

Goshen College Climate Action Plan

February 2016

Introduction

In the spring of 2007, Goshen College President James E. Brenneman became a charter signatory to the American College & University Presidents Climate Commitment (ACUPCC). In doing so, Brenneman joined with leaders of 175 other higher education institutions to make a bold commitment: neutralizing their campus' greenhouse gas emissions. Neutralization is the point at which carbon-dioxide emissions produced by Goshen College-related activities are offset by three means: 1) reduction through conservation 2) use of renewable sources of energy and 3) increased sequestration through the absorption of carbon dioxide by trees and other plants-

“We are very concerned about life on this planet,” Brenneman said. “This [commitment] is one more way we can heal and care for the world.”

Goshen College became the second higher education institution in Indiana and the first Mennonite college or university to sign the landmark climate commitment, which is aimed at reducing emissions that are changing climates, threatening the planet's ecosystems and economy, and threatening many lives.

Brenneman said Goshen College has a history of taking environmental concerns seriously and acting to increase the campus' ecological consciousness and sense of responsibility. In a speech which addressed the student body in August 2014, Brenneman called for those listening to adapt the idea of being a “citizen of the earth and sky” saying, “Earth and sky citizens are called to paint the world green. At GC, we have 50 shades of green and more. A green GC is a core value worthy of our deep and abiding commitment as global citizens.”

In the ensuing years since Brenneman signed the Climate Commitment, Goshen College has made significant strides towards the goals set forth in the previous Climate Action Plan, created in 2009. In 2013, Goshen College began to purchase all electricity from renewable energy sources. This action alone reduced the college's carbon footprint by 45 percent. A solar-powered water heater was built for the Recreation Fitness Center showers, approximately 10 acres of campus lawn were converted to native grasses and forbs through a student-suggested native landscaping project, and a student-run composting system was set up in the school dining hall. Several buildings are now being heated and cooled by ground-source heat pumps. LED lighting conversions have been implemented throughout campus.

Additionally, Goshen College has received a silver rating through AASHE's STARS program and has been included among the top schools in the country's in the Sierra Club's Cool Schools rankings.

Goshen College's goal is to continue to reduce and eventually eliminate or neutralize all of its greenhouse gas emissions. To help stabilize the Earth's climate, the college is supporting research, implementation, and educational efforts outlined in this document.

Goshen College Climate Commitment

Goshen College's commitment to ecological stewardship grows out of our biblical understanding that we are to serve and protect the earth (Genesis 2:15). As a ministry of the Mennonite Church, we seek to practice what is taught in the *Confession of Faith in a Mennonite Perspective* (1995) — “As stewards of God's earth, we are called to care for the earth and to bring rest and renewal to the land and everything that lives on it.”

Ecological stewardship and finding carbon neutrality as a campus is intimately linked to our understanding of justice. Understanding the direct effect of pollution and climate change on the poorest people, both local, national, and global, and organisms in ecosystems across the planet further motivates our climate action goals and our commitment to improving our sustainability as an institution.

One of Goshen College's core values is Global Citizenship, which also underscores our commitment to ecological stewardship. It is as a result of these foundational principles that we are committed to improving the integration of ecological stewardship in our academic programs and to reducing our ecological and carbon footprints as an institution of higher education.

Education, Research, and Public Engagement

The goal of campus education in this plan is that at Goshen College both the formal academic curriculum and also informal campus teaching opportunities will develop knowledge, attitudes and behaviors that promote ecological stewardship and sustainability.

Academic curriculum

Both undergraduate and graduate programs offer many opportunities for education and research.

Undergraduate academic programs

Goshen College's ultimate goal related to our academic programs is for our students to graduate and leave the college as ecologically sensitive citizens of their countries of origin or chosen countries of residence. To that end Goshen encourages every graduate to sign the following pledge statement immediately after crossing the graduation stage and receiving their academic diploma: “*I pledge to take into account the social and environmental consequences of any job I consider and will try to improve these aspects of any organization for which I work*”. In 2014-15 approximately 70 percent of the graduating seniors did sign this statement.

Environmental Science major and minor

An undergraduate major in environmental science is housed in the [biological sciences department](#). Core courses in the undergraduate program equip majors to analyze environmental issues from biological, economic and social/political points of view. In consultation with an academic adviser, students also select an area of concentration that reflects their interests and career goals which include tracks in: ecology, agroecology or sustainability.

A minor in environmental studies, sustainability, or agroecology can be added to any undergraduate major at Goshen College.

The agroecology concentration includes four courses taken during a summer in residence at Merry Lea Environmental Learning Center.

Goshen students have worked on projects in environmental education, city planning, municipal water quality assessment, organic agriculture, conservation biology, urban forestry, wilderness trail and facility maintenance, restoration ecology, wetland construction and planning, and field biology. Goshen College also has a sustainable farm Located at Merry Lea ELC of Goshen College. This is an educational farm that models sustainable agriculture practices, teaching students and the public about the importance of raising food with ecologically-guided practices.

