



# Report of the Smith College Study Group on Climate Change

TOWARD A SUSTAINABLE FUTURE :: MARCH 2017





# Climate Change

Climate change is an urgent, complex problem. Human activities are pushing the climate beyond the range of conditions experienced over the last few million years and toward abrupt, unpredictable, highly damaging and potentially irreversible impacts.<sup>1</sup> Effective responses will require ambitious, multifaceted plans of action.

Ninety-seven percent of climate scientists, as well as many business and religious leaders, concur that humans are changing the climate, the threats are significant, and our collective actions to reduce climate pollution, address ongoing effects and prepare for future ones fall well short of what is needed.<sup>2,3,4</sup>

How did climate change become one of modern society's most pressing issues, and what are the risks? The Intergovernmental Panel on Climate Change (IPCC) has declared warming of the climate system to be unequivocal and its root cause the emissions of carbon dioxide (CO<sub>2</sub>) to the atmosphere from burning fossil fuels and land-use change.<sup>1</sup> The extent to which CO<sub>2</sub> levels accumulate in the atmosphere will largely determine how much global average temperatures will rise. Because the impacts of CO<sub>2</sub> emitted today last for hundreds of years, the actions we take in the next few decades will determine the hazards for many generations. Climate change exposes individuals, societies and ecosystems to a variety of risks: those resulting from short-term hazards, such as severe storms, and those with longer-term impacts, such as

multidecadal droughts. In all countries, disadvantaged people are at greater risk than are people of means.<sup>1</sup>

Smith College and its community acknowledge some responsibility for the state of the climate and share a moral responsibility to be part of the solution. At Smith, students, staff, faculty, administrators and alumnae must all work to address climate change and its impacts. Collectively, humanists, social and natural scientists and engineers have much to offer toward mitigating the causes and ill effects of climate change, recognizing and redressing climate injustices, strengthening the resiliency of communities and innovating environmentally-sound solutions aimed toward creating a sustainable and just society for all. Now more than ever, the college and its peers need to lead the charge on campuses and the global stage to actively promote and develop these collaborative solutions. Responding now—rather than in the future—lowers the risk of catastrophic changes and the cost of taking action.<sup>1</sup>

# The Study Group on Climate Change

In the fall of 2015, President Kathleen McCartney, in consultation with the Smith College Board of Trustees, established the Study Group on Climate Change (SGCC) to examine how Smith, as an educational institution and residential college, could most effectively respond to the challenge of global climate change. The charge asked the SGCC to explore opportunities to mitigate climate-change impact on campus and to consider, more broadly, how Smith can contribute to climate-change solutions within the framework of its educational mission. The group was asked to pursue its charge through broad community input and consultation with experts. To ensure a range of voices and viewpoints on the committee, the study group included students, staff, faculty, alumnae and representatives from the board of trustees.

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## STUDY GROUP ON CLIMATE CHANGE MEMBERS

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### AMY RHODES '91

Professor of Geosciences and Director of the Environmental Science and Policy Program, co-chair

### MICHAEL HOWARD

Vice President for Finance and Administration, co-chair

### ELEANOR ADACHI '17

Engineering and Physics major

### NEELUM AMIN '86

Trustee

### ALEXANDER BARRON

Assistant Professor of Environmental Science and Policy

### CARRIE DOHAN BUCHMAN '78

Alumnae Association Board of Directors

### DEANNA DIXON '88

Associate Director of Admission

### RAVEN FOWLKES-WITTEN '17

English and Psychology major

### MARCIA MACHARG '70

Trustee

### ROGER MOSIER

Associate Vice President for Facilities

### ROBERT NEWTON

Professor of Geosciences and Director of the Center for the Environment, Ecological Design and Sustainability (CEEDS)

### JASMINE PACHECO-RAMOS '19

Environmental Science & Policy major

### VIS TARAZ

Assistant Professor of Economics

### BEVERLY DANIEL TATUM

Trustee

### DANO WEISBORD

Director of Campus Sustainability and Space Planning

### GREGORY WHITE

Professor of Government



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The Smith College mission clearly states the goal of developing women to be global citizens and leaders to address society’s challenges. To fulfill that mission authentically, it is a necessity to have a comprehensive, campus-wide approach to the issue of climate change. Can one truly be a global citizen and leader without paying attention to the impact of our environmental choices? Can Smith, as an institution, foster ethical leadership without educating Smith students about environmental responsibility? How can we honestly live up to the responsibility of global citizenship without acknowledging America’s excessive use of the world’s resources? How can we expect Smith students to develop the capacity to address society’s challenges without setting a clear institutional example of contending with the very pressing societal challenge of climate change ourselves? We often hear the phrase think globally, act locally, and, indeed, that is what the SGCC report—and more importantly, the Smith mission—compels us to do.

”

— BEVERLY DANIEL TATUM  
Trustee, SGCC Member



# Smith College's Mission

Smith College educates women of promise for lives of distinction and purpose. A college of and for the world, Smith links the power of the liberal arts to excellence in research and scholarship, thereby developing leaders to address society's challenges.

## Values

Smith is a community dedicated to excellence in learning, teaching, scholarship, discovery, creativity and critical thought.

Smith is committed to creating an inclusive, equitable and accessible educational community founded on the free and open exchange of ideas.

Smith educates women to understand the complexity of human experience and world cultures through engagement with humanistic, social and scientific ideas.

Smith creates global citizens, committed to participating in the communities in which they live and to stewarding the resources that sustain them.

# Developing the Recommendations

The study group spent a year gathering input from hundreds of students, faculty, staff and trustees, consulting with experts and conducting research to develop a series of recommendations that allows Smith to contribute to climate solutions, locally and globally. During the Spring 2016 semester, Assistant Professor Camille Washington-Ottombre's class, ENV 201/202 Researching Environmental Problems, led two community engagement sessions for the SGCC. More than 40 faculty, students, staff and trustees discussed priorities and concerns about climate change in relation to the college's values and guiding principles; mitigation, adaptation and vulnerability; investments; and the curriculum and co-curriculum. The 15 students in the class then wrote and presented a report to the SGCC<sup>5</sup> and gained invaluable practical experience while helping their college community.

Over the summer of 2016, SGCC members met with students to talk about their engagement with campus issues of climate action and sustainability. Study group members also met with graduate students in the School for Social Work to discuss the intersections between climate change and their experiences in clinical social work.

Concurrently, a subcommittee of the SGCC retained and worked with consultants to study how the college can effectively eliminate net greenhouse gas emissions by 2030. The subcommittee, which included SGCC members and additional students, faculty and staff, studied the college's current infrastructure and examined ways to improve energy efficiency

and reduce emissions. The consultants, Integral Group, presented their findings to the SGCC at the end of the summer.<sup>6</sup>

During the Fall 2016 semester, study group members conducted ten engagement sessions in which hundreds of community members discussed the SGCC's draft recommendations, learned about college endowments and impact investing and viewed the consultants' mitigation plan. At engagement sessions and meetings throughout the year, the SGCC gained valuable insights and suggestions from the Smith community that helped shape the recommendations. A number of quotes from these events are shared throughout this report.

