



Brandeis VISION 2030

*Climate action, resilience and
sustainability plan*

PRESIDENT'S TASK FORCE ON
CAMPUS SUSTAINABILITY
2020

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I. Introduction

Since its founding in 1948, social justice has been central to the mission of Brandeis University. At that time, social justice meant allowing students of all ethnic and racial minorities, and women, access to higher education.

Our world today is radically different, as is our understanding and practice of social justice. The COVID-19 crisis has broadened our understanding of social justice even further. The intersection of climate change, human health, and racial justice has never before been at the forefront of prolonged international dialogue. This has influenced both the awareness of and responses to climate change as well.

[Recent survey data from April 2020](#) shows that Americans' understanding that climate change is happening and that global warming is human-caused has reached an all-time high, and the proportion of Americans who consider global warming a moral, economic, or humanitarian issue has increased significantly over the past year¹ Moreover, Americans who identify as Hispanic/Latino or African American are far more likely to be concerned or alarmed about global warming than those who identify as White.²

Climate change presents an existential threat to all human life, most immediately to communities at risk here in the U.S. and around the globe. The consequences of climate change disproportionately affect low-income communities and communities of color. Climate change will greatly harm the ecosystems of the planet, which will lead to species extinctions, possible ecosystem collapse, and definite impacts on humans as ecosystems degrade. Those impacted first and worst by this degradation have been and will continue to be low-income communities and people of color. Therefore, by finally heeding the call of scientists and social justice advocates alike, Brandeis can fulfill its social justice mission more holistically than ever before, and help create a better, safer, more just life for generations to come. This shift requires bold, coordinated action and leadership. The COVID-19 crisis has proved that this isn't easy—but that it can be done.

This plan is the third and most ambitious plan since Brandeis became a signatory to the 2008 Carbon Commitment.³ **In this plan, we commit Brandeis to carbon neutrality no later than 2030, in addition to investigating ways to go carbon negative.** This commitment extends to our scope 1 and 2 emissions, as explained in the [section on our carbon footprint](#).

This plan also includes priorities for climate resilience so that we can better prepare for the challenges that extreme climate conditions will present in the very near future. The plan also lays out how we will increase climate change education, and implement best practices in sustainability going forward.

¹ Leiserowitz, A., Maibach, E., Rosenthal, S., Kotcher, J., Bergquist, P., Ballew, M., Goldberg, M., Gustafson, A., & Wang, X. (2020). [Climate Change in the American Mind: April 2020](#). Yale University and George Mason University. New Haven, CT: Yale Program on Climate Change Communication.

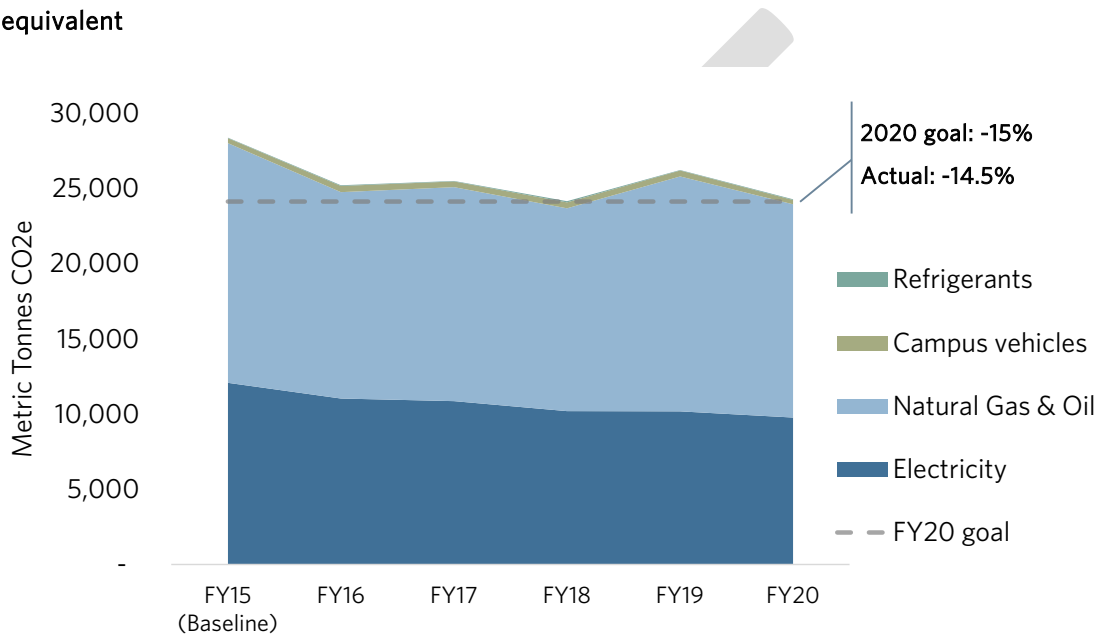
² Ballew, M., Maibach, E., Kotcher, J., Bergquist, P., Rosenthal, S., Marlon, J., and Leiserowitz, A. (2020). [Which racial/ethnic groups care most about climate change?](#). Yale University and George Mason University. New Haven, CT: Yale Program on Climate Change Communication.

³ The American College and University Presidents' Climate Commitment is now called [the Carbon Commitment](#).

Our carbon footprint

Brandeis has historically struggled to reduce its carbon footprint, the majority of which results from our campus buildings' energy use. Our first goal, which was set in 2015, was to achieve a 15% reduction by the end of the 2020 academic year. We will approach this goal, unfortunately, only due to the steep decline in energy use as a result of the COVID-19-related reduction in campus population at the end of the 2020 academic year.

Brandeis carbon emissions (scope 1 and 2*), 2015 to 2020, metric tonnes of carbon dioxide-equivalent

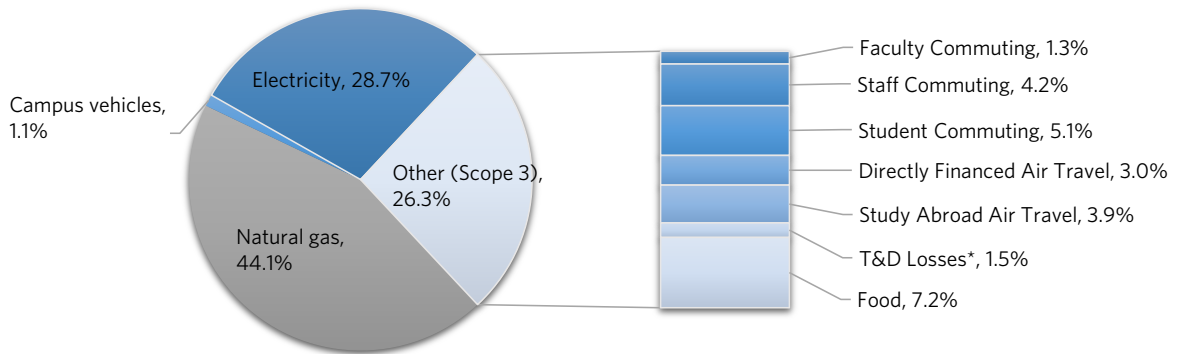


*Scope 1 and 2 includes emissions from electricity, natural gas, heating oil, fuel used in Brandeis-owned vehicles, and refrigerants used in campus equipment.

The Office of Sustainability uses the [Sustainability Indicator Management and Analysis Platform \(SIMAP\)](#) developed by the Sustainability Institute at the University of New Hampshire to calculate our carbon footprint. Data for our scope 1 and 2 footprint is drawn from our campus energy meters and utility bills; records of gasoline and diesel use from our campus fueling station; and records from our campus HVAC vendors. Data for our scope 3 footprint is drawn from several sources across campus, including our bi-annual Massachusetts Rideshare survey, records from our campus travel management partners, the Office of Study Abroad, and food and beverage purchases by Sodexo.

Carbon footprint by source

Scope 1 and 2 emissions make up 70% of our carbon footprint, the majority of which comes from our campus building energy use.



Emissions from refrigerants used in campus equipment (scope 1), paper purchases (scope 3) and solid waste (scope 3) are not included in the graph, but each contribute 0.1% of our footprint.

*Lost electricity during transmission and distribution within the grid.

While we have a strong understanding of our carbon footprint due to campus operations, we need a better understanding of our footprint associated with our endowment. Our footprint should be expanded to include a reasonable estimate of our emissions that result from our investments in fossil fuels.

Listening to our community: Our process of engagement

This plan is the synthesis of a broad process of engagement with current students, alumni, faculty, and staff. The Task Force and its four working groups used in-person meetings, open community education sessions, online feedback forms, campus-wide communications, and previous survey results to “mine the collective genius of our community,” and create meaningful discussion around the central questions of our task.