Sustainability Leadership Semester

The [Sustainability Leadership Semester](#) (SLS) is an interdisciplinary fall semester program offered at Merry Lea Environmental Learning Center. This program is an important part of the sustainability track within the environmental science major and also satisfies almost all of the requirements for the sustainability minor. In this program there is a strong focus on building and maintaining healthy communities. In addition, this program contributes to one of the goals of Merry Lea, which is to provide environmental education for people of all ages.

Global Economics Minor

An undergraduate [minor in global economics](#) offered by the business department includes course options in environmental and ecological economics, economics of sustainability and economic development. Economics students often engage in practical projects such as an investigation into sustainable business practices for a local automotive dealer. Student teams also conduct cost-benefit analyses of on-campus sustainability projects. Recent topics include analyses of native landscaping, biodiesel production, solar water heating, electric vehicle charging and the Tree Campus USA program.

Courses taught in the general undergraduate curriculum related to environmental sustainability

Courses that focus on sustainability:

- Advanced Field Ecology
- [Agroecology](#)*
- Creation and Evolution
- Ecological Economics
- Ecology and Evolution
- Economics of Sustainability

- Environmental Economics
- Environmental History
- Environmental Policy and Politics**
- Environmental Problem Solving**
- Environmental Sociology
- Faith, Ethics and Eco-justice**
- Field Experience in Environmental Education
- Forest Resources
- Geology, Meteorology & Climate Science
- Landscape Limnology**
- Natural Resource Economics
- Natural Resource Policy Seminar
- Small Farm Management/Produce Marketing*
- Properties and Management of Soils*
- Roots of the Environmental Crisis
- Sustainability and Regeneration**
- Sustainable Business Strategies
- Vegetable Crops*
- In addition, there are special travel courses led by college faculty members in the college's May term which emphasize environmental and ecological issues, including most recently courses in Kenya, Ecuador, and India

Many Goshen College academic departments incorporate ecological stewardship concerns into their curriculum. These are classified as courses that include sustainability. This list includes:

- [Biology of the Sea/Marine Biology](#)***
- Biology Research Seminar
- Biology Senior Seminar
- Botany
- Camping and Recreation
- Cell Biology and Genetics
- Climate Change
- Field Experience
- General Entomology
- Geography and Culture
- Introduction to Public Policy
- Junior Research Seminar
- Leading Nonprofit Organizations
- Organismal Biology
- Ornithology
- Pollinators in Peril

*Component of an integrated summer program in agroecology.

**Component of Sustainability Leadership Semester

***Taught each May term at Goshen College's J.N. Roth Marine Biology Station on Long Key, FL

Goshen College is affiliated with the [Au Sable Institute](#), which offers additional field biology courses on four campuses: Great Lakes, Pacific Rim, South Florida and India.

Additionally, ecological stewardship is incorporated into a variety of classes in several ways:

- English professors frequently choose environmental themes for literature or writing courses.
- A required public health course in the nursing department includes environmental health issues.
- All international Study-Service Term sites include field trips focused on ecological stewardship concerns. (Approximately 80 percent of Goshen College students participate in an international Study-Service Term as part of their Goshen Core requirement in international education.)

General sustainability education for all students

In the 2012-2013 academic year the Goshen Core, a new general education curriculum, was implemented at Goshen College. The Goshen Core uses Student Learning Outcomes (SLO) as both a target for student achievement and a foundation for planning and development. One of these Outcomes is Living Sustainably which is described as “working to create restorative relationships with the natural world”. All first year students are required to take either Core 100 or 104. These classes incorporate the Living Sustainably SLO through reading books with environmental themes, a week-long unit on Consumerism and a financial management unit that includes sustainability as part of a financially stable life.

Within the Goshen Core Program, various courses count as Natural World Perspectives classes which emphasize sustainability themes including: Climate Change, Roots of the Environmental Crisis, Pollinators in Peril, and Landscape Limnology. These courses serve approximately 80 students annually.

Undergraduate research opportunities

Research opportunities in ecological stewardship are offered each summer through the Maple Scholars program. In addition, field biology courses and special research opportunities are available each semester. A prairie reconstruction project was initiated on campus in 2009, which serves as an ongoing research site for students in the Biology department.

The Community Clean Water Project (CCWP) is a research partnership between the Environmental Science Department and members of the Goshen community. Student interns and community volunteers work together to monitor water quality in the Elkhart River by sampling on a weekly basis. Students can then analyze the data and find ways to raise awareness about local water quality and stewardship of our watershed.

In 2012, students from the Physics Department along with assistance from the Physical Plant researched and built a solar hot water collection system, to provide hot water for the showers in the Recreational Fitness Center. This system is tied to the campus energy management system and real time data is available for research and analysis.

