

HOPKINS SUSTAINABILITY



Johns Hopkins University
Annual Sustainability Report 2021





LETTER FROM BOB MCLEAN, VICE PRESIDENT FOR FACILITIES & REAL ESTATE

Dear JHU Partners,

In these times of tremendous disruptions caused by the global pandemic, the Johns Hopkins community has stayed remarkably committed to reaching its sustainability goals. In 2008, the university pledged to reduce its greenhouse gas emissions 51% by 2025 in accordance with global climate action targets. Thanks to the conservation behaviors of the JHU community, our energy efficiency work in buildings and utility systems, and especially our solar agreement, which began in April, we expect to reach this milestone in FY22, three years early.

We recognize, however, that in the face of the considerable challenges and threats posed by climate change, our collective work must continue with bold ambition and urgency. As we look ahead to the future, we are eager to start a new chapter with the establishment of an updated Sustainability Plan, which will receive input and support from the entire JHU community. Through that process, we will set new goals and targets and continue to explore ways to incorporate sustainability into our shared processes and behaviors in a way that aligns our operations, engagement, and academic mission.

I hope you will read the present report with this perspective in mind, acknowledging both our current progress and the many milestones that lie ahead as we continue on our path toward a sustainable future. Achieving this will require participation and leadership from all members of the JHU community, and I look forward to working alongside all of you.

Bob McLean

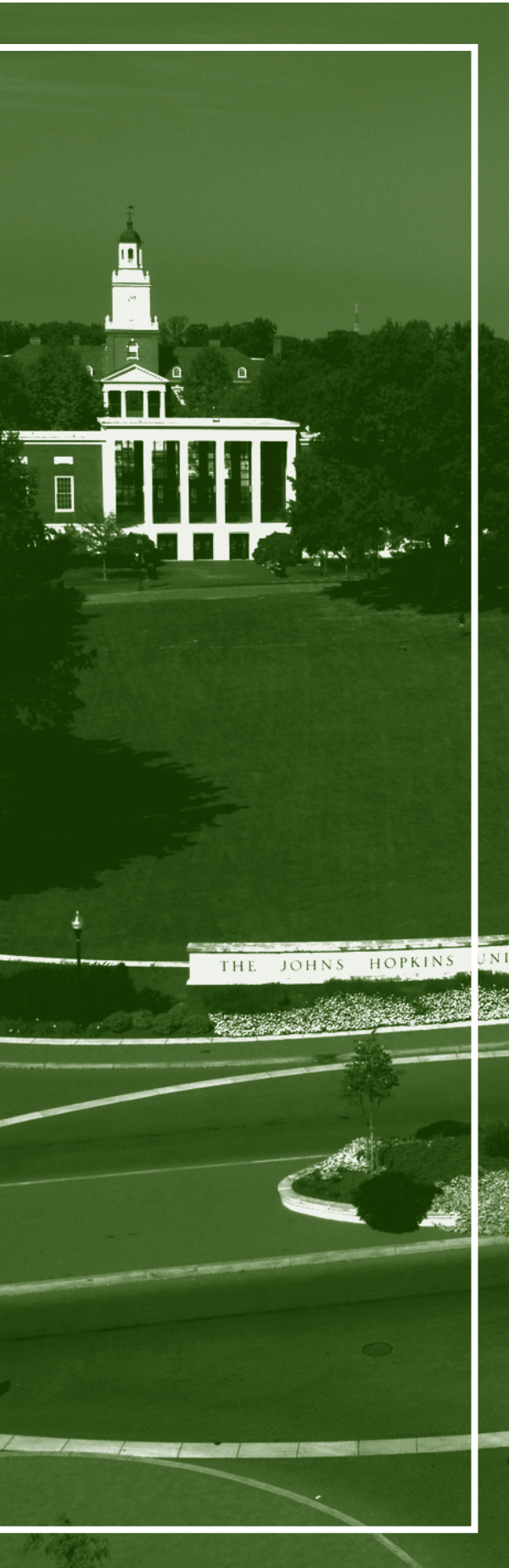


Table of Contents

| | |
|--|----------|
| Section 1 Climate Action | 3 |
| Section 2 Energy | 4 |
| Section 3 Waste. | 5 |
| Section 4 Engagement. | 6 |
| TIMELINE OF UPCOMING PROJECTS | 7 |