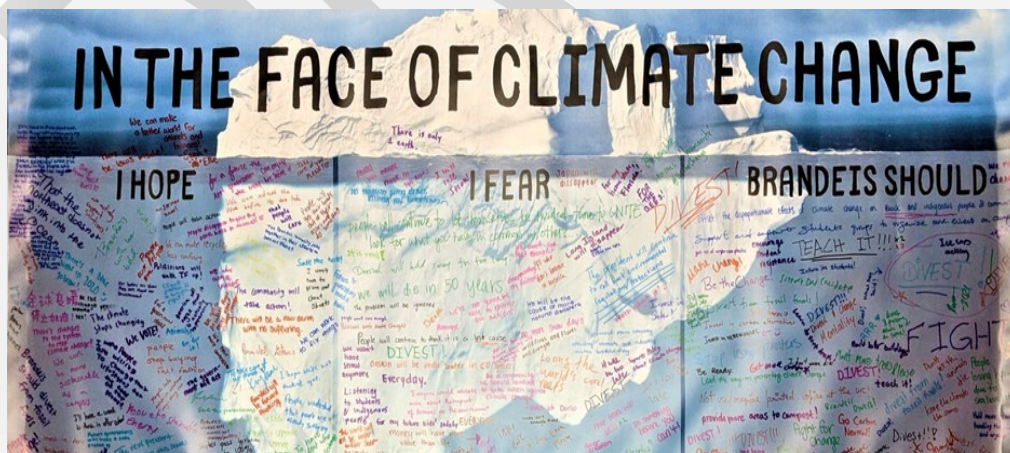
Means of engagement included:

- Two open discussions on Brandeis’ fossil fuel investment policies
- A community forum on climate change including a panel of professors, answering the question, “What should Brandeis’ role and responsibility be in the face of the climate crisis?”
- Gathering comments through our online feedback form, ensuring that anonymous entries were allowed
- Reviewing comments on sustainability from our 2017 Campus Operations Survey
- Gathering comments through a participatory art project
- Meetings with the deans of the College of Arts & Sciences, the Heller School, the Rabb School, the International Business School, as well as the Executive Director of the Hiatt Career Center.

“Brandeis has a moral obligation to respond to the climate crisis by actually taking action to demonstrate our social justice mission in process.”

- Student feedback to Task Force

As one method of collecting feedback, students circulated a banner that people could write on in response to the prompt, “In the face of climate change, I hope/ I fear/ Brandeis should.” A larger, explorable version of this image is available [online](#).



Divesting from fossil fuels

One of the most frequent demands throughout our process of engagement was that Brandeis divest its endowment from fossil fuels, at times combined with the proposal that the university should reinvest in sustainable alternatives.

The Task Force invited Craig Altemose from [DivestEd/Better Future Project](#) to explain fossil fuel divestment at a public teach-in on campus on February 5, 2020 ([slides available here](#)). In order to address climate change and enable decarbonization, massive investments in renewable energy and energy efficiency are necessary. The fossil fuel industry is using its outsized political influence to prevent this. Brandeis' ability to achieve net-zero or negative carbon emissions will depend on the availability of affordable clean energy alternatives. Public statements in support of fossil fuel divestment will enable politicians like Brandeis alumna Massachusetts State Senator Rebecca Rausch to pass the legislation required to accelerate adoption of clean energy. By committing to divest, the university would join a vast network of institutions, including in recent months, the University of California, Georgetown University, Brown University, and Oxford University.

The [fossil fuel divestment movement at Brandeis has a long history](#). Since 2013, both students and faculty have held petitions and passed resolutions in support of fossil fuel divestment at Brandeis. President Fred Lawrence, interim President Lisa Lynch, and President Ron Liebowitz established committees and worked to facilitate dialogue between students, faculty, and trustees around divestment demands.

In November 2018, the Board of Trustees adopted a [set of policies](#) related to fossil fuels, and committed to review them in three years to evaluate their impact and consider future action. This review and decision should not be delayed. Continued support of the fossil fuel industry is incompatible with the swift and urgent action necessary to avoid the worst impacts of [the climate emergency](#) and with successfully completing the measures to decarbonize the university.

Another area where this is relevant are the retirement plans available for university employees. The existing plans do not include fossil-free options. Many investment companies now specialize in carbon-free products (see [Fossil Free Funds](#)). We recommend that the university task the committee in charge of retirement plan options to investigate carbon-free alternatives and make these available to all employees.

The Brandeis [carbon footprint](#) currently includes scope 1, 2 and select scope 3 emissions. Our scope 3 footprint should be expanded to include a reasonable estimate of our emissions that result from our investments in fossil fuels.

With its commitment to equity and social justice, Brandeis has a particular responsibility to the low-income and marginalized communities who are already most impacted by environmental degradation, and now COVID-19, and who are also already confronted with the highest risks of climate disasters.

The university should also consider joining the [Responsible Endowments Coalition](#), "a coalition of schools with combined endowments of over \$102 billion that works to build and unify the college and university-based responsible investment movement, both by educating and empowering a diverse

network of individuals to act on their campuses, and by fostering a national network for collective action.”

In the face of an unprecedented economic crisis on top of a global health crisis, as one of the country’s top institutions of higher learning Brandeis should seek to cooperate with peer institutions to leverage the collective power of investments, scientific expertise, and educational outreach to help bring about a just transition to a low-carbon economy.

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II. Achieving carbon neutrality by 2030

In 2019, the United Nations Environment Programme (UNEP) released its 10th annual [Emissions Gap Report](#), which compared the latest evidence on current and estimated future global greenhouse gas emissions to the levels permissible for the world to achieve the goals of the Paris Agreement. The report found the results “bleak,” stating that, over the past 10 years, “Countries collectively failed to stop the growth in global greenhouse gas emissions, meaning that deeper and faster cuts are now required.”

We must begin with committing to carbon neutrality within a scientifically-supported time frame, which means we must reach net zero emissions by 2030.⁴ We would not be alone in this aspiration. Higher education institutions have responded to the climate crisis by setting more aggressive GHG reduction targets than ever before.

Research [has shown](#) that carbon emissions must reach zero by 2030 in every country in the world if we are to stay at less than 3.6 degrees Fahrenheit (2 degrees Celsius) of warming by 2100, the target set by the United Nations to avoid the worst impacts of climate change.

We will commit to this by signing [the Climate Commitment](#), and by articulating a strong commitment to addressing climate change in [the Framework for the Future](#). The Task Force recognizes that the Framework “does not include many of the recommendations” that resulted from its engagement process, but the Framework is the university’s only visible document for strategic guidance for the future. This is where the university’s commitment to a *sustainable* future will therefore be forcefully articulated. While the Framework “offers some overarching themes that require our attention most urgently as we seek to plan and advance Brandeis’ future,” climate change is neither a theme nor an issue. As a threat to human civilization around the globe it must guide all other considerations at a university with global reach. Our framework and all our planning must above all be based in science. The Task Force has suggested language for the Framework in [this document](#) (see highlighted passages).

A 2030 target is not possible at Brandeis, however, without commitments to fundamentally change how we approach campus energy, both physically and financially. Heating and cooling our campus buildings represents the biggest portion of [our carbon footprint](#). Therefore, we must prioritize reducing emissions in our physical infrastructure. This section details how we will achieve carbon neutrality by 2030 through financial instruments and updates to our physical infrastructure.

⁴ While the IPCC has stated that emissions must decline by about 45% from 2010 levels by 2030 ([Special Report: Global Warming of 1.5 °C](#)) additional research has shown carbon emissions must reach zero by 2030 in every country in the world if we are to stay at less than 3.6 degrees Fahrenheit (2 degrees Celsius) of warming by 2100, the target set by the United Nations to avoid the worst impacts of climate change. Lamontagne, J.R., Reed, P.M., Marangoni, G. et al. Robust abatement pathways to tolerable climate futures require immediate global action. [Nat. Clim. Chang. 9, 290-294 \(2019\)](#).

Investing in our physical infrastructure

Brandeis' strategy to decarbonize must start with reducing energy consumption while also transitioning away from fossil fuel-based energy. This strategy is based on the fact that electrical energy is the only type of energy that has the capability of becoming completely decarbonized in the future, and follows the Intergovernmental Panel on Climate Change's recommendation that all new buildings are 100 percent electrified by 2030.⁵

“Electrical energy is the only type of energy that has the capability of becoming completely decarbonized in the future.”

- UNEP 2019 Emissions Gap Report

The recommended strategy can be simplified as 1) investing in building energy efficiency; 2) transitioning to carbon-neutral energy sources; and 3) purchasing carbon offsets and renewable energy certificates (RECs).

The first action towards this strategy is to **adopt a more ambitious green building standard**. Approximately 70% of our campus carbon footprint stems from our building energy use. The Framework calls for planning and design of several new building projects, therefore a campus building standard will provide the necessary guidance on energy efficiency of those buildings. The updated green building standard, detailed in the [Appendix](#), calls for building designs to:

- Follow Passive House design principles
- Meet higher energy efficiency standards
- Achieve zero net-energy
- Be electrified to the maximum extent possible
- Consider present and future climate conditions in assessing a project's environmental impacts
- Provide project financial estimates up front that include long-term operating cost scenarios of energy demand, demonstrating not only up-front costs, but also annual utilities estimates with a shadow cost of carbon of \$100 per ton.⁶

At the same time, Brandeis will **develop and follow an energy master plan to decarbonize the campus**. Our Framework for the Future has signaled the need for planning of a new science building, a new residence hall with dining, a new International Business School, and several other projects. In order to responsibly plan for such physical investments over the next decade, we must also plan how to provide energy to those buildings sustainably. Brandeis cannot claim carbon neutrality while continuing to rely heavily on natural gas and backup oil for heating.