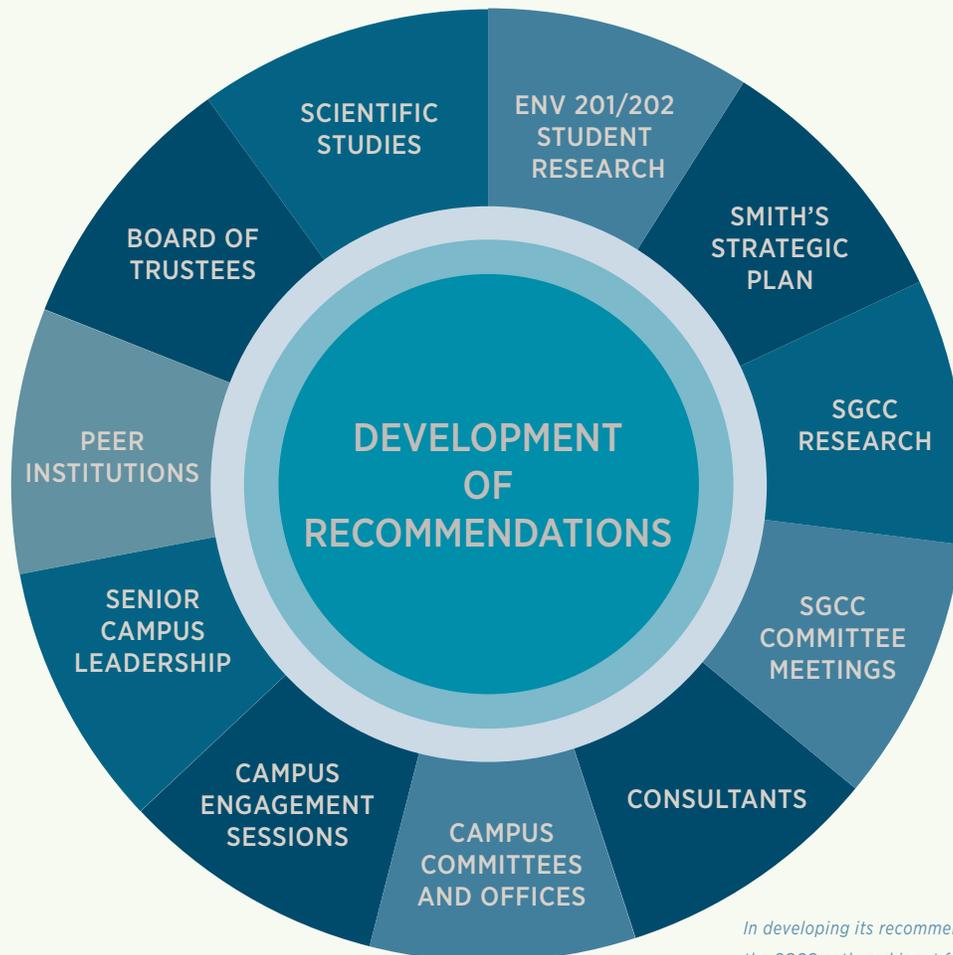
In addition, the SGCC considered several concurrent college initiatives to ensure alignment: the college's new strategic plan,<sup>7</sup> the Neilson Library program plan,<sup>8</sup> the college dining assessment, the work of the Advisory Committee on Investor Responsibility<sup>9</sup> and the Committee on Academic Priorities five-year planning framework (2015-2016).

As the study group considered the community feedback, the consultants' report and the research it gathered, the members discussed, debated and expressed differing views, wrestled with trade-offs, competing priorities and the uncertainties of the future. The group asked questions, both of itself and the Smith community: How is Smith changing as an institution? How is the world changing? How do we make a better life for our community members and reduce the college's impact on the environment? How are climate change and social justice linked?

*“I like the energy on campus—we’re trying to solve a problem together.”*

— STUDENT AT COMMUNITY ENGAGEMENT EVENT

## Gathering Input for the SGCC Recommendations



*In developing its recommendations, the SGCC gathered input from numerous sources.*

“The engagement sessions were great because they allowed people outside the SGCC to participate, add their input and express their concerns. The sessions allowed us to have conversations across campus, learn from each other and make recommendations with the Smith community in mind.”

— JASMINE PACHECO-RAMOS '19  
SGCC Member



# SGCC Principles & Guidelines

In developing principles and guidelines to inform its work, the study group looked to Smith's past while embracing the challenges of an unknown future. Curriculum is the core of the college's identity, and teaching students to innovate and solve complex problems is an imperative. The study group determined it critical that, to have the greatest impact both on- and off-campus, the climate-action recommendations need to:

-  Be comprehensive in scope and set clear pathways for climate action in the college's educational mission, operations and finances, and not simply focus on one or two components in isolation
-  Be distinctly Smith and incorporate the college's outstanding liberal arts education, history of activism, historic residential campus, strong financial resources and engaged and loyal alumnae
-  Build upon the college's new strategic plan that reimagines the liberal arts for the 21st century
-  Expand climate conversations across disciplines and departments to better educate the next generation of leaders
-  Strengthen connections between academics and campus daily life so that the climate-action principles taught in the classroom are implemented on campus
-  Model ideal institutional climate-action behaviors and policies so that students take those practices into the world when they leave Smith



# The Recommendations

In this report, the Study Group on Climate Change presents its recommendations for climate action by Smith College. By implementing these recommendations, the college will coherently integrate climate action and sustainability across all aspects of the college—education, research, operations, financial investments and engagement of the Smith community. There are five broad recommendations, each with sub-recommendations. The study group firmly believes that it is essential to carry out the recommendations simultaneously. The theory of climate action cannot be separated from its practice.

The study group would like to thank President McCartney for her leadership and commitment to climate action. The SGCC hopes its work resonates with the campus community, college leadership and board of trustees so that all members of Smith's community see themselves as integral to the successful implementation of these recommendations.

“ In our yearlong study on how best to approach the effects of climate change, the Smith strategic plan became an excellent guide. It kept bringing the SGCC back to ensuring our recommendations would have a holistic approach to this complex, urgent problem. We made sure to integrate the curriculum and co-curriculum, focus on women's leadership and use our considerable resources on campus wisely. We focused on the learning, living, working and research in our community and how to interconnect each. A sustainable campus is a big goal, and the strategic plan enabled us to approach it in typical Smith style—all hands on deck! ”

— NEELUM AMIN '86  
Trustee, SGCC Member

# SGCC Recommendations

## 1 Academic

Create new academic offerings and further infuse climate change and sustainable development concepts across the curriculum, while enhancing experiential and applied learning opportunities for students.

## 2 Campus Programming

Expand opportunities for students to learn about climate-action initiatives outside of the classroom and to live more sustainably on campus.

## 3 Campus Operations

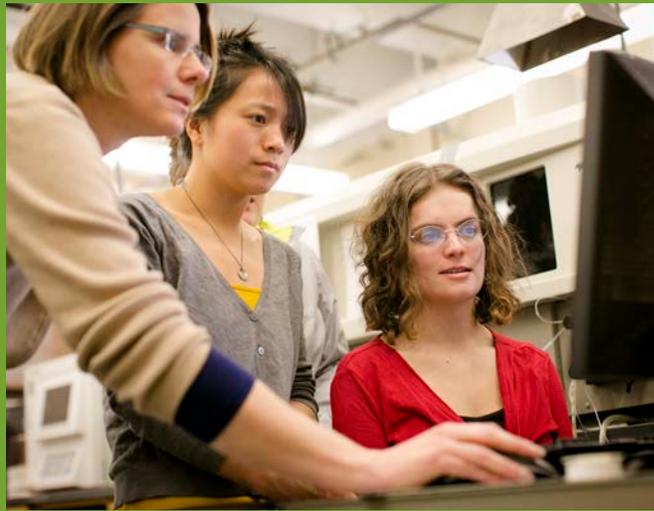
Aggressively pursue the college's commitment to net-zero greenhouse gas emissions by 2030, including a roughly 40 percent reduction in emissions over the next five years and continued research and scholarship focused on the optimal path to net zero.

## 4 Investments

Address climate change in the context of Smith's endowment investments.