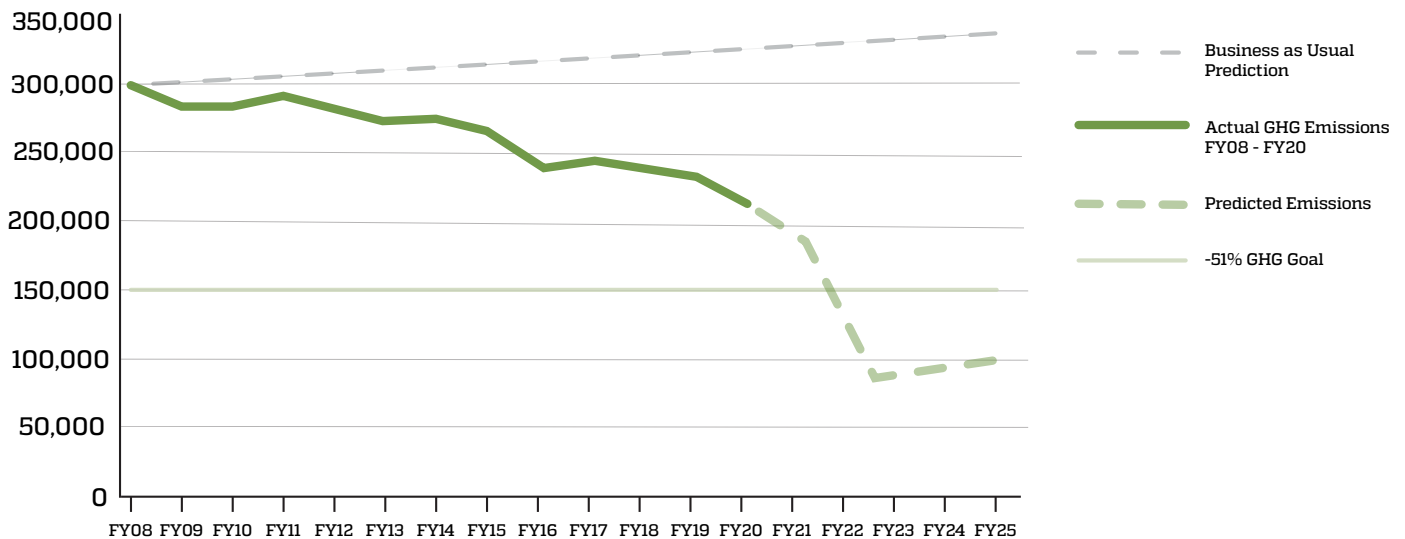
Section 1 Climate Action

Climate action is a significant priority of the Johns Hopkins University dating back to 2008, when the President’s Task Force on Climate Change set an ambitious goal for the university to reduce its scope 1 and 2 emissions 51% by 2025. In 2020, thanks to proactive investments in energy conservation made by the university and the continual shift of the electricity grid toward cleaner energy sources, our greenhouse gas emissions have been reduced by 30% since 2008 and by 10% since 2019.

To deepen the university’s climate mitigation efforts, Johns Hopkins University signed a large solar agreement in 2019, which will procure 250,000 megawatt-hours of solar power annually, and is expected to help reduce the university’s

emissions by 123,000 metric tons of carbon dioxide per year. The agreement is signed for 15 years, and while the solar farm’s development will not be complete and generating electricity until early 2022, JHU began receiving and retiring Renewable Energy Credits for our purchased electricity as of the agreement’s start in April 2021. The solar agreement will allow the university to meet its climate mitigation goal in FY22, three years ahead of schedule. The graph below highlights the university’s greenhouse gas reductions as well as projections through 2025, which takes into account the emissions reductions from the solar agreement and a gradual increase linked to the anticipated growth of JHU’s campuses.