Brandeis will develop an energy master plan that articulates a pathway to achieve carbon neutral energy systems. The overall scope of this plan would be to create an integrated climate and energy master plan that provides guidance on future energy investments and decisions that fulfill our commitment to carbon neutrality by 2030. This must include a menu of specific building-level energy

⁵ UNEP (2019). [Emissions Gap Report 2019](#). Executive summary. United Nations Environment Programme, Nairobi.

⁶ The shadow cost will be used as a decision-making tool, but will not incur an actual cost.

reduction and conservation projects that also drive long-term deferred maintenance in a coordinated manner. It should also include a menu of investments to bring metering and telemetry infrastructure up to a consistent baseline. The resulting plan should span several years and identify short- and long-term actions on, for example, [deep energy efficiency retrofits](#) of many of our existing buildings, strategically electrifying our campus as much as possible, phasing out our reliance on natural gas heating, moving to zero-carbon heating and cooling, and tracking energy consumption on a building-by-building basis.

To help achieve these goals, Brandeis will investigate alternative financing mechanisms, such as engaging with an energy service company, establishing a green revolving fund, or using energy savings agreements. Such financing may be possible outside of a typical capital budget.

In addition, Brandeis will use financial instruments to reduce carbon and achieve net-zero emissions using the following guidelines. Brandeis will also assess how these instruments can help us become carbon negative.

Guidelines for using financial instruments to reduce our carbon footprint

Carbon neutrality cannot be achieved without a commitment to using financial tools, such as carbon offsets and renewable energy certificates (RECs). Not all offsets or RECs are equal, however. Some have significantly more impact than others in their ability to avoid carbon emissions that would have otherwise occurred.

Carbon offsets

Brandeis will follow [Second Nature's principles](#) for ensuring offsets are of the highest quality. Most importantly, these principles require that offset projects are real and emissions reductions are additional, meaning that projects result in actual reductions of GHG emissions that would not have otherwise occurred under a reasonable and realistic business-as-usual scenario. Additionally, projects must be transparent, and emissions reductions must be measurable, permanent, and verified, and must align with our social justice values. The full list of Second Nature's principles is in the [Appendix](#).

Renewable energy certificates

Why carbon negative?

Meeting ambitious international climate goals may require global CO₂ emissions to fall below zero in the second half of this century, achieving what is known as net negative emissions.

In the Intergovernmental Panel on Climate Change Special Report on Global Warming of 1.5°C, published in late 2018, almost all the pathways analyzed by the authors relied to some extent on carbon removal approaches in order to achieve net negative emissions after 2050.

[International Energy Agency](#)

Brandeis will purchase RECs that provide additionality, as defined above, as a strategy to reduce carbon emissions from our electricity usage, preferably via a long-term contract such as a virtual power purchase agreement.

Brandeis will then pursue becoming a [US EPA Green Power Partner](#), a voluntary, free program to report our green power purchasing annually and be recognized as a green power leader.

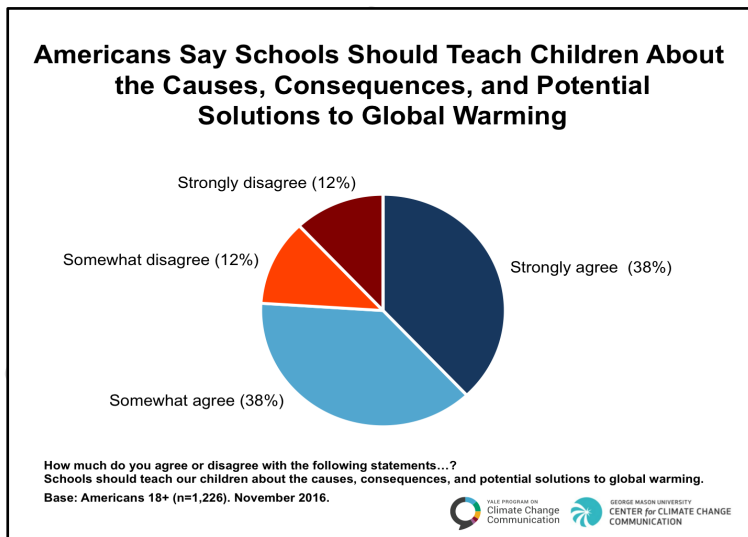
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III. Incorporating climate change education in the classroom

Although reducing the university's own carbon footprint is the priority of the climate action plan, the Task Force recognizes that Brandeis has a far greater opportunity to address global warming through its main mission: By educating future leaders, innovators, thinkers, and creative minds. Brandeis has a responsibility to ensure that all of our students graduate with the skills and knowledge required for life in a rapidly warming world, no matter what their major(s), and no matter what career path they will choose.

This opinion is shared by the majority of Americans. According to [Climate Change in the American Mind: November 2016](#), 76% of Americans believe that schools should teach our young people about climate change.

The Climate Commitment (see [Appendix](#)) states that the university must "make carbon neutrality and resilience a part of the curriculum and other educational experiences for all students" and also "expand research in carbon neutrality and resilience."



Currently, only a very small percentage of Brandeis students take a course about climate change during their four years of undergraduate study. The number is even smaller for graduate students (see [Appendix](#)). There are two ways to ensure that all students graduate with some degree of "climate literacy": It must either become part of the Brandeis core general education requirements or many faculty in all departments must incorporate climate change into their courses. A combination of both would be ideal.

A general education requirement would be the surest guarantee that all students graduate with some basic understanding of climate change. Offering climate change courses in numerous departments helps ensure that the approach to climate change education is comprehensive and includes a diversity of topics, including the connections between climate change, racial justice, and human health. Research shows that students who are exposed to sustainability concepts throughout the curriculum will be more likely to apply sustainability principles in their professional fields.⁷

⁷ [AASHE STARS Technical Manual 2.2](#)

Assessment of current course offerings

The Working Group on Incorporating Climate Change Education in the Classroom used the [AASHE STARS definition of sustainability course offerings](#) to assess Brandeis' existing course offerings in the School of Arts and Sciences.

There are currently no courses explicitly about carbon neutrality and resilience as required by the Carbon Commitment. Until recently, Brandeis offered very few courses that dealt with climate change and/or sustainability according to the STARS definition. Over the past two years, six new courses have been approved, bringing the total number of courses to 24 in the School of Arts and Sciences. Of these, all are taught by adjunct or contract faculty, one was taught by a tenured faculty member who retired in Spring 2019, and one by a tenured faculty member who is retiring over the next two years. Brandeis has recently hired its first climate scientist who will begin teaching in Fall 2020. In Fall 2021, a Kay Fellow with expertise in climate change will join Brandeis. These two hires together will significantly increase the number of courses related to climate change. But the Kay Fellow is a temporary appointment, and the number of courses taught by tenured faculty will go down to zero by 2022.

Of the 24 existing courses, seven are offered from within the Environmental Studies Program. The additional courses are offered in the sciences, the social science, and the humanities.

Of those 24 courses, 18 were offered in the 2019-2020 academic year. The total number of courses offered to undergraduates was over 1,200, including all sections and labs. This means fewer than 2% of our courses deal in some way with climate change. Even if the new faculty are able to double this number, it would be far from where it needs to be.

“We should make sure all students graduating from Brandeis have engaged with climate and sustainability from multiple perspectives in coursework and research across the curriculum.”

– Faculty member

Examining the number of undergraduate students exposed to some form of climate change education

The following diagram shows the number of students by their declared major, the number of courses in that department that meet the STARS definition of a course that would discuss climate change, and the percentage of that department's course offerings that meet that definition.

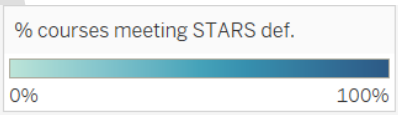
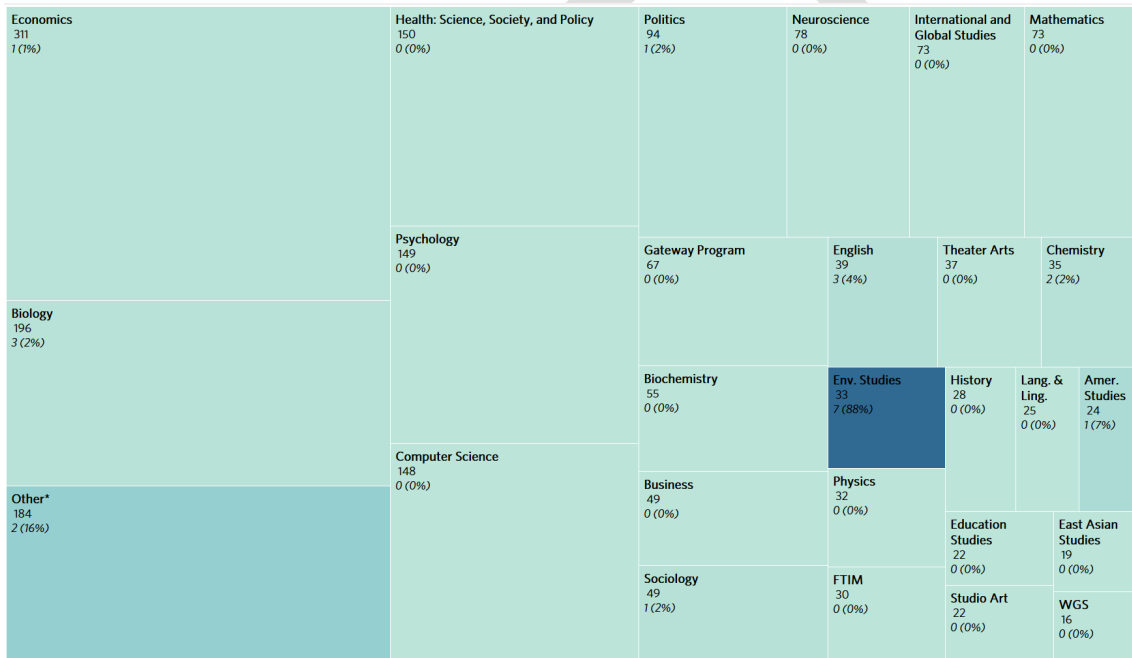
A larger, interactive version of this diagram can be found [online](#).