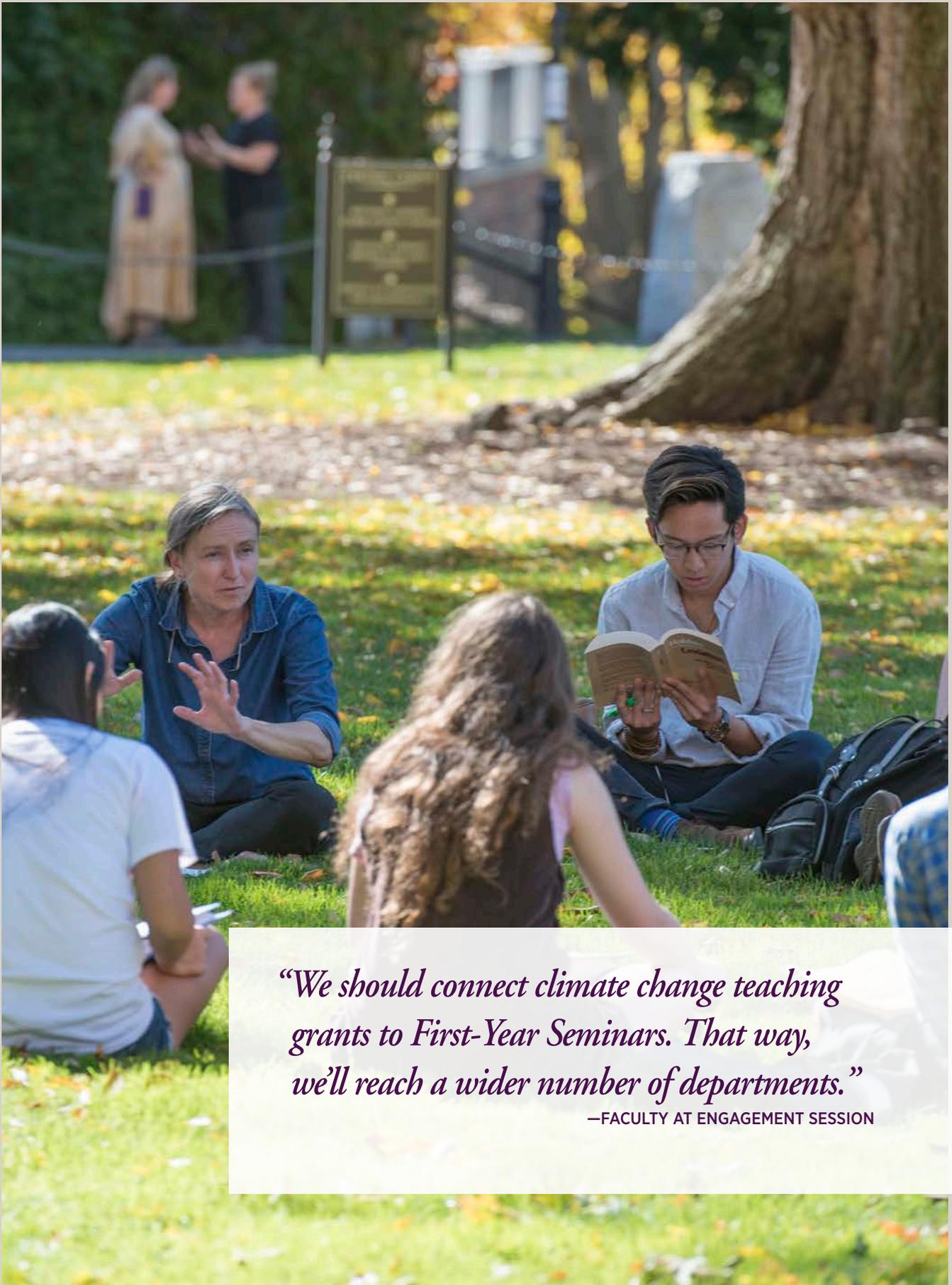
## 5 Institutional Change

Develop sustainability and climate-change initiatives that model ideal institutional behavior.



*“Make sustainability personal. Let students know what their responsibilities are.”*

— STUDENT AT  
ENGAGEMENT SESSION



*“We should connect climate change teaching grants to First-Year Seminars. That way, we’ll reach a wider number of departments.”*

—FACULTY AT ENGAGEMENT SESSION

# Academic

**1** Create new academic offerings and further infuse climate change and sustainable development concepts across the curriculum, while enhancing experiential and applied learning opportunities for students.

Smith College is leading the way in developing a liberal arts curriculum for the 21st century. Climate change is not just about changing weather patterns and atmospheric chemistry—it touches on all aspects of civilization and will be a major issue with which societies grapple. Solutions will require creativity, innovative thought and interdisciplinary work. How does climate change impact communities and human migration across the globe? How can poets respond to climate change? What are the psychological impacts of environmental changes? Incorporating climate change and sustainability across the disciplines will help ensure all students are learning about the concepts that will inevitably impact them throughout their lives.

## **ACTION**

Prioritize climate change and sustainability expertise in faculty appointments across the academic divisions, consistent with the approach proposed by the Committee on Academic Priorities.

The Committee on Academic Priorities (CAP), in their five-year planning framework, 2015–2016, has identified curricular areas of growth in concert with the college’s strategic plan. Climate change and sustainability is one area CAP has prioritized in its faculty appointment decisions to strengthen and diversify Smith’s academic expertise and curricular offerings across the divisions and through disciplinary and interdisciplinary approaches.

## **ACTION**

Develop a Campus as Classroom data integration program that manages operational climate and sustainability data in support of courses and student-faculty research.

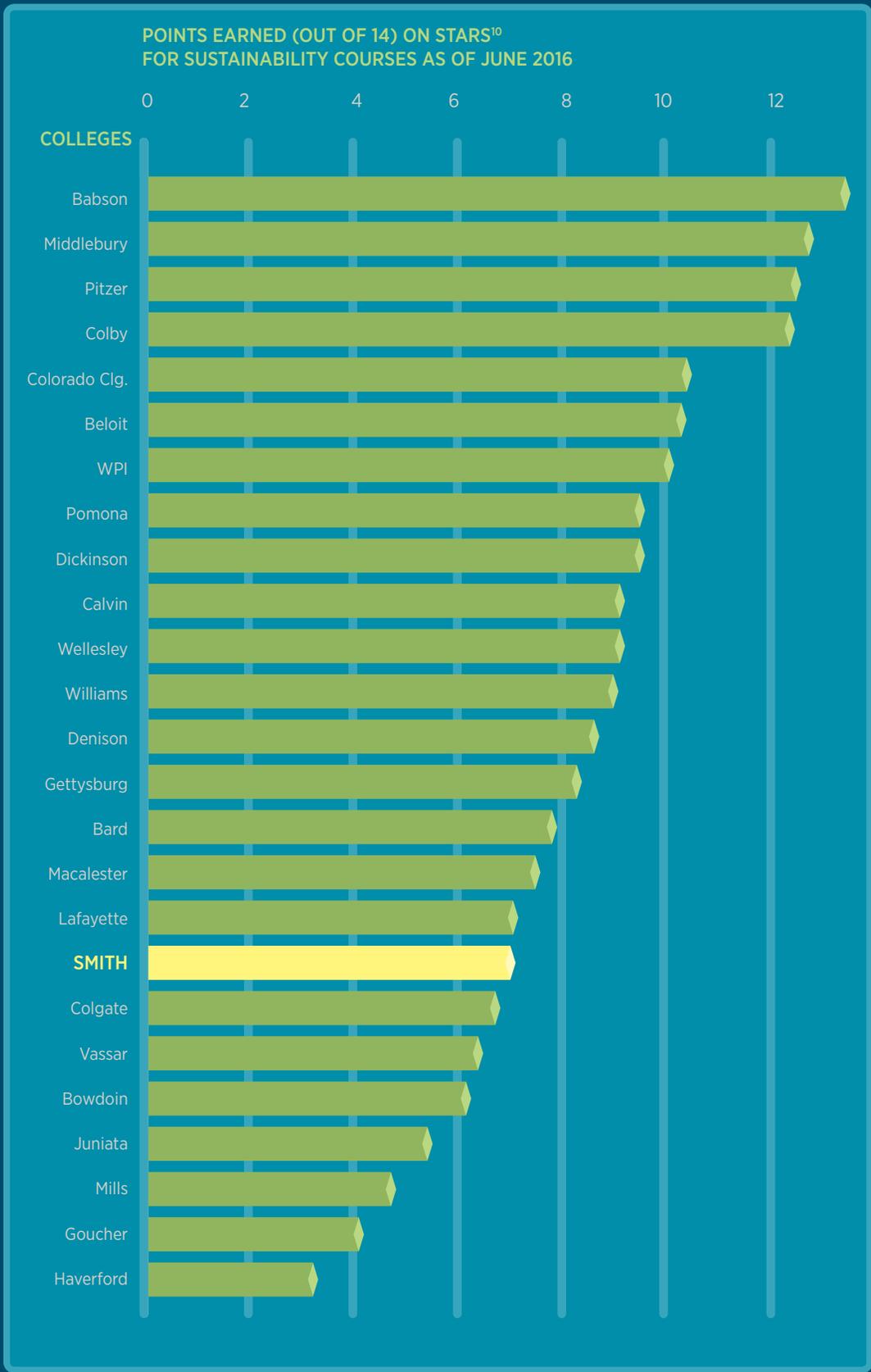
Smith has amassed an enormous amount of campus data related to climate change and sustainability. The campus community is often unaware of these data, and access is complicated by a lack of cataloging and the use of multiple systems and formats. Developing this program will help the college organize campus energy, environmental, financial, transportation, demographic and behavioral data for use by students and faculty in courses and research. Curating this material will provide faculty and students with real-world data and challenges, bringing relevance to coursework and projects.