The Maple Scholars program is an intensive summer research program in which a student works very closely with a faculty member on a research project within the faculty member's field of speciality. Some Maple Scholars projects have environmental and sustainability themes; one example is the AlgaeTown project which has been conducted since 2012 which explores the possibilities of algae as a biofuel. Students also participate in ongoing fieldwork in Kenya examining issues of human-wildlife conflict in the context of cattle grazing in wildlands.

The Marine Biology Internship program provides two Goshen College students with the opportunity to assist in marine ecology research at the J.N. Roth Marine Biology station in collaboration with researchers from Old Dominion University and the University of Florida.

Graduate program

M.A. in environmental education

The [master of arts in environmental education](#) program is based at Merry Lea Environmental Learning Center. This 12 month program immerses students in natural history, conducting ecological field research and engaging in environmental education programs for grades K-12. The degree includes core courses, a project, a portfolio, and an extensive practicum. Students integrate ecological learning with developing skills in pedagogy, land management and administration.

Sustainability Concentration in MBA

Goshen College is a participant in a Collaborative MBA with 3 other institutions. The MBA offers students a choice of concentrations and Goshen's is focused on Sustainable Business and Economics with a focus on systems thinking.

PreK-12 and Community Education

Merry Lea Environmental Learning Center

The Goshen College Merry Lea Environmental Learning Center, located near Wolf Lake, Indiana, will continue to host more than 6,000 K-12 students each year, for a variety of outdoor learning activities. Merry Lea also conducts a variety of programs to educate the public on topics such as wetlands restoration, sustainable living, and church and community activism. In addition, the Rieth Village living-learning facility at Merry Lea, which received the first Platinum LEED certification in the state of Indiana, continues to educate many visitors in sustainable building design and construction.

Informal education opportunities

In addition to the academic curriculum, a variety of campus interdisciplinary learning opportunities exist to promote ecological stewardship.

EcoPAX

EcoPAX is the student-led ecological justice club on campus. EcoPAX works to educate, inspire and change structures inside and outside the academic structure of Goshen College (eg. Peace, Justice, and Conflict Studies and Environmental Science Departments). As stated by the club, “EcoPAX is a club promoting ecological awareness, action, education, and living, by forming connections on the Goshen College campus and in the larger community, nationally and internationally. Our work involves education, event planning, community networking, and GC Divest campaigning.” Historically some of the environmental projects the club has engaged in directly and enabled at Goshen College include composting of dining hall waste, Elkhart River cleanup projects, organization of and annual participation in Earth Hour events, and connecting the campus to 350.org.

Since 2013, EcoPAX students have been working on a campaign called GC Divest which uses grassroots tactics and advocacy at a policy reform level to call for divestment from fossil fuels and mineral extraction companies. GC Divest advocates solidarity with Indigenous communities and all autonomous, agricultural societies around the world. EcoPAX and GC Divest recognize that these lifestyles are threatened by the expansion of the fossil fuel and mineral extraction industries, and by investing in these corporations, GC Divest believes that GC is complicit with the brutally violent nature of extraction. Through over 120 hours of collaborative work, GC Divest has written a [16 page proposal](#) for the divestment of Mennonite Education Agency endowment funds; this document has been endorsed by the GC Student Senate and received over 100 signatures from GC students, faculty, and staff.

Although individual actions are essential in order to create a more sustainable future, collective institutional changes are even more fundamental. Inspired by the Goshen College Core Values, GC Divest works with our broader Goshen-area and Mennonite communities in a mutual cooperation to raise awareness about the intersectionality of many justice movements. EcoPAX believes in the power of ecological justice as the basis of social justice. EcoPAX and GC Divest work to plant seeds of resistance within our classmates, professors, and staff because we recognize that climate change poses an alarming ecological threat. EcoPAX acknowledges this opportunity to simultaneously deconstruct and re-imagine the capitalist and patriarchal system we live in.

For more information about GC Divest, see recent articles in the Goshen College Record in [October 2015](#) and [February 2016](#). A video, [Divestment at Goshen College](#), was published in May 2015 that further describes the goals of GC Divest.

Orientation Curriculum

A future goal is for the Ecological Stewardship Committee to collaborate with the Student Life and Academic Dean’s offices to develop a formal ecological stewardship orientation curriculum for new students and new faculty members. It will include information about

- the President’s Climate Commitment

- Recycling and waste management
- Public transportation and bicycling
- Energy usage
- Merry Lea Environmental Learning Center

Staff orientation is ongoing throughout the calendar year, so a goal is for materials on ecological stewardship to be developed with the Human Resources department for use in new employee orientation sessions and in regular staff development meetings.

Regular interdisciplinary forums

Each year, at least one weekly campus convocation or chapel service focuses on ecological stewardship. Also, each year, at least one interdisciplinary forum is organized by the environmental science program director, involving professors and students from a variety of academic fields and addressing a particular sustainability question or problem. Whenever possible, these forums are linked to a guest speaker on campus. In 2009, the guest speaker was Bill McKibben. In 2012 it was Simran Sethi. In 2015 it was Mike Tidwell.