Key to labels in the graphic below:

Department

Number of students graduating with that major in 2017 (size of block)

Number of courses in department that meet STARS definition (percent of departments total course offerings)



*Other includes the smallest majors, including Art History, Biological Physics, Classical Studies, Comparative Literature and Culture, Creative Writing, European Cultural Studies, French and Francophone Studies, German Studies, Hebrew, Hispanic Studies, Independent Interdisciplinary Studies, Islamic and Middle Eastern Studies, Italian, Latin American and Latino Studies, Music, Near Eastern and Judaic Studies, Philosophy, Russian Studies, the Myra Kraft Transitional Year Program.

Brandeis will develop a climate literacy requirement for all undergraduates in the Brandeis Core.

When core requirements are reviewed in 2023-2024, climate change literacy must be included in the required skills. The sustainability committee will ensure that a climate literacy proposal is prepared and submitted to the Undergraduate Curriculum Committee in time for the review of core requirements. Climate literacy must include not only basic understanding of the science of climate change, but a deeper engagement with the interconnections between economic activity, social and political decision-making processes, climate justice, decarbonization efforts, technological innovation, and resilience.

Brandeis will demonstrate a stronger commitment to education on climate change by adding more faculty positions with relevant expertise and by incentivizing all faculty to incorporate climate change into their teaching and research. Undergraduate and Graduate students must be given ample opportunity for engagement with knowledge and skills related to carbon neutrality and resilience.

The Environmental Studies Program is currently responsible for the majority of courses on climate change. It has only one tenured faculty member, Brian Donahue. Almost all courses focused on climate change are offered by contract faculty. The incoming climate scientist is likewise a contract position. In the coming years, Brandeis will demonstrate its commitment to climate change education through its hiring practices by adding faculty expertise on climate change in all relevant disciplines (including but not limited to physics, chemistry, biology, politics, economics, business, psychology, and the arts). One way of achieving this goal would be through a “cluster hire” in cooperation with various departments. Another ambition would be to build out the Environmental Studies Program into a Department. Only when the university creates tenure lines with expertise in climate change will continuity of teaching and research into climate change be secured.

In addition to the [teaching grants](#) already offered, Brandeis will incentivize all faculty to include units that cover climate change in their courses, especially in related fields such as Health: Science, Society, and Policy (HSSP).

Brandeis will also provide training to faculty in how to incorporate climate change in their disciplines. This will leverage the best practices and expertise of resources from the Brandeis Center for Teaching and Learning, [AASHE Centers for Sustainability Across the Curriculum](#), and the [Sustainability Curriculum Consortium](#), for example. Brandeis will investigate becoming one of AASHE’s Centers for Sustainability Across the Curriculum to offer workshops and other professional development opportunities on sustainability in the curriculum. The establishment of such a regional Center would also provide Brandeis with more opportunities for joining forces and sharing best practices with other schools in New England.

Expanding education for staff, including re-evaluating opportunities for new employee orientation will be another focus.

Research

In their [Fossil Fuel Investment Policies](#) of 2018, the trustees also committed to “prioritize support for Brandeis faculty and researchers working on climate change and related issues through the provost

research fund.” This commitment should continue and be expanded, and relevant outcomes from the funded projects should be shared with the Brandeis community and the public (for example on the Sustainable Brandeis website). To further expand research in carbon neutrality and resilience, Brandeis will undertake the following:

- Task someone with regularly assessing research activity in the field of climate change at Brandeis, including our undergraduate and graduate schools and provide regular updates to the sustainability committee.
- Facilitate and incentivize research cooperation on climate change across schools (i.e. between the Environmental Studies program (ENVS), the Heller School, and the Brandeis International Business School).
- Pursue and dedicate research funding for areas related to climate change.
- Incentivize research on climate change by providing professional development opportunities and help with grant writing for faculty.
- Encourage faculty to incorporate climate change in their research agenda
- Create student research fellowships in the area of climate and sustainability
- Intensify cooperation with other institutions and consortia.
- Encourage faculty to participate in academic conferences virtually. Consideration of the carbon footprint of air travel should be part of the decision-making process for academic research. Faculty should not be penalized for virtual participation or related advocacy, or for reducing their conference travel for climate purposes.

The newly to be established committee should also be charged with examining how Brandeis could support faculty and staff in efforts to further decarbonize their teaching, research, as well as other activity. One faculty member recommended, for example, that Brandeis help organize incentives for faculty and staff to decarbonize their own homes. This might do little to improve the university’s carbon footprint directly, but it would greatly help contribute to the larger culture shift that will be necessary to achieve our goals.

Creating the Year of Climate Change at Brandeis

Brandeis will work to make the 2021-2022 academic year the Year of Climate Change at Brandeis. Following in the footsteps of Smith College, Brandeis will undertake a yearlong, campus-wide commitment to providing in-depth analysis of the issues and inequities of climate change with the goal to engage the entire Brandeis community, including alumni, in curricular and co-curricular programming that catalyzes and deepens our understanding of climate change as a social justice issue and expands our dedication to tackling this urgent problem in courses, course projects, student events, guest speakers, conferences, student activism, and more. The Brandeis International Business School modeled a similar effort during their 2020 [Business of Climate Change week](#) (which was unfortunately diminished by COVID-19).

Student-driven initiatives

This section highlights student-driven initiatives, made possible by their own [Brandeis Sustainability Fund](#), to incorporate climate change education into the student experience given the lack of other opportunities.

Sustainability Education Grants

The [Sustainability Education Grant program](#), new in 2020, developed by student activists, aims to bring awareness to the growing climate threat facing humanity. The Grant also supports Brandeis' responsibility under the Climate Commitment, which states that signatories will take actions to make carbon neutrality and resilience a part of the curriculum and other educational experiences for all students.

The grant is designed for faculty members to incorporate education and materials that focus on issues of climate change and sustainability within their specific course topic, with the intent of expanding the range of courses at Brandeis that incorporate these issues in some way. Instructors must design a minimum of 3 class meetings, or one unit depending on the course structure, of instruction focused on these issues, relevant to the current course topics.

The grant funding amount is \$500. Contract faculty on multi-year contracts and part-time faculty are eligible, in addition to tenured and tenure-track faculty.

The Laura Goldin Lecture Series

In spring 2020, students submitted a proposal to the Brandeis Sustainability Fund for a multi-year lecture series. Recognizing the relative lack of formal academic programs and courses that focus on the intersection of climate change and environmental and social justice, the lecture series is meant to provide educational opportunities outside of the classroom. The project was awarded \$20,000 over 3 years to bring in speakers either in person or virtually to educate our community on these issues. Upon approval, the students then decided to name the series the Laura Goldin Lecture Series, in honor of Professor Goldin, who not only led the development of the Environmental Studies program at Brandeis, but also became a champion of environmental health and justice for both the Brandeis community and the city of Waltham. The series is meant to continue and honor her dedication to the field, and to her students.

IV. Climate resilience

Resilience is the capacity of individuals, communities, institutions, businesses, and systems to survive, adapt, and thrive—no matter what kinds of chronic stresses and acute shocks they experience - [Resilient Boston](#)

The COVID-19 crisis has heightened our awareness of the need for worst-case-scenario planning. While planning for emissions reductions and carbon neutrality is crucial, Brandeis must also anticipate and prepare for how we will respond to short term events and long-term trends resulting from climate change.

As a first step, the climate resilience subcommittee of the Task Force completed a resilience assessment (see [Appendix](#)). A resilience assessment focuses on climate adaptation and community capacity-building to deal with a changing climate and resulting extremes, and helps us identify priorities to improve resilience. These priorities are included in our recommendations. The subcommittee also identified additional strengths and assets that support resilience, as well as vulnerabilities Brandeis will be subject to, based on the extreme weather that scientists project we will experience.

“Brandeis should set up an internship hub/
research network for our students to work
locally on climate resilience.”

– Faculty member

In Parallel: The City of Waltham Resilience Planning

The [Waltham Hazard Mitigation Plan and Municipal Vulnerability Preparedness Plan](#)

(HMP-MVP Plan)

assesses the potential impacts to the City from a variety of natural disasters including flooding, high winds, winter storms, brush fire, geologic hazards, extreme temperatures, and drought.