“Today’s prospective students expect strong sustainability course offerings that extend across academic departments and explore how climate change intersects with global cultures and societies, literature, history, the arts, governance and science. By identifying climate change and sustainability as a nexus area for faculty hiring, Smith can create a strong cohort of faculty with shared academic interests that traverse Smith’s programs and deepen opportunities for students.”

— AMY RHODES '91

Professor of Geosciences and Director of Environmental Science and Policy Program, SGCC co-chair

# Comparing Smith's Sustainability Course Offerings to Peer Institutions



An analysis of sustainability-focused courses at Smith was conducted as part of the SGCC's work. Utilizing June 2016 data from the Association for the Advancement of Sustainability in Higher Education's Sustainability Tracking, Assessment & Rating System (STARS), Smith was compared to schools of a similar size that voluntarily supplied data on their sustainability course offerings. In STARS, schools earn points based on the percentage of sustainability courses offered, the percentage of courses that include sustainability and the percentage of departments with courses that include sustainability.<sup>10</sup>



## ACTION

Provide workshops and funding sources, such as curriculum development grants, to help faculty create new courses and update current offerings.

As part of the SGCC's work, a subcommittee analyzed Smith's sustainability-focused courses in comparison to peer institutions of a similar size. Utilizing the self-reported data from the Sustainability Tracking and Rating System (STARS),<sup>10</sup> Smith falls in the mid- to low-range of a metric that combines the total number of sustainability-related courses and the number of departments offering those courses (see chart on page 14). This proposal would augment current course grants offered by the Center for the Environment, Ecological Design and Sustainability (CEEDS) and would help reach a broader representation of faculty across disciplines. For example, a grant might help strengthen the philosophy department's environmental ethics courses, develop a new course in "cli-fi" literature or add climate-related content to an upper-level language course.

## ACTION

Expand on- and off-campus experiential and applied learning opportunities for students.

The chance for students to apply what they have learned in the classroom to real-world situations is a hallmark of a Smith education. These hands-on opportunities are especially important when considering climate action. The college can help students find sustainability opportunities using current programs, such as Praxis and botanic garden internships, and expand and develop others:

**LEADERSHIP PROGRAMS:** Incorporate a climate-focused track or elements into existing campus leadership programs

**CAMPUS AS CLASSROOM:** Strengthen this program, which connects students to research and operational projects on campus and enables them to see their direct impact on the Smith community

**SUSTAINABILITY FELLOWS:** Expand the current sustainability internship opportunities into a more formal, stepped program. Students begin as house Eco-Reps in their first or second year, work in the campus sustainability office the following and culminate as sustainability fellows in campus departmental and operational offices

**SCHOOL FOR SOCIAL WORK:** Explore opportunities to incorporate climate action into the School for Social Work's curriculum

"Smith College offers many opportunities for experiential learning. Praxis, a program designed to give students funding for unpaid volunteer work, has allowed me and other Smithies involved in sustainability to pursue our interests. During the summer of 2016, I worked in the Florence Community Garden, where I planted and harvested produce for a local church's farm-to-table ministry services. It was an amazing experience to work closely with the environment in ways the classroom rarely allows. It also felt incredible to make meals out of entirely locally grown foods for people who needed them. Opportunities like this are rewarding for Smithies and the community at large."

—RAVEN FOWLKES-WITTEN '17  
SGCC Member

*"Create interdisciplinary courses and research opportunities that have a direct impact on Smith."*

— STUDENT AT  
ENGAGEMENT SESSION

“The faculty is one of the college’s greatest assets, and it is essential that we engage them in helping to find the solutions to the problems of climate change. By supporting faculty research, we will give them the incentive to redirect their scholarship to help not only the college, but also society as a whole. Furthermore, by engaging faculty we will also be engaging students, as most faculty directly involve students in their research. Additionally, faculty doing this research will be developing the resources to include climate-related, course-based research directly in their classes. And lastly, but equally importantly, the results of this research will be presented to a much wider audience through publications and presentations at professional meetings.”

— **ROBERT NEWTON**

Director of CEEDS, Professor of Geosciences, SGCC Member

## **ACTION**

Provide funding for faculty research across all disciplines on climate-related challenges.

Smith’s faculty are continually involved in cutting-edge research that enriches society, and faculty research shapes the content of course offerings for students. The SGCC sees a need to encourage and support climate-related research across the liberal arts, especially in the social sciences and humanities. Significant faculty grants would be offered, with priority given to new ideas that explore connections between climate change and existing faculty scholarship where other funding sources are unavailable. Research may be in collaboration with external colleagues, aligned with thematic years (see SGCC recommendation #2) or aligned to campus-specific challenges. For example, a research workshop or conference organized in conjunction with a thematic year on women and climate change could spawn faculty research that addresses socioeconomic factors of marginalized people affected by environmental degradation due to climate change or fossil fuel extraction. Social movements and forms of cultural and artistic expression around climate-change issues are other potential areas of exploration. Ideally, these grants would promote collaborations, foster interdisciplinary growth and seed external funding.