Special events

When possible the Ecological Stewardship Committee, in conjunction with other entities, will organize and promote special events to promote ecological stewardship.

Sustainability Website

The campus sustainability coordinator and the Ecological Stewardship Committee will continue collaborating with the Communications and Marketing Department and others, in order to expand, update and promote the ecological stewardship website: www.goshen.edu/sustainability

Public Engagement

Goshen College intends to become known throughout our region, our nation, and the global Mennonite church as a source of information and inspiration about ecological stewardship.

Regionally

In our geographic region, academic connections to local business and government will be encouraged via student research and service-learning opportunities. Students, faculty and administrators will participate in local sustainability efforts such as Sound of the Environment, which is a monthly gathering of local community individuals interested in environmental topics. Guest speakers with national and international reputations for expertise in sustainability will continue to be hosted for the campus community and the general public.

[Transition Goshen](#) is connected with the [Transition Towns](#) movement, and seeks to find local initiatives for community resilience within Goshen. This movement “asks how communities

might respond to the new resource, climate, and economic ‘normals’ of our time and envision a healthy alternative today and tomorrow”.

Goshen College has been involved with this movement in the past and seeks to continue to do so. In 2013, students in a biology class, Roots of the Environmental Crisis, worked with local Transition Goshen leaders to engage with local projects. One group of students analyzed energy saving renovations at a local historic theater, another group offered home heating audits to Goshen citizens through an energy audit and thermal imaging, and the last group looked into converting an old van to an electric system, which would then be used to deliver meals to people in need in the community. Also in 2013, EcoPAX club assisted Transition Goshen in planning Share the Bounty Week, which looked at issues of food insecurity within Goshen. A panel discussion on food insecurity was held at the college and a Lexicon of Sustainability display was set up for the week in one of the buildings on campus. Goshen College will continue to engage with Transition Goshen in the next five years.

Nationally

Professors, administrators and physical plant leaders will continue to disseminate information about Goshen College’s ecological stewardship efforts and research via professional conferences and news releases. We expect dissemination opportunities to increase as we make progress on our climate action plan.

In November 2015, President Jim Brenneman was invited to take part in a higher education roundtable discussion at the White House, as part of the American Campuses Act on Climate day of action, leading up to the United Nations’ Climate Change Conference in Paris.

In the global Mennonite Church

As a Mennonite college, Goshen College leads the denomination in ecological stewardship efforts. Merry Lea Environmental Learning Center staff hosts programs and communications for the Mennonite Creation Care Network, including its website <http://www.mennocreationcare.org>, and presents workshops at biennial national conventions of Mennonite Church USA. The 2009 Mennonite World Conference assembly in Paraguay and the 2015 conference in Harrisburg, PA brought together approximately 6,000 Mennonites from five continents, and included environmental sustainability workshops, including ones co-led by team members from Merry Lea.

Investments

As part of our relationship with the Mennonite Education Agency (MEA) of Mennonite Church USA, Goshen College invests the majority of its endowment through a pooled fund managed by the MEA Investment Committee. This Committee has a long history of stewardship investing principles applied to endowment management and the investing College annuity funds. These stewardship investing principles arise out of our philosophy of stewardship investing as understood from the Anabaptist-Christian faith perspective. The core values of our stewardship investing approach since 2000 are:

1. Respect the dignity and value of all people
2. Build a world at peace and free from violence
3. Demonstrate a concern for justice in a global society
4. Exhibit responsible management practices
5. Support and involve communities
6. Practice environmental stewardship

These core values impact the decisions of which companies to invest in and which to avoid in all actively managed sections of our endowment. Domestic and International company restricted lists created out of these values are provided to all managers of the Goshen College endowment by Everence (another agency of Mennonite Church USA), who as a partner entity provides investment screening services for Goshen College and other pool participants.. Everence is a nationally recognized leader in environmental and stewardship investing. See <http://www.everence.com/stewardship-investing/>. The Goshen College financial staff reviews and monitors investments closely and regularly updates the Board of Directors to insure compliance with institutional policies.

As a result of this ongoing process of environmental stewardship in our investing practices, a December 2015 review of the MEA fund pooled endowment portfolio holdings showed that the fund's portfolio contained only 1.3% of the Carbon Underground 200 list of fossil fuel companies and only 0.1% of the Filthy Fifty Coal list, with the companies in the portfolio on those lists held primarily by a pooled fund international manager where it is extremely difficult to apply stewardship investing screens.

Because of the high impact of the fossil fuel industry on the environment and a continued need to promote alternative energy sources, Goshen College is committed to continuing the conversation on investment strategies. This conversation is happening on campus through student engagement and education efforts, advocacy for socially responsible investing, and the work of organizations such as the Ecological Stewardship Committee and GC Divest.