Brandeis University participated in developing the plan through the Municipal Vulnerability Preparedness Workshop in February 2019, and we look forward to participating in additional Waltham-based efforts in the future.

Extreme weather: What we should expect

The 2018 [National Climate Assessment](#), the [City of Waltham HMP-MVP plan](#) and Climate Ready Boston's [Climate Projection Consensus](#) identify the extreme weather scientists project we will experience due to climate change. The reports point to increases in extreme precipitation, stronger storms, and extreme temperatures as the top hazards of concern.

Extreme precipitation. New England has experienced a greater increase in frequency of extreme rain and snow events than any other region of the country. These events now occur 85% more frequently than they did 60 years ago. Large rain or snow events that happened once a year in the middle of the 20th century now occur approximately every nine months.

Storms. For the Boston area, the storms that are of greatest concern are extratropical cyclones, followed by tropical cyclones. Evidence suggests that extratropical cyclones, also called nor'easters, along the Atlantic coast are increasing in frequency and intensity. Future nor'easters may become more concentrated during the coldest winter months when atmospheric temperatures are still low enough to result in snowfall rather than rain. Rising sea temperature could lengthen the tropical cyclone, or hurricane, season and fuel stronger hurricane events. The anticipated increase in frequency and intensity of severe thunderstorms may also increase the risk of tornadoes.

Extreme temperatures. Heat waves will become more common, last longer, and be hotter. From 1971 to 2000, Boston averaged 11 days per year over 90 degrees. There may be as many as 40 days over 90 degrees by 2030 and 90 days by 2070—nearly the entire summer. The rate of increase in average temperatures is accelerating. While over the past century, temperatures in the Northeast rose about two degrees Fahrenheit, the increase over the next century may be greater than ten degrees. However, despite the increasing rate of temperature change, scenarios show that cutting emissions now can greatly slow the rise in temperatures in the second half of the century.

Results of campus climate resilience evaluation

The Task Force used the Community Resilience Organizations' [Campus Evaluation of Resilience Dimensions](#) framework to conduct a resilience assessment and develop a set of priorities based on our strengths and weaknesses. The framework assesses resilience in five dimensions: 1) infrastructure, 2) economics, 3) ecosystem services, 4) social equity & governance, and 5) health and wellness.

The COVID-19 crisis has demonstrated that Brandeis has strong ties with the surrounding community, and that these ties are critical to help withstand acute shocks to normal life. Whether by [preparing meals for healthcare workers at local hospitals](#), through [students supporting a local community center](#), and [supporting a local mutual aid organization](#), Brandeis has proven a strong ally in times of crisis. These ties will continue to be nurtured in order to build community resilience to the stresses and shocks we expect due to climate change.

Strengths, assets and vulnerabilities assessment

The Task Force found several strengths of our community that contribute to climate resilience. From an operations perspective, these include aspects of transportation, including our campus and community shuttle system and commuter rail station; on-campus housing and dining facilities, including a food pantry on site; and our ownership of equipment for storm response, including plows, salt trucks, and emergency generators (emergency generators are not intended for resiliency in research activities, however). Brandeis also has an Emergency Operations Plan. Community support strengths include the Brandeis Emergency Notification System (BENS); the Care Team, and the Brandeis Counseling Center, which provide outstanding student support; the emergency management team on campus, including campus police and full-time director of emergency management; strong community relationships through our public safety team as well as our Waltham Group community service organization; and finally, our membership in the [National Intercollegiate Mutual Aid Agreement \(NIMAA\)](#).

Brandeis also has several vulnerabilities. As noted earlier, the hazards to which Brandeis will be exposed due to climate change include drought, extreme cold, extreme heat, rainfall flooding, blizzards, and severe storms. The impacts we expect to see due to these hazards range from infrastructure failures, such as danger of falling trees from extreme weather to life safety and electrical infrastructure, which could lead to power outages, to disease outbreaks and the inability of students to physically attend Brandeis, and resulting financial impacts on the University, such as we have seen with the COVID-19 crisis.

There are also numerous conditions at Brandeis that could exacerbate these impacts, which are not unique to Brandeis but extend to the Waltham community. These include but are not limited to economic and social inequality, food insecurity, inadequate public transportation systems and inadequate access (due in part to lack of a Brandeis subsidy for public transit), lack of affordable housing, the age and condition of campus housing (many buildings lack air conditioning, for example), traffic congestion, the road infrastructure on and around campus (which frequently experiences flooding, and has no alternative exits other than those along South Street). Waltham

is also an Environmental Justice community, with several meeting the income and minority population definitions of the [Massachusetts Environmental Justice Criteria](#).

Resilience priorities

Based on these strengths and vulnerabilities, Brandeis has identified the following resilience priorities, which are the basis of many of our recommendations. Our full table of priorities is located in the [Appendix](#).

Transportation

In addition to the Task Force's recommendation to develop a fair plan to subsidize public transportation, Brandeis will also help review Brandeis' telecommuting policy annually to determine adequacy, including how adequacy should be defined, and measure the impact of telecommuting on our carbon footprint. A transportation demand management study should also be considered. Brandeis should also advocate for bicycle lanes on South Street with the City of Waltham, and ensure employees and students are informed of campus vehicle evacuation routes and evacuation procedures annually. Additional transportation initiatives are described in the following best practices section.

Energy

The Task Force recommends that Brandeis create an energy master plan to decarbonize campus. Reliability, diversity, and renewables will be included in that plan, including a net-zero commitment in places where decarbonization is not possible. Brandeis will also include envelope improvements and energy efficiency in campus planning, and investigate alternative financing mechanisms, such as engaging with an energy service company, establishing a green revolving fund, or using energy savings agreements for comprehensive energy efficiency upgrades.

Water supply and management

Brandeis should install water meters in strategic locations to better measure campus usage, incorporate rainwater harvesting for irrigation purposes in strategic locations where possible, and follow best practices in maintaining emergency water supply, working with our campus food service program. Brandeis should also create a hazard mitigation plan that includes the potential for flooding during extreme precipitation events, both inside buildings with previous flooding issues and along South Street evacuation routes. Finally, Brandeis will adopt more sustainable landscape management practices to conserve water.

“Brandeis should use landscaping that requires less maintenance and water, such as native perennial plantings/ornamental grasses, less mowed grass, no more turf replacement of regularly/predictably damaged spots.”

– Staff member

V. Implementing best practices: Additional sustainability initiatives

Transportation

Brandeis will create a plan to subsidize public transportation for the commuter rail and local subway and bus lines to improve equity in sustainable access to campus. Brandeis' current structure of ignoring the high cost (up to \$250 per month) to faculty and staff who take public transportation, while the cost to faculty and staff who drive is significantly lower, has resulted in disproportionate use of campus parking lots and roads that require ongoing maintenance. The cost to Brandeis to maintain our roads and parking lots averages over \$400 per year per parking space, and yet there is still consideration for adding more parking lots or building a garage to accommodate parking needs. This need is created by these perverse incentives.

The sustainability committee will be involved in creating a plan for parking fees that is fair and equitable. For example, currently, only students are charged for parking permits. A commuting graduate student must pay \$120 per year to park on campus, while the fee for the commuter rail from popular and desirable living locations is over \$200 per month. Graduate students are already among the least able to afford the high cost of living in the Boston area. Many who would take public transit to Brandeis drive instead because it is cheaper, according to many of the comments the Task Force received throughout its [engagement process](#).

Brandeis will also **consider conducting a transportation demand management study** to further plan how to reduce our community's dependence on single-occupant vehicles and reduce costs associated with increased demand for parking. **Additionally, the sustainability committee will work to improve biking and pedestrian infrastructure** that prioritizes safety and accessibility. This includes working with community groups such as the Riverside Greenway Working Group, which is actively planning a trail along the Charles River to connect Waltham to Newton and the Riverside MBTA station.

Community feedback on transportation

"Brandeis should introduce parking fees for faculty and staff; these should be pegged to salary brackets, so the burden does not fall inequitably on the least well-paid."

- Staff member

"People who are within easy reach of the train are driving because it's significantly less expensive. Subsidizing [public transit] could also contribute to relieving our severe parking crunch."

- Staff member

"As a graduate student, I scrape by every month to pay my rent. It is significantly cheaper to drive than to take the commuter rail. It would cost \$1,000 more per year for me to take the commuter rail than to drive."

- PhD student, Graduate School of Arts and Sciences

The COVID-19 crisis has taught us that telecommuting works. While Brandeis introduced its first ever telecommuting policy in 2019, far later than our peers, managers and supervisors have not applied the policy equitably among their staff. **Going forward, Brandeis will not only allow, but encourage, telecommuting.**

Finally, Brandeis will **commit to purchasing only electric vehicles for our campus fleet** going forward, unless an electric vehicle of the needed type is unavailable. Electric vehicle charging infrastructure on campus will be expanded as necessary to support these vehicles.

Procurement

Brandeis will pursue greater sustainability goals in our food service operation.