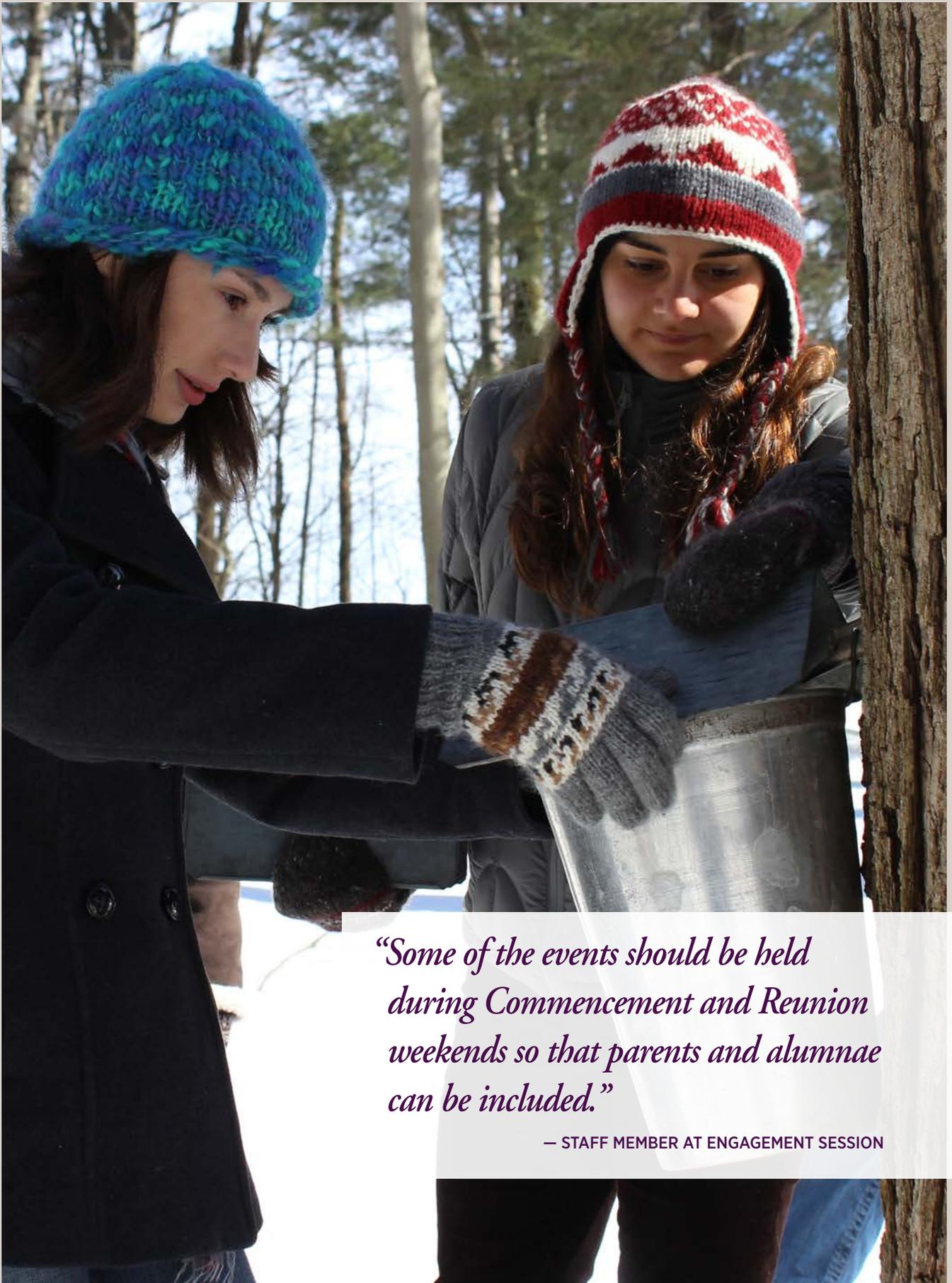
## **ACADEMIC IMPACT**

By implementing these recommendations, Smith will grow as a leader in climate-action education. Increasing the number of courses that include sustainability and climate change will help the college educate a wider number of students to become sustainability leaders and innovators and to steward resources locally, nationally and globally.



*“Our clients don’t use the term climate change when they meet with us, but we see the impact every day as we help them with issues of natural disasters, cost-of-living increases and income loss from jobs that are dependent on natural resources.”*

—SCHOOL FOR SOCIAL WORK  
STUDENT AT ENGAGEMENT SESSION



*“Some of the events should be held during Commencement and Reunion weekends so that parents and alumnae can be included.”*

— STAFF MEMBER AT ENGAGEMENT SESSION

# Campus Programming

## 2 Expand opportunities for students to learn about climate-action initiatives outside of the classroom and to live more sustainably on campus.

While Smith works to offer new and expanded academic opportunities, it should also address climate action through its abundant co-curricular and student life activities. Programs—whether offered by student organizations, academic or administrative departments—can help bridge the gap between the climate-action principles students learn in class and their daily lives on campus.

### ACTION

Plan and implement themed, yearlong, campus-wide programs that bring the Smith community together for an in-depth examination of focused aspects of climate change.

These programs will provide a structure that enables multiple academic and administrative departments to connect students to pressing global problems and to foster reciprocal relationships between the college and program guests and presenters. As a diverse women's college with a global focus, Smith is uniquely poised to examine the social inequities that climate change brings to the world's most vulnerable groups, including women from communities dependent on local natural resources and those who live in regions threatened by climate change. At engagement sessions, faculty and students were particularly drawn to the theme of women, climate change and social justice, which could serve as a launch-year theme in 2018-19. The SGCC imagines these yearlong programs occurring on a biennial basis. As the programs are planned, all segments of the Smith community, including alumnae, will be encouraged to participate. Programming could include, for example, a traveling exhibit at the Smith College Museum of Art that complements the theme, Presidential Colloquium speakers, first-year student readings and student-led climate-action workshops.

### ACTION

Explore ways to strengthen or redesign co-curricular climate-action and sustainability initiatives.

At every engagement session held by the SGCC, community members expressed a strong desire to have more opportunities for students to engage with sustainability initiatives outside the classroom—in houses, in dining rooms,

“Climate change, sustainability and the environment are hot topics for prospective students. Smith’s Environmental Science and Policy major is attractive to students considering Smith, but non-majors are also concerned about global environmental issues. Prospective students appreciate Smith’s tradition of social activism and they want to be engaged participants in working with issues that concern them. The recommendations of the study group will position Smith as a leader in climate action and will give admission officers a framework for talking about how students can be directly involved in learning about and addressing environmental issues.”

— DEANNA DIXON '88  
Associate Director of  
Admissions, SGCC Member

“I think it’s important for alumnae to see their alma mater taking a leadership role around climate action and to take action themselves. Melding Smith’s past with an ever-changing future was a key consideration for the SGCC. I’m hopeful my fellow alumnae will provide their expertise, knowledge, leadership and passion to the college as it continues to educate young women to be global leaders in the environment.”

—**CARRIE DOHAN BUCHMAN '78**  
Alumnae Association Board of  
Directors, SGCC Member

in student organizations and elsewhere on campus. There is also a need to better communicate and tell the stories of what the college is doing around sustainability. Staff members across campus—in student affairs, religious life, campus sustainability and others—will need to collaborate to redesign and develop effective programs that help close the gap.

#### **CAMPUS PROGRAMMING IMPACT**

By closing the gap between students’ learned and lived experiences—where sustainability becomes the norm rather than practiced by only the concerned—Smith will engender broad-scale changes that ripple from its graduates to communities outside Smith. Climate change provides students with exactly the kind of complex problem that a liberal arts education prepares them to confront, study and solve. It also provides a catalyst for critical questions of global citizenship.



*“We need to make sustainability  
more visible across campus.”*

—STUDENT AT ENGAGEMENT SESSION

# Campus Operations

**3** Aggressively pursue the college's commitment to net-zero greenhouse gas emissions by 2030, including a roughly 40 percent reduction in emissions over the next five years and continued research and scholarship focused on the optimal path to net zero.

As part of the comprehensive plan to address climate change, the college will eliminate its net emissions of greenhouse gases (GHGs). Greenhouse gases, such as CO<sub>2</sub>, trap heat in the atmosphere, causing temperatures to rise. Because the gases accumulate in the atmosphere, substantial emissions reductions over the next few decades are required to reduce climate risks in the 21st century and beyond.<sup>1</sup> Reducing CO<sub>2</sub> emissions will slow the future rise in temperature, thereby increasing society's prospects to adapt to climate change. This will require large-scale transformations in electricity production, transportation, industry and land use.<sup>1</sup> Every institution, including Smith College, faces the challenge of decarbonizing its operations.

In 2007, Smith joined the Climate Leadership Network by signing the Carbon Commitment.<sup>11</sup> In doing so, Smith pledged to create a climate action plan<sup>12</sup> that included "a target date for achieving carbon neutrality as soon as possible." Smith's Sustainability and Climate Action Management Plan (SCAMP) set a target date of 2030. Carbon neutrality (having no net GHG emissions) can be achieved by minimizing GHG emissions as much as possible and by accounting for the remaining emissions elsewhere. One approach is for institutions to use carbon offsets—a reduction or removal of carbon dioxide equivalent GHG emissions that is used to counterbalance or compensate for emissions from another activity.<sup>13</sup> Campus GHG emissions levels have been reduced by almost 28 percent since our peak emission year of 2004. On its current trajectory, Smith will not get to carbon neutrality by 2030 without significant changes (see the chart on page 22). By recommitting and refining its approach to carbon neutrality now and working on it over the next decade, Smith can meet the target deadline.

## **ACTION**

Pursue a plan to convert the central heating system to a ground-source heat exchange energy system.