Goshen College Carbon Footprint

For the 2014-15 fiscal year, as reported in the ACUPCC greenhouse gas reporting system, Goshen College was responsible for the emissions of approximately 7100 metric tons of carbon dioxide (CO₂). This equates to about 9.3 metric tons per student or 8.9 metric tons per 1000 square feet of building. This represents a reduction of approximately 25% since 2008-09. Additionally since May 2013, Goshen College has purchased renewable energy credits (RECs) to offset 100% our electrical consumption. This means that our NET emissions are approximately 3900 metric tons, (5.0 per student or 4.9 per 1000 sq ft) which translates to an overall reduction of approximately 60% since 2008-09.

Greenhouse gas (GHG) emissions are broken down into three main categories.

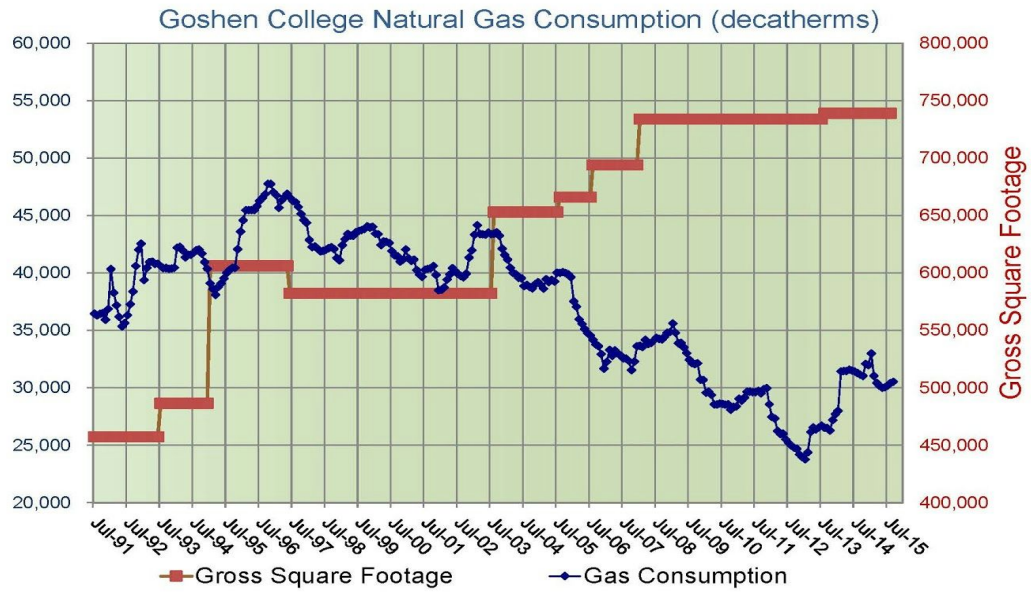
Scope 1 emissions - direct emissions generated on campus mostly from the combustion of natural gas, or by campus-owned equipment such as the maintenance equipment or vehicle fleet.

Scope 2 emissions - indirect emissions from purchased electricity. While the electricity is consumed on campus, the emissions occur at the regional power plants. In the past since over 90% of electricity is produced from coal in Indiana, the scope 2 component was about 45% Goshen College's GHG emissions. Since May 2013, this component has been eliminated through the purchase of RECs to offset that consumption.

Scope 3 emissions - indirect emissions other than those covered in scope 2. For Goshen College, these are primarily emissions produced through commuting or by air travel of students, faculty and staff. Scope 3 also includes emissions produced from the solid wastes removed from the campus and taken to the county landfill.