Numerous sustainability considerations were included in the RFP for our new dining contract. Brandeis and Sodexo will use that list as a guiding framework for setting sustainability goals in our food service operation going forward. This includes but is not limited to increasing attractive plant-based options in our offerings, sourcing of sustainably-grown and local food in dining, reducing food waste, redistributing uneaten food to those in need on campus, and ensuring that Brandeis' dining dollars are spent supporting an equitable and resilient food system in New England. In light of the fallout of COVID-19, it becomes even more critical for Brandeis to ensure that it upholds its founding values by working with a vendor that does the same.

“I'd like to ask that the task force consider plant-based dining and catering as a top priority, pursuant to Project Drawdown. The campus could start with Meatless Mondays and then make additional moves away from meat and other animal agriculture.”

– '06 Alumnus

Additionally, Brandeis will spend the next year thoroughly investigating the feasibility of a successful transition to self-operated dining. Self-operated dining is the optimal way that Brandeis can truly support the development of a more robust, resilient, local food economy in New England, while also providing the quality of food service for which our community has vigorously and vocally advocated. Brandeis Professor Brian Donahue is a lead author of [A New England Food Vision](#), a groundbreaking study that lays the path toward increasing the resilience of our region's food system. The vision, endorsed by New England's experts in sustainable food systems and policy, calls for our region to reach a bold goal of “50 by 60,” building the capacity to produce at least 50% of our food in New England by 2060 while supporting healthy food for all, sustainable farming and fishing, and thriving communities. Large food service management companies, whose contracts require 80-100% of food to be purchased from only the largest food and beverage manufacturers, lock out smaller, independent producers. Breaking away from this model is a crucial step to reaching the 50 by 60 goals, and to achieving better climate resiliency in our region.

Brandeis will also make and follow a plan to reduce purchases of single-use disposable items on campus, not only in dining but also in offices and departments. As a first step, at the time of our next beverage contract renewal, **Brandeis will commit to zero sales of individually bottled (flat) water on campus, except where potable water is not available or other circumstances require it.** This was called for by a student-led petition with signatures of individuals and offices and departments representing over 1,100 community members. Our next beverage contract renewal is in approximately four years, and Brandeis will design our contract to reflect this. Our current beverage contract can allow for drastically reduced sales of bottled water, as long as Brandeis is tolerant of potential loss of contributions from our vendor. We already began the process of reducing bottled water sales at our Einstein's location, which was met with no opposition or discontent. This proves that our community is ready to live in a world with fewer single-use, disposable convenience items.

Finally, the sustainability committee once established will be tasked with **making and following a plan to improve the sustainability profile of all of our purchases.** This includes working with our Procurement office to review our policies and follow best practices across all categories. The committee will follow best practices outlined by organizations such as the Sustainable Purchasing Leadership Council to audit all of Brandeis' purchases, and set priorities for items or categories of items that should change.

Other

Additional sustainability initiatives and best practices will continue to be reviewed and developed by the new sustainability committee, described in the next section.

VI. Moving forward

In order to oversee these initiatives and to hold Brandeis accountable for the commitments laid out in this plan, Brandeis will establish a permanent sustainability committee. The new sustainability committee will include subcommittees for education, campus infrastructure, dining, and transportation that prioritize actions and work towards measurable goals, with a focus on diversity, equity and inclusion. The membership of this committee will include faculty, staff and students representing the diversity of our campus community. The committee will be a university-level committee, reporting to the Executive Vice President of Finance and Administration and the Provost.

Additionally, the [Climate Commitment](#) requires that Brandeis create target dates by which defined thresholds of resilience will be met, and interim target dates for meeting milestones that will lead to carbon neutrality and increasing resilience. These will also be goals of the sustainability committee going forward.

While this plan includes many actions for the sustainability committee to begin working on, there are other questions raised during the Task Force’s engagement process that require the committee’s investigation. For example, how would adopting new, greener practices benefit recruitment, attract philanthropic support, and generate public acclaim; how might Brandeis form greater and deeper alliances with our neighbors, including the University Office Park, which is now home to Institutional Advancement, but also the city of Waltham; and what lessons learned throughout the COVID-19 crisis may apply to our climate resilience planning and day-to-day operations going forward.

“Adopting green practices could benefit recruitment, attract philanthropic support, and generate public acclaim.”

– Staff member

The COVID-19 crisis has shown in no uncertain terms what happens when we ignore scientists’ warnings. By following this climate action, resilience and sustainability plan, Brandeis can fulfill its social justice mission more holistically than ever before, and help create a better, safer, more just life for generations to come. This shift requires bold, coordinated action and leadership. The pandemic has proven that this isn’t easy—but that it can be done.

By following this climate action, resilience and sustainability plan, Brandeis can fulfill its social justice mission more holistically than ever before, and help create a better, safer, more just life for generations to come. This shift requires bold, coordinated action and leadership. The pandemic has proven that this isn't easy—but that it can be done.

– Task Force Co-Chairs

Appendix

- A. [Charge to the Task Force and Task Force Members](#)
- B. [New building standard](#)
- C. [Resilience assessment priorities](#)
- D. [The Climate Commitment](#)
- E. [Second Nature's Principles for Carbon Offsets](#)
- F. [Definition of sustainability-focused and sustainability-inclusive courses](#)
- G. [Data on courses offered at Brandeis](#)

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Appendix A: Statement Establishing the President's Task Force on Campus Sustainability and Task Force Membership

November 2019 (Updated to link to relevant sections of this document)

The President's Task Force on Campus Sustainability is responsible for:

- Updating Brandeis' 2016 Climate Action Plan to set new, more aggressive carbon reduction targets and a plan and timeline for achieving them (see [Section II](#))
- Broadening the scope of the plan to include climate resilience, which focuses on climate adaptation and community capacity-building to deal with a changing climate and resulting extremes, and which would allow Brandeis to sign the [Climate Commitment](#), a broader-scope commitment than the Carbon Commitment (to which we are a current signatory) (see [Section IV](#))
- Including in the plan principles around if or when to use financial mechanisms such as renewable energy credits and carbon offsets (see [Section II](#))
- Updating our Energy Conservation and Management Policy, and include in it a new standard for design and construction of new buildings and renovations that incorporates best practices in sustainability (See [Appendix B](#))
- Making recommendations for additional campus sustainability initiatives and best practices in areas including, but not limited to, waste reduction, including a plastic reduction policy, dining services, diversity, equity and inclusion, procurement, and incorporating climate change education in the classroom (See [Recommendations](#))
- Making recommendations with respect to the potential creation of formal mechanisms to address sustainability goals at Brandeis (See [Section VI](#))

Four working groups will make recommendations to the Task Force.

A Working Group on Campus Operations will identify opportunities for reducing energy use on campus through such techniques as energy efficient building upgrades and facilities maintenance, and adoption of forward-looking design standards for new construction.

A Working Group on Community Engagement will help ensure that a broad array of Brandeis community perspectives are represented in the work of the Task Force, and that the resulting Climate Action Plan presents equitable solutions. In addition, in light of the Trustee's announcement in November of 2018 of a [comprehensive policy on fossil fuel investment](#) and its commitment to review that policy three years thereafter, this Working Group will promote dialogue about the role that fossil fuels and alternative energy investments should play in the University's investment portfolio after the end of that three-year period.

A Working Group on Incorporating Climate Change in the Classroom will make recommendations for ways to expand climate change teaching and research, including with respect to developing curriculum and other educational experiences for all students.

A Working Group on Climate Resilience will lead a resilience assessment to help us anticipate, prepare for and respond to short term events and long-term trends resulting from climate change. It will help identify risks and opportunities for planning to mitigate adverse impacts from these events and trends.

The Task Force should complete its work by the end of this academic year.

Task Force Members

Co-Chairs

Mary Fischer, Manager, Sustainability Programs

Sabine von Mering, Professor of German, and Women's, Gender and Sexuality Studies

Oliver Price '20, Brandeis Senate Sustainability Committee Chair

Faculty

Joseph Assan, Assistant Professor of Political Economy of Sustainable Development, Heller School for Social Policy and Management

Rebecca Giesecking, Assistant Professor of Chemistry

Ben Gomes-Casseres, Peter A. Petri Professor of Business and Society at Brandeis International Business School

Dan Perlman, Professor of Biology and Environmental Studies; Chair, Environmental Studies

Staff

Jamele Adams, Dean of Students

Eric Dunn, Event Logistics Manager, Conference and Events Services; BUSAC Representative

Dan Feldman, Vice President for Planning and Institutional Research

Zachary Kasdin, Special Assistant to the President

Lois Stanley, Vice President for Campus Operations

Students

Hannah Brown, MA Candidate, International Business School

Lydia Casmier, MPP Candidate, Heller School for Social Policy and Management; Graduate Student Assistant in the Office of Diversity, Equity and Inclusion

Sabrina Chow '21, Co-Chair, Senate Sustainability Committee

Noah Sperber '21, Brandeis Sustainability Ambassador

Ann Ward, Graduate School of Arts & Sciences

Working Groups

Working Group on Campus Operations

Bill Bushey, Energy Manager

Lois Stanley

Dan Feldman

Mary Fischer

Michael McGarry, Associate Director of Design and Construction

Nancy Zhai '22, Student Body Senator-at-Large, Senate Dining Committee Chair

Working Group on Community Engagement

Thurman Clark, Area Coordinator, Ziv and Ridgewood

Mary Fischer

Don Greenstein, Ombuds

Zachary Kasdin

Tom King, Associate Professor of English and co-chair of the Minor in Creativity, The Arts, and Social Transformation (CAST)

Max Pearlstein, Associate Vice President for Communications and External Relations

Oliver Price '20

Working Group on Incorporating Climate Change Education in the Classroom

Esther Brandon, Digital Literacy Specialist

Mary Fischer

Paul Miller, Associate Professor of Biology

Dan Perlman

Sabine von Mering

Jesse Zucker '21, Brandeis Sustainability Ambassador

Working Group on Climate Change Resilience

Mary Fischer

Lois Stanley

Richard Levitt, Associate Director, Corporate and Foundation Relations

Joshua Manfredo, Director of Emergency Management

Abby Smurzynski '21, Brandeis Sustainability Ambassador

Appendix B: New building standard

Brandeis University Green Building Standard

As a signatory to [the Carbon Commitment](#), which recognizes the need for a drastic societal shift to combat the urgent threat of climate change, and acknowledging that our buildings' energy usage is responsible for nearly all of our campus greenhouse gas emissions, Brandeis is setting forth a new building standard for new construction and renovations.