In the last few years renewable sources of electricity have become more widely available, with prices falling rapidly and becoming competitive with fossil-fuel-derived energy.<sup>14,15</sup> This fact, and the reality of Smith's robust and well-cared-for co-generation system, formed the foundation of a concept for a GHG-free campus energy system. The SGCC

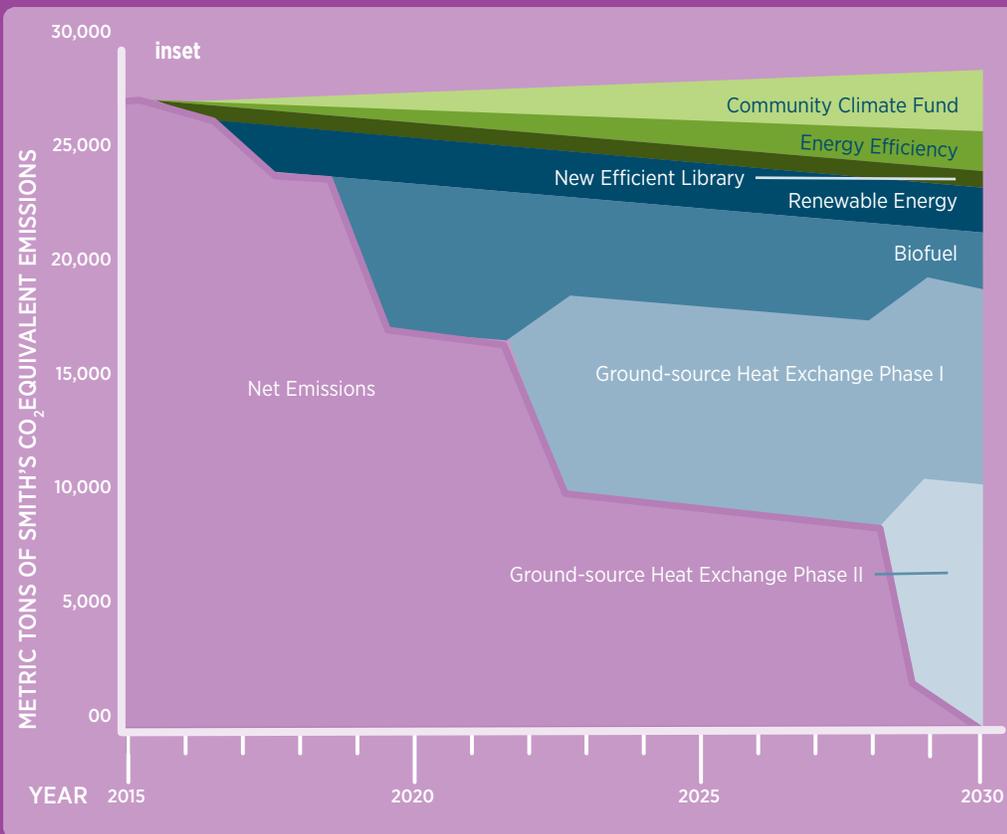
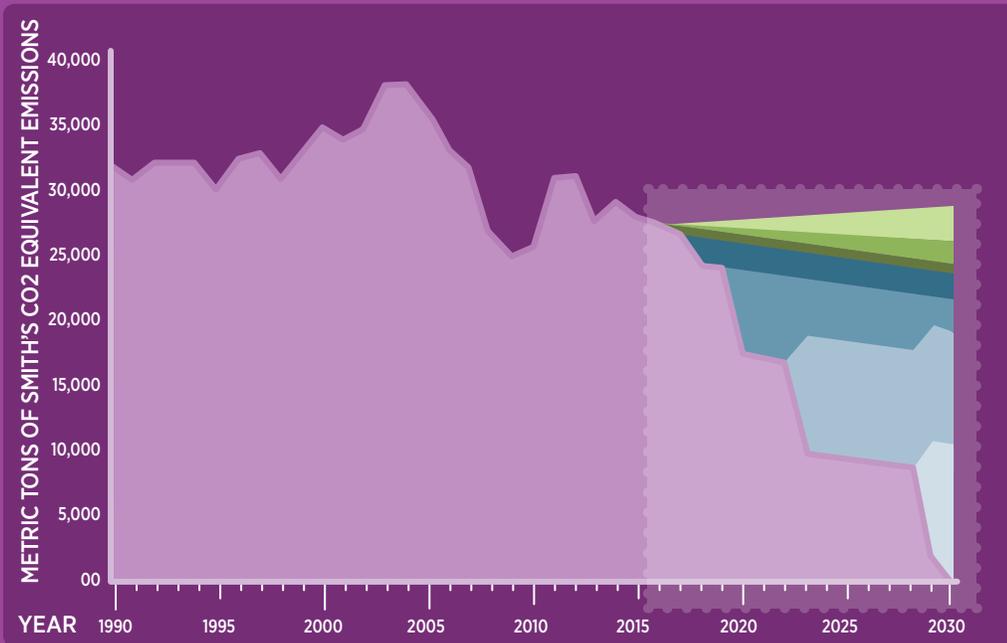
"At Smith, we have long recognized the value of investing in projects that increase the energy efficiency of our facilities. From the productive study and discussions of the SGCC, we can see that these investments are more important than ever as we seek to decrease our carbon footprint. For every step we take in reducing our energy consumption, not only will we see immediate improvements in our energy costs and carbon footprint, but we will also be able to make future investments in solar or geothermal more effective."

— ROGER MOSIER

Associate Vice President for Facilities,  
SGCC Member

# Smith's Mitigation Plan

On its current trajectory, shown in the top chart, Smith will not get to net-zero carbon without making significant changes. Those proposed changes are shown in the bottom chart and constitute the action items in the recommendations.



**KEY**

**COMMUNITY CLIMATE FUND**  
This partnership (see page 30) is currently underway and provides CO<sub>2</sub> offsets locally.

**ENERGY EFFICIENCY**  
(See page 23)

**NEW EFFICIENT LIBRARY**  
By making the new Neilson Library energy efficient, Smith will reduce GHG emissions.

**RENEWABLE ENERGY**  
(See page 23)

**BIOFUEL**  
(See page 23)

**GROUND-SOURCE HEAT EXCHANGE PHASE I AND PHASE II**  
(See page 21)



worked with Integral Group, an engineering firm specializing in sustainability, to develop the Smith College Campus Decarbonization Study.<sup>6</sup> This plan recommends a long-term approach in which the central heating plant is converted from one that burns fossil fuel to one that extracts heat from the ground and uses wind or solar electricity to power the system. Over the next four years, the college will conduct geological, engineering and financial analyses to refine this plan. These analyses will provide ample opportunities for staff, faculty and student involvement.

#### **ACTION**

Upgrade part of the central heating plant to burn carbon-neutral biofuel.

Smith's long-term plan is to convert the central heating system to a ground-source heat exchange system. In the near-term, the college can potentially reduce total GHG emissions significantly by shifting from fossil fuel to carbon-neutral biofuel to operate part of the central heating plant. Conversion requires further study to determine which fuel should be selected, the kind of infrastructure upgrade required and other impacts. This is another opportunity for students, faculty and staff to collaborate on a solution.

#### **ACTION**

Purchase all non-campus-generated electricity from renewable resources.

Currently eight percent of Smith's GHG emissions is associated with electricity purchased from an electric utility.<sup>16</sup> Options for purchasing renewable electricity purchased off-site will be explored and implemented.

#### **ACTION**

Increase funding to improve energy efficiency of campus buildings and implement metering of the largest energy users and most student houses.

Heating, cooling and electrical use accounts for 90 percent of Smith's GHG emissions.<sup>16</sup> Efficiency upgrades focused on the largest energy users will help reduce emissions and save money. Meters that track energy consumption will provide the data for research and engagement programming.

#### **CAMPUS OPERATIONS IMPACT**

Mitigating the college's carbon footprint is key to Smith remaining a leader in sustainability and global citizenship. Short-term solutions, such as switching the campus fuel source, improving energy efficiencies and purchasing electricity from renewable energy resources, will allow the college to reduce its greenhouse gas emissions by roughly 40 percent from current levels within five years. The faculty and student research related to these improvements will help direct future mitigation phases and will serve as a model for other institutions.