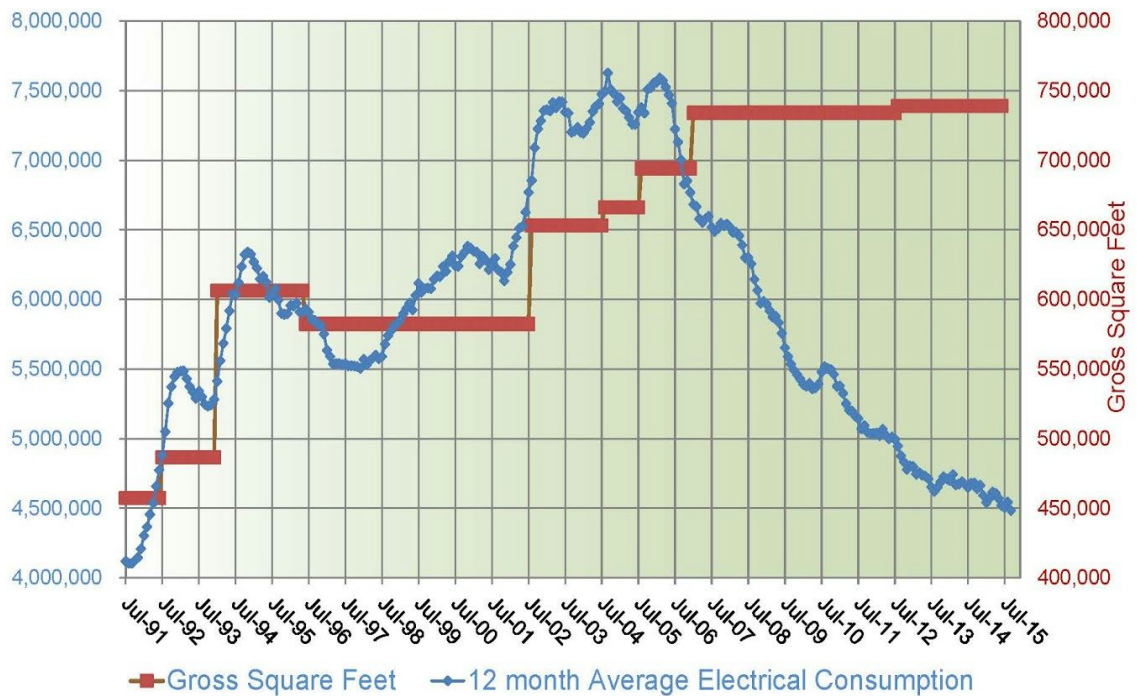
Energy Consumption

Goshen College has been aggressively working at reducing our energy consumption through conservation measures for the past 25 years. In spite of the addition of 60 percent more square footage, gas and electric consumption has been reduced dramatically. The following two graphs reflect the electrical and gas consumption since 1990-91. The blue lines reflect the 12 month energy averages while the red lines show that the campus building gross square feet has increased from about 457,000 square feet to over 734,000 square feet.



The graph below shows that campus electrical consumption has returned to 1991-92 levels, despite increased building square footage and expanded use of technology.

Goshen College Electrical Consumption (kWh)

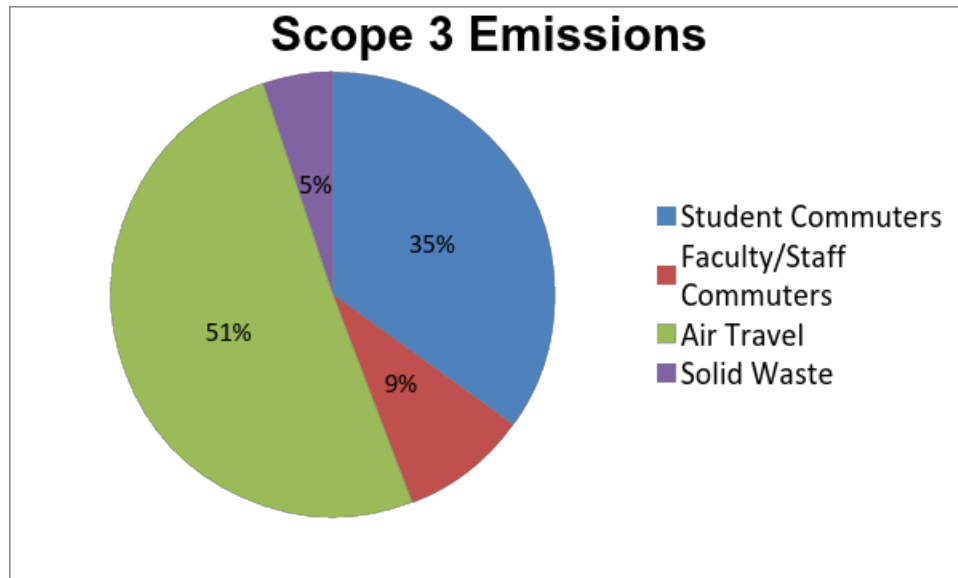


These significant reductions have been achieved through intentional development and utilization of the campus computerized energy management system, tight scheduling of occupied spaces, lighting and mechanical upgrades, daylight controls and temperature setbacks. Another factor in the reductions, which is difficult to measure, is increased awareness of environmental sustainability and resulting behavior change in the campus community.

Scope 3 emissions

Scope 3 emissions make up about a quarter of our carbon footprint. Commuting and air travel are the two primary generators of scope 3 emissions. Because Goshen College has a study-service term (SST), for which 100 to 200 students fly to countries in Central and South America, Europe, Africa and Asia each year, a significant portion of scope 3 emissions are from air travel.

Scope 3 emissions are challenging to capture. The chart below shows the relative influence of each of these components on our total Scope 3 emissions.



Goshen College GHG Emissions Mitigation Goals

Goshen College has accurate energy consumption records for 25 years for natural gas and electricity usage. There are no historical records for transportation emissions, so determining the total GHG emissions for Goshen College is still a work in progress.

Institutionally, it is much easier to improve scope 1 and 2 emissions, through conservation measures described above. Scope 3 emissions (commuting, air travel and solid waste disposal) are much more difficult to improve because doing so affects the work and personal choices of the entire campus community. Improvement in scope 3 emissions will require significant changes in personal attitudes and behavior and also in program design.

