaboratively as possible, in the critical work of ecological, spiritual and social restoration. Not one college and university having begun its implementation of the APUPCC will fit squarely the sustainability mold of any other institution of higher learning. Saint Peter’s College is unique and special just like each college and university is—in its sense of history, place and population, and, hence, its path to sustainability.”

We look to fulfill the terms of the Climate Action Plan with enthusiasm, passion and commitment.