"I now understand that there are many paths to carbon neutrality. I initially thought that Smith's energy infrastructure had to become decentralized—that our campus would inevitably be renewable-powered and all electric, with heat pumps on each building. Through many long and impassioned conversations, I've come to appreciate the value of our current infrastructure, even though it was built on fossil fuels. Building a sustainable future requires that we invest heavily in renewable energy and low-carbon technologies and that we understand our history—and our privilege—and make the most of what we already have."

— ELEANOR ADACHI '17  
SGCC Member

"Last fall, I read *The Switch*, by Chris Goodall, a book about the inevitable move from fossil fuels to energy generated by the sun. Solar will supply enough power to satisfy most of the world's energy needs. I devoured the book. It made me so hopeful that the development of cheaper and better technologies for the capture and storage of solar energy, even in a climate like Smith's, really will happen much faster than we think. Many of the SGCC members read the book, and it definitely informed our work."

— MARCIA MACHARG '70,  
Trustee, SGCC Member

*“There’s an urgency to all of this. We need to be divesting, investing, mitigating, adapting and co-curricular-ing all at once!”*

— STUDENT AT ENGAGEMENT SESSION



# Investments

## 4 Address climate change in the context of Smith's endowment investments.

Through the commitment and generosity of alumnae and the college's long-standing tradition of strong financial stewardship, Smith is one of the financially strongest liberal arts colleges in the United States, with an endowment of more than \$1.6 billion<sup>17</sup> as of 2016. The endowment is a major funding source for the college's annual operating budget and thereby essential to the continued academic excellence for which Smith is known. It is of primary importance that the endowment remain focused on generating strong investment returns over the long term.

It is also important that the endowment be invested in a manner consistent with and supportive of the college's mission and values. Historically, Smith has used its role as an investor to act on specific social issues. The SGCC views climate change, with its severe and far-reaching implications, as clearly such an issue. More specifically, the SGCC believes that actions related to our endowment can be an effective and valuable complement to the academic, co-curricular and operational actions recommended above.

With this in mind, the SGCC has identified a set of recommendations to be considered by the Advisory Committee on Investor Responsibility (ACIR). The ACIR is a subcommittee of the board of trustees' Investment Committee and is charged with considering issues of social responsibility related to the college's investments. From the start, the SGCC has shared information and coordinated its work with the ACIR. It is the SGCC's hope that the ACIR will use its expertise to review and develop these recommendations.

### ACTION

Increase the college's commitment to impact investing from \$9.5 to \$30 million.

Impact investments are investments made in companies, organizations and funds with the intention of generating measurable social and environmental impact alongside a financial return. Smith utilizes an outsourced investment office, Investure, to manage its endowment. For several years Smith has been investing in Investure's Sustainability Series, a pool of investments in companies driving positive environmental change and best environmental practices. The goal of this fund is to achieve both financial returns and positive social impact. Over time, the college has increased its commitment to the Sustainability Series from an initial \$1 million to \$9.5 million.

"Contending with climatic change has been, and is going to be, profoundly challenging for the Earth and human societies. It's been fascinating to be part of the SGCC as Smith grapples with crafting an innovative response to these issues. We are indeed looking into the future and seeking to position the institution so that it can continue to contribute solutions to urgent problems and prepare students for a changing world."

— GREG WHITE

Professor of Government,  
SGCC member

Impact investing uses the power of global capital markets to incentivize business and industry to make progress on climate change. For Smith, impact investing offers a level of scale and reach that is not possible with more traditional levers of change. The SGCC believes expanding on the college's initial success in this area is a powerful opportunity to accomplish our long-term objectives.

#### **ACTION**

Explore targeted opportunities for Smith to divest the endowment from fossil fuel holdings in a manner that is consistent with Smith's tradition of prudent financial management.

Fossil fuel divestment has been a topic of substantial and growing interest over the last few years. Students, faculty and staff at Smith have engaged in an active dialogue on the issue. Through a series of engagement sessions over the past year, the SGCC brought community members together to further our collective understanding of this issue within the broader context of climate change and to consider potential actions the college might take.

Many of Smith's peer institutions have undertaken similar campus dialogues and examinations of climate action and fossil fuel divestment. The outcomes have varied significantly, as have the criteria and rationale supporting these decisions. The divestment landscape is further complicated by the difficulty of developing a data set to analyze potential divestment impacts—to institutional investments as well as to fossil fuel companies themselves. As a result, fossil fuel divestment decisions continue to be deeply rooted in the unique characteristics and circumstances of each educational institution.

The SGCC believes that fossil fuel divestment could be a valuable component of Smith's comprehensive response to the challenges of climate change. To that end, the SGCC recommends that the ACIR explore fossil fuel divestment approaches that simultaneously accomplish Smith's climate-action goals and financial objectives.

#### **ACTION**

Enhance reporting and analysis on fossil fuel exposure in the endowment.

Providing transparency to the environmental impact of Smith's endowment holdings has been an effective tool for understanding and evaluating the college's social responsibility as an investor. The commercial tools and practices used by institutional investors such as Smith are evolving rapidly and could be of great benefit to the college in the future. The SGCC recommends continued enhancement of Smith's endowment reporting and analysis capabilities to better understand, communicate and monitor fossil fuel exposure and environmental impact on the college's investments.

## ACTION

Provide funds to the Smith College Investment Club to manage a separate, fossil fuel-free innovation portfolio.

Providing hands-on opportunities for Smith students is a key factor in the SGCC recommendations, investments included. The SGCC recommends specific funds from Smith's financial reserves be made available to students to manage as a fossil fuel-free investment portfolio. Club members, under the sponsorship of the Conway Innovation & Entrepreneurship Center, will have the opportunity to research, construct and manage an investment portfolio in an environmentally-responsible way.

## INVESTMENTS IMPACT

In recent years, opportunities have emerged for institutions to reduce risks and invest in solutions related to climate change. Institutions such as Smith who are concerned about the potential impact of fossil fuels on their investments can employ a range of strategies. Over time, these strategies can play a critical role by enabling the allocation of capital to institutions that are taking steps necessary to create a more environmentally-responsible global energy system. Continuing to engage students and the community in conversations about social issues and the endowment will be key.

“Impact investing is a tremendous opportunity. And very Smith. It is innovative, solution-oriented and results-driven. It focuses on expanding the boundaries of the current system...making progress...and then pushing those boundaries further.”

— MICHAEL HOWARD

Vice President for Finance and Administration, SGCC co-chair





Welcome  
to  
Mt. Trashmore

This pile is the amount of trash 5 residential houses produced in **one night.**

Approximately 50% of trash at Smith could have been recycled.



Smith produces over 3000 pounds of trash every day.

America accounts for one third of the world's trash.

RECYCLE

*“We should make zero-waste events the norm, not just something we occasionally do.”*

—STUDENT AT ENGAGEMENT SESSION

# Institutional Change

## 5 Develop sustainability and climate-change initiatives that model ideal institutional behavior.

Cultivating an ethos of sustainability in the individuals who work at Smith and, thus the institution itself, is a cornerstone of these recommendations. Changes will be needed in both individual behaviors and in college policies. By weaving sustainable practices into the fabric of Smith's organization, and through collaboration with community and institutional partners, the college will lessen its environmental footprint and prepare for the inevitable realities of climate change.

### ACTION

Incorporate sustainability into the work plans of administrative and departmental offices and explore the development of sustainability innovation funds to implement cost- and carbon-saving programs.

Individual departments can have a significant effect on reducing resource use, energy consumption and waste generation. They can also model such behaviors to a wide number of students. Working with Smith's sustainability staff, each campus academic and administrative office will develop climate goals related to their function. Innovative ideas will be shared across campus. For example, the Smith College Museum of Art replaced 372 halogen lightbulbs with LEDs, resulting in an annual cost savings of approximately \$6,900. Additionally, the LEDs light the artwork better than halogens and provide a better visitor and educational experience.

### ACTION

Develop an internalized cost of carbon emissions—such as a carbon-proxy price—to help guide major capital budget management and other decision-making processes.