Currently Goshen College's long-term goal is to achieve carbon neutrality by 2050, incorporating both current and anticipated continuing new strategies to address each of these Scope 1, 2 and 3 emissions. Examples of actions Goshen College has already undertaken with facilities to move toward this goal include:

- 1) elimination of a large heated competition swimming pool, and 12-person hot tub
- 2) adding additional insulation during re-roofing projects for all campus buildings
- 3) elimination of all single glazed windows in most major academic buildings and all student residence halls
- 4) use of interior and exterior window treatments to reduce the heat gain from the sun in the summer months while air conditioning

- 5) re-caulking and tuck-pointing older exterior building systems.
- 6) expanded use of computerized building management to gain mechanical efficiencies and improve scheduling of occupied spaces.

Looking back, Goshen College has already made impressive progress in reducing energy consumption.. In the past 10 years since 2005-06, the campus has been able to reduce natural gas consumption/sq ft/year by more 14 percent. In that same period, electrical consumption/sq ft/year has been reduced by 39%.

Goal #1: Continue to Conserve

During the next five years (through 2019-20), Goshen College is committed to continue this downward trajectory, acknowledging that additional conservation measures may be more difficult to obtain given the recent work already in place:

Scope 1 emissions

- Continue to reduce natural gas consumption one percent per year.
- Develop accurate ways of tracking fuel consumption of campus vehicles.
- Purchase more fuel efficient vehicles

Scope 2 emissions

- Reduce electrical consumption two percent per year.

Scope 3 emissions

- Minimize air travel.
- Increase recycling and composting to reduce solid waste disposal.
- Encourage alternative commuting options.

Some of the conservation initiatives that will enable us to achieve these goals will include the following:

- Evaluate LEED certification for existing buildings.
- Follow through on the Goshen College commitment to having all new major construction projects LEED certified. Note that our one major construction project in the last five years was LEEDs certified. Current Goshen College policy is that all new major construction projects will be LEEDs certified.
- Complete phasing out the central steam plant and move to local high-efficiency boilers.
- Expand use of geothermal heating and cooling.
- Continue to evaluate lighting conversions, as the technology changes.
- Develop more sophisticated strategies for HVAC operations.
- Use more fuel efficient fleet vehicles.
- Expand recycling and composting on campus.
- Finish replacing single-glazed windows in all campus buildings
- Install additional attic insulation in campus buildings where possible
- Continue to insulate or re-insulate campus steam lines and hydronic systems where possible

- Continue priority of keeping buildings ‘tight’ with re-caulking, weather stripping, and tuck pointing as needed

Even though the college has a strong recent history of implementing energy conservation measures, there are still many more opportunities to continue to reduce our natural gas and electrical consumption. In addition to continuing and expanding the institutional efforts at conservation, to move towards climate neutrality will require substantial change in campus culture. Goshen College must work to promote a culture of sustainability that will encourage members of the campus community to change work and living habits to reduce our impact on the climate.

Cultural changes will continue to include, among other activities:

- Working in more moderately conditioned air, both heating and cooling.
- Living with reduced lighting.
- Turning off technology when not in use.
- Discouraging the use of individual refrigerators and microwave ovens in residence halls.
- Increased recycling and composting.
- Altering food choices.
- Expanded food composting systems
- Increasing healthy transportation choices such as walking, biking and carpooling.
- Increased awareness of the direct link between lifestyle choices and CO₂ emissions, pollution and other strains on the environment.

Goal #2: Commit to alternative carbon free energy sources

At some point, it will become more difficult to reduce our carbon emissions strictly through conservation. Eventually it will become important to utilize alternative non-carbon based forms of energy. Target dates for these goals are still to be determined.

Scope 1 emissions

- Explore alternative energy sources.
- As technology matures, purchase hybrid, electric or hydrogen operated vehicles. Note that Goshen College has installed an electric charging station on campus.
- Reduce dependence on petroleum based fertilizers.

Scope 2 emissions

- Install photovoltaic collectors.
- Install wind generators.
- Develop cogeneration facilities to simultaneously generate both electricity and heat.

Scope 3 emissions

- Promote bicycle transportation for commuters. Work toward becoming a Bicycle Friendly University campus.
- Expand the composting system for disposal of organic wastes.

- Promote use of local public transportation (trolley) by students and staff

Goal #3: Promote carbon sequestration, credits, offsets, and ‘onsets’

In addition to the decision to purchase RECs to offset our electrical consumption, in order to achieve ultimate carbon neutrality, it will be necessary to find external ways to offset our inevitable carbon consumption. This might be done by promoting or enabling reforestation or some other natural method of carbon sequestration. This might also be done by investing in some form of carbon credits or offsets. And it might also be accomplished with broad use of carbon ‘on-sets’, by funding projects that reduce carbon usage either on campus or in our local community. While it is difficult to project what all the options might be, they will likely include the following:

- **Scope 1** – Purchase carbon offsets for natural gas usage, and promoting and enabling carbon ‘onsetting’ of improvements in carbon generation reduction either on-campus or by other entities in our community
- **Scope 2** – Continue to purchase “green” electricity.
- **Scope 3** – Create an internal “tax” to purchase carbon offsets for travel. This could potentially be added to budgeted purchases of carbon-based fuels.