Beginning in fiscal year 2021, all newly constructed buildings and substantial building renovations must follow these guidelines:

For non-laboratory academic buildings and residence halls:

- New construction will strive to meet [Passive House](#) standards for energy consumption, and must make every effort to meet the inclusive [Passive House](#) standard.
- Significant, non-cosmetic renovations will strive to meet Passive House EnerPHit standards for energy consumption.
- Project teams are encouraged to develop an energy model of the building based on design/construction documents and then recalibrate once the project is completed. This model would be turned over to the owner at the end for any future M&V programs or LCC exercises.
- Projects must be designed with 100% LED lighting throughout. This includes emergency lighting, exterior lighting, specialty lighting, and any subsequent FF&E packages. Occupancy/vacancy sensors should be incorporated wherever possible and daylight harvesting should be considered where appropriate.
- Projects should leverage building controls to design intelligent and flexible HVAC systems that provide traditional occupant comfort with enhanced operational capabilities to reduce ventilation rates, HW/CHW circulation, and other unnecessary energy consumption during daytime unoccupancy and after hours/extended closures. The control should be as granular as feasible; by floor or even to the terminal equipment level.

For laboratory buildings:

- New construction and significant non-cosmetic renovations will strive to incorporate Passive House principles.
- All new construction and major renovation will require energy modeling to be done at various iterations of the project including during design, after construction documents are issued, after substantial completion of the project, and after 1 year of occupancy. The final energy model will be turned over to the owner without restrictions.
- Projects must use 100% LED lighting as with non-lab buildings. Opportunities for occupancy, vacancy, and daylighting controls should be explored.
- Projects should look to design laboratory equipment systems holistically and as integrated with the base-building systems as possible and to specify the most efficient energy consuming pieces of equipment available. This includes, but is not limited to, fume hoods with integrated CFM setback controls, refrigeration that utilizes building chilled water systems, etc.
- Similarly to non-lab projects, HVAC controls should be considered a critical component of the design to provide leverage to achieve efficient energy use.

For all building types, new construction and substantial renovations must also meet the criteria below.

- Full-building new construction or renovation projects must demonstrate, via energy modeling, the following savings below ASHRAE 90.1-2013 or IECC 2015 baselines based on energy reductions:
 - 30% - Full-building new construction for any non-laboratory use⁸
 - 19.5%- Full-building new construction of a laboratory
 - 18% - Full-building renovations of existing buildings of any type
 - The project should provide a continuous commissioning plan complete with automated reports of building system activity and submetered energy points created by the ATC contractor and leveraging the in-house expertise of the owner.
- Buildings must achieve net-zero energy.
 - The building must incorporate enough renewable energy to generate as much energy as it uses over the course of a year. If this is not feasible, the University may purchase renewable energy certificates (RECs) from off-site renewables or carbon offsets, as long as those RECs or offsets meet University standards as defined in the Brandeis Climate Action Plan. This cost should be included in the construction budget.
- To the maximum extent possible, buildings should be electrified.⁹
 - Ground- and air-source heat pumps shall be considered as part of any relevant design.
 - Natural gas infrastructure shall not be required in newly constructed buildings, nor should it be extended to any system or device within a building for which an equivalent all-electric system or design is available.
 - To the extent that natural gas infrastructure is granted, newly constructed buildings shall be required to have sufficient electric capacity and conduit to facilitate full building electrification in the future.
 - Projects are exempt from the electrification requirement if:
 - It is not physically feasible to construct the building without natural gas infrastructure.
 - Backup power and redundancy are compromised to the extent that the project is not financially feasible.
- Project financial estimates must include long-term cost scenarios of energy demand, demonstrating not only up-front costs, but also utilities estimates with a shadow cost of carbon at \$100/ton. The shadow cost will be used as a decision-making tool, but will not incur any actual cost.
 - In addition to hard costs, projects must model how energy demand, total energy use, and campus emissions change based on value engineering decisions.
 - Requests for proposals and contracts must include life cycle cost analysis (LCCA) in core elements of the project design.
 - Carbon analysis shall not only include emissions from energy use, but also for embodied carbon as it relates to construction materials and methods.
 - The shadow price calculation will not, in isolation, influence decision-making. Upfront cost, life-cycle cost, and the shadow cost of carbon all require consideration.
- Projects should consider present and future climate conditions in assessing project environmental impacts, including carbon emissions from building operations; and building performance in extreme precipitation, flooding, extreme heat and cold, and other impacts as outlined in the [National Climate Assessment](#).

⁸ This energy reduction was achieved by Skyline.

⁹ The UNEP recommends new construction electrification policies in its most recent report: SEI, IISD, ODI, Climate Analytics, CICERO, and UNEP. (2019). The Production Gap: The discrepancy between countries' planned fossil fuel production and global production levels consistent with limiting warming to 1.5°C or 2°C. <http://productiongap.org/>

- Projects should identify building strategies that mitigate adverse impacts including those due to changing climate conditions, and that optimize the ability for the building and its occupants to recover from extreme climate events. Projects may use the [Boston Climate Resiliency Guidelines and Checklist](#), the [LEED Resilient Design pilot credits](#), or another set of guidelines mutually agreed upon by Brandeis.

We will revisit these guidelines with each new construction project and revise the recommended standards.

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Appendix C: Resilience assessment priorities

Category	Ideal condition (representing a score of 5)	Our self-score (0-5 scale)	Recommended action(s)
Transportation - resources	Strong public transportation that is reliable, affordable & accessible; vulnerability assessments & improvement plans for transportation systems & roads; electric vehicles and/or car share programs; sufficient telecommuting/teleconferencing options	2	<ol style="list-style-type: none"> 1. Subsidize public transit to improve affordability, especially of the commuter rail 2. Review Brandeis' new telecommuting policy (as of 2020) annually to determine adequacy (and adequacy should be defined), and measure impact of telecommuting on our carbon footprint. Note: Our climate action plan recommends that Brandeis consider a transportation demand management study; additional resilience recommendations may follow.
Transportation - safety	Safe, reliable, maintained roads that meet or exceed state standards; strong, tested evacuation plans & reliable alternate routes; significant campus & community bicycle infrastructure	2	<ol style="list-style-type: none"> 1. Advocate for bicycle lanes on South St. with the City of Waltham 2. Ensure employees and students are informed of campus vehicle evacuation routes and evacuation procedures frequently
Energy - self-sufficiency & efficiency	Mostly fueled by renewable energy (RE) and very energy efficient (EE); actions toward energy independence; self-sufficient energy for several days if wider power outages; detailed GHG emissions tracking; decreasing emissions; meeting state RE goals; thermal envelope tests show low % of energy escapes	2	<ol style="list-style-type: none"> 1. Include envelope improvements and energy efficiency in campus planning 2. Investigate alternative financing mechanisms, such as engaging with an ESCO, establishing a green revolving fund, or using energy savings agreements, for comprehensive energy efficiency upgrades
Energy - stability & reliability	No power disruptions; modern energy infrastructure; redundant backup power; campus can independently operate & provide excess RE to power grid; strong plans/practices for energy disruptions; private & public RE in community	3	The Task Force is recommending that Brandeis create an energy master plan to decarbonize campus. Reliability, diversity, and renewables should be included in that plan, including a net-zero commitment in places where decarbonization is not possible.
Water supply & management - consumption	Strong tracking process; coordinated campus/ community water efficiency program; sufficient water supply; alternative water acquisition that contributes to emergency supply (e.g. rainwater collection & storage); emergency supply for at least 5 days	3	<ol style="list-style-type: none"> 1. Install water meters in strategic locations to sub-measure campus usage 2. Incorporate rainwater harvesting for irrigation purposes in strategic locations where possible 3. Follow best practices in maintaining emergency water supply, working with our campus food service vendor.
Water supply & management - infrastructure	Strong storm water system (no flooding) with permeable surfaces; well-sited water treatment facility that uses ecosystem services; community department for water quality/management effectively improves infrastructure & incentivizes water efficiency	3	Create a hazard mitigation plan that includes the potential for flooding during extreme precipitation events, both inside buildings with previous flooding issues and along South St. evacuation routes
Education & curriculum	Sustainability/ resilience/ hands-on field work/ opportunities for students to interact in community are integrated throughout curriculum; strong education on public health implications of climate change; many courses open to & utilized by community	3	See recommendations from the education/ curriculum subcommittee of the task force in the 2020 climate action plan