In the absence of strong national policies, state and local governments and organizations are adopting policies that require societal costs of climate change be taken into account when making certain decisions. A carbon price works by giving the societal cost of climate change an explicit value in economic decisions. One approach is a carbon-proxy price that combines the financial cost and environmental cost into a single metric. By adopting carbon-proxy pricing on campus, Smith would be a leader among colleges and universities in implementing these approaches, give students opportunities to learn about these increasingly widespread policies and impose rigor that can lead to efficient decisions about resource allocation.

“In an economist’s perfect world, everyone would have to pay for their carbon pollution—thus encouraging everyone to take steps to reduce emissions. We don’t yet live in that world, but Smith can lead by ensuring that we account for climate change when we make important decisions. Businesses use carbon pricing to ensure that they are making good long-term investments, and Smith can develop similar approaches to ensure that it is making choices consistent with a low-carbon world. Figuring out exactly how to do this efficiently and effectively is a great interdisciplinary research challenge for students and faculty.”

—ALEXANDER BARRON

Assistant Professor of Environmental Science and Policy, SGCC Member

*“Develop visible metrics about sustainability in dining and display them on campus.”*

—STUDENT AT ENGAGEMENT SESSION

#### **ACTION**

Develop a new campus landscape master plan that promotes use of the physical campus to demonstrate best practices in ecological management and climate-change adaptation.

The physical campus provides a unique lens through which the Smith community can view its impact on climate change and, conversely, the impact of climate change on the campus. The botanic garden, facilities management, campus sustainability and planning staffs, as well as faculty and students, should collaborate to develop a new landscape master plan that embraces the historic significance of campus and addresses the realities of climate change.

#### **ACTION**

Expand local collaboration and locally sourced food in Smith College dining.

Food plays a visible role in campus sustainability and climate-action efforts. Over the last few years, Smith College dining has introduced a number of initiatives, such as signing the Real Food Challenge,<sup>18</sup> which will double the amount of local and sustainable food purchased for campus by 2020. Other actions need to be implemented, such as developing partnerships with local producers and suppliers, aggregating buying power with centralized receiving and processing, and providing adequate equipment and storage to capitalize on seasonal availability and pricing. Training the Smith community to cook and eat seasonally should be prioritized.

#### **ACTION**

Partner with institutions and organizations to address climate change locally and globally.

While Smith can and will address climate change to the best of its ability, the college will need to work with other organizations to have the greatest impact. Joint efforts are currently underway for a study to assess the region’s vulnerability to climate change, including the effects of weather pattern changes and health concerns.

In addition, Smith is working with area partners to test the idea of a Community Climate Fund. This fund would enable the partners to invest in local activities that would reduce GHG emissions—for example, making a local non-profit organization’s buildings more energy-efficient. Testing the Community Climate Fund has involved faculty and students in research and development, and the fund could ultimately provide an opportunity for faculty and student innovations.



## INSTITUTIONAL CHANGE IMPACT

By implementing these actions toward institutional change, Smith will help ensure an organizational and cultural shift across campus, one where sustainability and climate-action initiatives and decisions are considered the norm. In addition, students will see and learn from these changes and take what they have learned with them when they leave campus. These actions will also help protect the campus and students from climate change risks already occurring. Finally, Smith's institutional leadership and collaborations can pave the way for other institutions working to address climate in their operations.





“

Climate change is an enormously complex problem. Institutionally, we are simultaneously endeavoring to reduce our emissions and prepare the institution for an array of effects, such as new patterns of rainfall, longer heat waves and increases in vector-borne disease. Working beyond the campus is essential.

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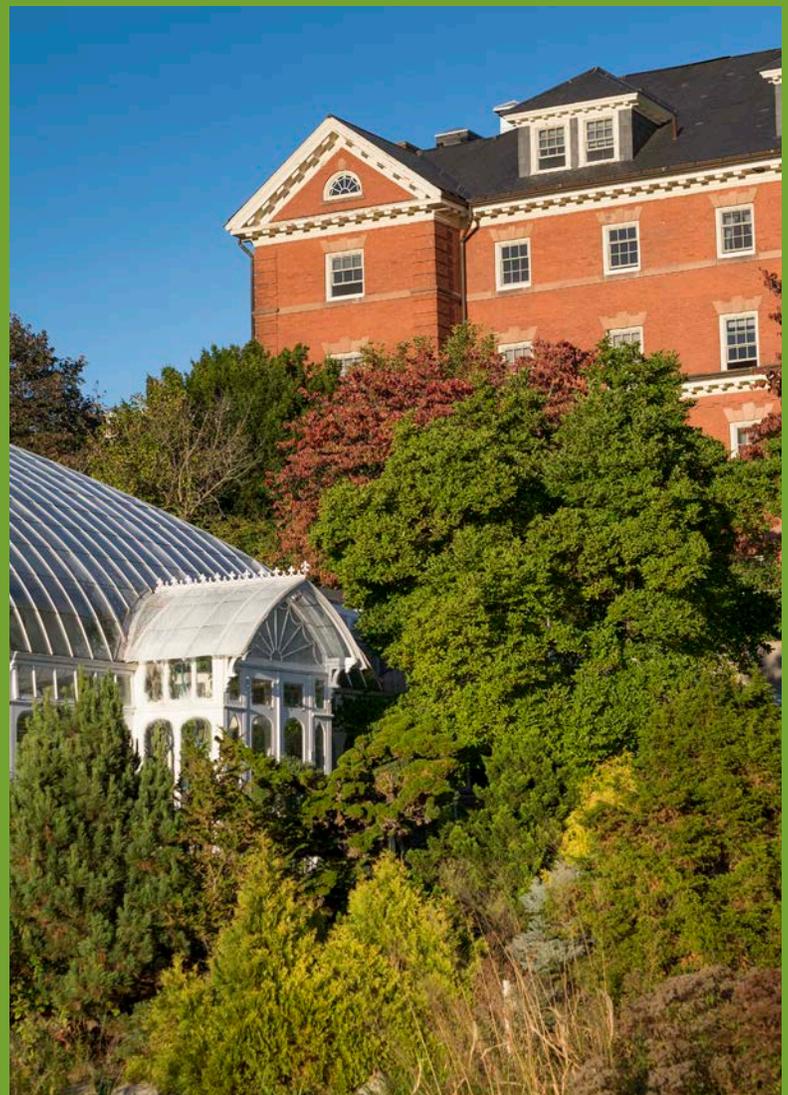
—DANO WEISBORD

Director of Campus Sustainability  
and Planning, SGCC Member



*“I don’t feel engaged in environmental issues at Smith because the discussions here are from the viewpoint of resource excess. That’s not my experience in my home country.”*

—STUDENT AT ENGAGEMENT SESSION



# SGCC Recommendations at a Glance





# Take Action

The longer Smith College—and the world—waits to respond to climate change, the more the risks and costs will increase. Conversely, the sooner the college takes action, the more opportunity it will have to educate the community, reduce risk, limit costs and have an impact on campus and the world.

An implementation plan is needed for Smith to carry out these recommendations. While the college has existing structures on which to build the implementation of these recommendations—CEEDS, campus sustainability, CAP, environmental science and policy, the botanic garden—the study group also sees a need to develop a plan to ensure the college's accountability to these recommendations and its external commitments. Smith's administrative leaders will need to lead the charge in their departments, while future students and new hires will introduce ideas that keep our sustainability efforts innovative and relevant. Taking action will involve organizational changes, new resource allocations and expanded collaborations across campus. The SGCC recommends a

committee be charged with oversight of the implementation phase and to report annually on the college's progress to the president, board of trustees and the campus community.

The college's history of activism and its size enable it to take nimble and pragmatic actions that can have impact on campus and throughout the world. By implementing these comprehensive recommendations, Smith College will serve as a model for other educational institutions. It is the study group's hope that the effects of these recommendations will help fulfill the aspirations of Sophia Smith for the college "...to do the most good to the greatest number...[and] be a perennial blessing to the country and the world."

The Study Group on Climate Change would like to thank everyone who participated in the yearlong process of developing these recommendations. Your thoughtful insights, questions, creativity and enthusiasm for taking on the challenges of climate change greatly helped inform these recommendations.

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