Costs and Financing

The Goshen College Climate Action Plan is expected to be a self-funded effort similar to other college initiatives. Ultimately all of the college’s activities and initiatives are expected to be economically sustainable, and not require support from external sources. In addition, new initiatives and proposals are expected to contribute an appropriate level of support towards overall institutional overhead. The Climate Action Plan embraces these expectations. Savings from Climate Action Plan initiatives will both fund additional initiatives as well as help to support general institutional goals and priorities. For example, in recent years internally funded projects such as converting lawn areas to native grasses and converting many exterior campus lighting over to LED’s have generated maintenance and operating cost savings that have augmented general budgets available for other projects.

The following sources will be used to fund the Goshen College Climate Action Plan:

- Grants received from government, private and public foundations, or business partners
- Alumni and friend donations specified to enhance the college’s efforts in sustainability
- Graduating class gifts
- Energy efficiency and renewable energy incentives provided by state or local governments or municipalities and/or utility companies or campus partners such as food service vendors, etc.
- Goshen College operating budget dollars that achieve multiple goals of both program enhancement or other administrative goals as well as sustainability outcomes
- Generation of energy cost savings from already implemented energy initiatives.

Implementation Structure

Shortly after President Brenneman signed the Presidents Climate Commitment the Ecological Stewardship Committee (ESC) was formed to give direction to the Goshen College climate commitment. The committee is currently chaired by the vice-president for finance and will be chaired by the provost in the near future, and is comprised of administrators, teaching faculty, the director of facilities, students and the sustainability coordinator.

The purpose of the Ecological Stewardship Committee is to provide oversight to all sustainability initiatives on campus, review initiatives proposed by members of the campus community, prioritize resources and make recommendations for good environmental practices. The committee is responsible for developing a sustainability strategic plan, including this climate action plan.

While environmental stewardship is taking place throughout the entire campus by many people, it is the responsibility of the ESC to monitor progress and encourage and promote new initiatives.

Communications Strategy

Campus and community interest in ecological stewardship is very high. In an effort to encourage and develop sustainability, the committee has built and continues to maintain the goGreen (sustainability) website. This site will continue to be the place to post the progress on reduction of our carbon footprint, read about the various initiatives happening around campus, and articulate our commitment to sustainability.

Tracking Progress

Goshen College calculates its carbon footprint annually using the Clean Air-Cool Planet carbon calculator. The result of this annual calculation is posted on the AASHE website where it can be reviewed and compared to previous years and other institutions.

This climate action plan is a work in progress. As such, it will be necessary to update the status of our carbon footprint, redefine our benchmarks, and report on new initiatives and understandings as they develop. It will be the responsibility of the members of the Ecological Stewardship Committee to review this document annually each fall and make modifications as appropriate. This audit coincides with the reporting of results of the previous fiscal year's carbon footprint report.

Conclusion

Enthusiasm and commitment for environmental sustainability and ecological stewardship continues to grow on the Goshen College campus. This climate action plan was formed in response to the Presidents Climate Commitment (ACUPCC). It represents a significant effort

toward responsible global citizenship, one of Goshen College's core values. The campus has made good progress in the last twenty five years in conserving energy use, but much more can be done to reduce the college's negative impact on the earth's climate.

Key leaders in this effort include President Brenneman, the Ecological Stewardship Committee, the Goshen College Merry Lea Environmental Learning Center, the campus sustainability coordinator, and our environmentally sensitive students and student clubs such as EcoPAX. With their leadership we will continue to explore creative ways to reduce our carbon-based energy usage. In addition, we will pursue alternative carbon-free energy sources. And in the future, we will also consider carbon sequestration, carbon 'onsetting', credits or offsets in order to meet our ambitious goals.

This climate action plan connects Goshen College to a large and significant international movement toward ecological stewardship of our planet. We intend to monitor the Goshen College carbon footprint annually, to communicate progress in carbon reduction widely, and to create deeper campus commitment to the cultural change that will be required to reach our goal of zero carbon impact on the earth's climate.

The Goshen College Ecological Stewardship Committee for 2015-16:

Ellen Conrad - *student*

Nat Dick - *student*

Joanna Epp - *student*

Luke Gascho – *director of Merry Lea Environmental Learning Center*

Glenn Gilbert – *sustainability coordinator and utilities manager (secretary)*

Jim Histan – *vice president for finance (chair)*

Cecilia Lapp Stoltzfus - *student*

Phil Longenecker - *student*

Phil Mason - *associate professor of business*

Lydia Miller - *student*

Ken Newbold - *provost*

Jerrell Ross Richer – *associate professor of economics*

Noemí Salvador - *student*

Ryan Sensenig – *associate professor of biology; director of Environmental Science Program*

Clay Shetler – *director of facilities*

Lisa Zinn - *director of Sustainability Leadership Semester, assistant professor in the Sustainability and Environmental Education Department at Merry Lea Environmental Learning Center*