Appendix D: The Climate Commitment

An integrated climate commitment including carbon neutrality and resilience

1) Develop a comprehensive Climate Action Plan*

- a. Within two months of signing this document, create internal institutional structures to guide the development and implementation of the Plan
- b. Within one year of the implementation start date, actively support a joint campus-community task force (or equivalent) to ensure alignment of the Plan with community goals and to facilitate joint action, and complete a greenhouse gas emissions inventory, also identifying near term opportunities for greenhouse gas reduction. Report these in the first annual evaluation of progress
- c. Within two years of the implementation start date, lead and complete an initial campus-community resilience assessment including initial indicators and current vulnerability
- d. Within three years of the implementation start date complete the Plan, (also reflecting joint community-campus components), which will include:
 - A target date for achieving carbon neutrality as soon as possible
 - A target date by which defined thresholds of resilience will be met
 - Interim target dates for meeting milestones that will lead to carbon neutrality and increasing resilience**
 - Mechanisms and indicators for tracking progress (including those that cut across campus-community boundaries)
 - Actions to make carbon neutrality and resilience a part of the curriculum and other educational experiences for all students
 - Actions to expand research in carbon neutrality and resilience
- e. Review, revise if necessary, and resubmit the climate action plan not less frequently than every five years

2) Submit an annual evaluation of progress

- a. Within one year of the implementation start date, and every year thereafter, complete an annual evaluation of progress
- b. Make the action plan, annual evaluation of progress (including greenhouse gas inventory, resilience assessment etc.), publicly available by submitting them to Second Nature's reporting system for posting and dissemination

*The plan may be designed to augment an existing sustainability plan, written as part of a new sustainability plan, or as a standalone plan. An [online guide](#) is available that provides information on successful institutional structures, helpful templates on climate action plans, useful indicators of progress, guidance for reporting and much more.

**Assistance for developing interim milestones and a number of example tangible actions are available online and are regularly updated.

Appendix E: [Second Nature's principles for carbon offsets](#)

- Offset projects are real and emissions reductions are additional: Projects result in actual reductions of GHG emissions and that would not have otherwise occurred under a reasonable and realistic business-as-usual scenario.
- Offset projects are transparent: Project details (including project type, location, developer, duration, standard employed, etc.) are known to the institution and communicated to stakeholders in a transparent way to help ensure validity and further the goal of education on climate disruption and sustainability.
- Emissions reductions are measurable: Projects result in measurable reductions of GHG emissions.
- Emissions reductions are permanent: Projects result in permanent reductions of GHG emissions.
- Emissions reductions are verified: Projects result in reductions of GHG emissions that have been verified by an independent third-party auditor.
- Offset projects are synchronous: Projects result in reductions of GHG emissions that take place during a distinct period of time that is reasonably close to the period of time during which the GHG emissions that are being offset took place.
- Offset projects account for leakage: Projects take into account any increases in direct or indirect GHG emissions that result from the project activity.
- Offset projects include Co-Benefits: Projects should consider educational, social, economic development, and resiliency benefits of an offset.
- Credits are Enforceable: It is important that purchase of offsets be backed up by enforceable contracts.
- Credits are registered: Credits produced from project activities are registered with a well-regarded registry that has been evaluated using the accompanying criteria.
- Credits are not double-counted: Credits produced from project activities are not double counted or counted and claimed by any other party.
- Credits are retired: Credits are retired before they are claimed to offset an institution's annual greenhouse gas inventory, or a portion thereof.

Appendix F: Definition of sustainability-focused and sustainability-inclusive courses
Per the [AASHE STARS Technical Manual 2.2](#)

Sustainability course offerings include A) sustainability-focused courses and B) sustainability-inclusive courses:

A. Sustainability-focused courses (a.k.a. “sustainability courses”)

To count as sustainability-focused, the course title or description must indicate a primary and explicit focus on sustainability. This includes:

- Foundational courses with a primary and explicit focus on sustainability (e.g., Introduction to Sustainability, Sustainable Development, Sustainability Science).
- Courses with a primary and explicit focus on the application of sustainability within a field (e.g., Architecture for Sustainability, Green Chemistry, Sustainable Agriculture, Sustainable Business). As sustainability is an interdisciplinary topic, such courses generally incorporate insights from multiple disciplines.
- Courses with a primary and explicit focus on a major sustainability challenge (e.g., Climate Change Science, Environmental Justice, Global Poverty and Development, Renewable Energy Policy).

The focus of such courses might be on providing knowledge and understanding of the problems and/or the tools for solving them. The course title or description does not have to use the term “sustainability” to count as sustainability-focused if the primary and explicit focus of the course is on the interdependence of ecological and social/economic systems or a major sustainability challenge. If the course title and description do not unequivocally indicate such a focus, but it is evident from the course description or syllabus that the course incorporates sustainability challenges, issues, and concepts in a prominent way, the course may qualify as sustainability-inclusive (see below).

B. Sustainability-inclusive courses (a.k.a. “sustainability-related courses”)

Courses that are not explicitly focused on sustainability may contribute towards scoring if sustainability has clearly been incorporated into course content. To count as sustainability-inclusive, the course description or rationale provided in the course inventory must indicate that the course incorporates a unit or module on sustainability or a sustainability challenge, includes one or more sustainability-focused activities, or integrates sustainability challenges, issues, and concepts throughout the course. While a foundational course such as chemistry or sociology might provide knowledge that is useful to practitioners of sustainability, it would not be considered “sustainability-inclusive” unless the concept of sustainability or sustainability challenges and issues are specifically integrated into the course. Likewise, although specific tools or practices such as GIS (Geographic Information Systems) or engineering can be applied towards sustainability, such courses would not count unless the description or rationale provided in the inventory clearly indicates that sustainability is integrated into the course.

Appendix G: Data on courses offered at Brandeis

Department	Number of current courses that meet STARS definition	Percent of current courses that meet STARS definition	Number of students with declared major (Fall 2017)
African and Afro-American Studies	0	0%	25
American Studies	1	7%	24
Anthropology	1	1%	36
Art History	0	0%	12
Biochemistry	0	0%	55
Biological Physics	0	0%	5
Biology	3	2%	196
Business	0	0%	49
Chemistry	2	2%	35
Classical Studies	0	0%	7
Comparative Literature and Culture	0	0%	1
Computer Science	0	0%	148
Creative Writing	0	0%	4
East Asian Studies	0	0%	19
Economics	1	1%	311
Education Studies	0	0%	22
English	3	4%	39
Env. Studies	7	88%	33
European Cultural Studies	1	14%	1
Film, Television, and Interactive Media	0	0%	30
French and Francophone Studies	0	0%	6
Gateway Program	0	0%	67
German Studies	0	0%	1
Health: Science, Society, and Policy	0	0%	150
Hebrew	0	0%	0
Hispanic Studies	0	0%	9
History	0	0%	28
Independent Interdisciplinary Studies	0	0%	6
International and Global Studies	0	0%	73

Department	Number of current courses that meet STARS definition	Percent of current courses that meet STARS definition	Number of students with declared major (Fall 2017)
Islamic and Middle Eastern Studies	0	0%	5
Italian	0	0%	0
Lang. & Ling.	0	0%	25
Latin American and Latino Studies	0	0%	5
Mathematics	0	0%	73
Music	0	0%	16
Near Eastern and Judaic Studies	0	0%	8
Neuroscience	0	0%	78
Philosophy	0	0%	15
Physics	0	0%	32
Politics	1	2%	94
Psychology	0	0%	149
Russian Studies	0	0%	4
Sociology	1	2%	49
Studio Art	0	0%	22
Theater Arts	0	0%	37
MKTYP	0	0%	18
Undeclared	3	0%	1586
WGS	0	0%	16

Graduate classes at the Heller School that incorporate climate change (last enrollment):

Classes with one class or some readings devoted to climate change:

- 1) HS 224f Gender & Environment (Cristina Espinosa) - 20
- 2) HS 262f Culture, Power & Development (Raj Sampath) - 37
- 3) HS 319f Ethics, Rights & Development (Raj Sampath) - 23
- 4) HS 242f Development Aid (Larry Simon) - 34
- 5) HS 211f Agriculture & Rural Development (Joseph Assan) - 31

Heller School Classes with substantial engagement with the topic of climate change:

- 6) HS 290f Innovative Technologies for Sustainable Development (Larry Simon) - 17
- 7) HS 203f African Development in Comparative Context (Joseph Assan) - 13
- 8) HS 228b Climate Change, Biodiversity & Development (Dan Perlman) - 33 [new in 2019]
- 9) HS TBD Environment & Development (Rick Shroeder) - new course

Ben Gomes-Casseres organized a one-time Earth Day event for April 2020 with numerous IBS faculty participating in adding climate components to their courses. See the complete program [here](#).