Graph 1. Greenhouse Gas Emissions - Scope 1 & 2 (MTCO2e)



Spotlight: Carbon Pricing Study

The gradual integration of a carbon price into Johns Hopkins University’s decision-making processes has the potential to support its transition to a low-carbon future. This is why the Office of Sustainability, with the support of Julia Comeau, a graduate student in the School of Advanced International Studies, chose to participate in a study focused

on carbon pricing mechanisms in collaboration with several other research institutions. The study, led by faculty members at Smith College, focuses on evaluating how proxy carbon prices at varying financial thresholds impact decisions related to design, construction, and energy conservation projects. A proxy price is currently being applied to several pilot projects areas at JHU.



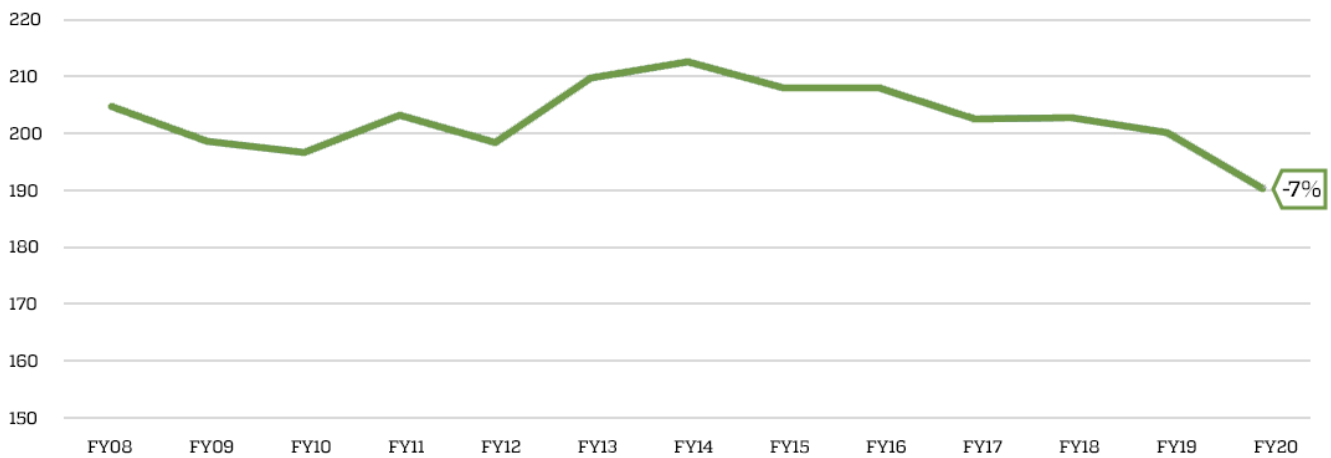
Section 2 Energy

Reducing Johns Hopkins University's energy consumption is a critical pathway towards institutional decarbonization. JHU has strived to limit increases in energy use despite larger than anticipated growth in total building square footage, which exceeded 10% from 2008 to 2020. JHU has focused on a consistent decrease in energy use intensity, improved efficiency in energy systems, and the design, construction, and renovation of high-performance buildings.

In 2020, sustained efforts were made in reducing energy consumption through building

tune-ups, retro-commissioning, and lighting retrofit projects, in collaboration with Baltimore Gas and Electric and the Maryland Energy Agency. Moreover, recognizing that a significant portion of the university's energy consumption occurs in laboratories, JHU is encouraging labs to become Green Lab certified, as part of an expanded pilot initiative, which can reduce their energy consumption significantly as a result of simple behavioral changes. As a result of these varying projects, energy use intensity has decreased by 7% since 2008.

Graph 2: Energy Use Intensity (kBtu/sq ft)



Spotlight: A High-Performance Addition to the Pinkard Building

Construction of the new high-performance addition to the School of Nursing started in October of 2018 and will be complete in 2021. Johns Hopkins Facilities and Real Estate and the School of Nursing have worked collaboratively with consultant design teams to include sustainable design features and reduce the energy consumption and GHG emissions of

the addition. For example, enthalpy wheels, an energy recovery system for pre-treating outdoor air, are installed throughout the addition and unoccupied temperature setbacks are programmed for all spaces. The energy savings associated with those features are estimated to be 13% compared to a code-compliant building.



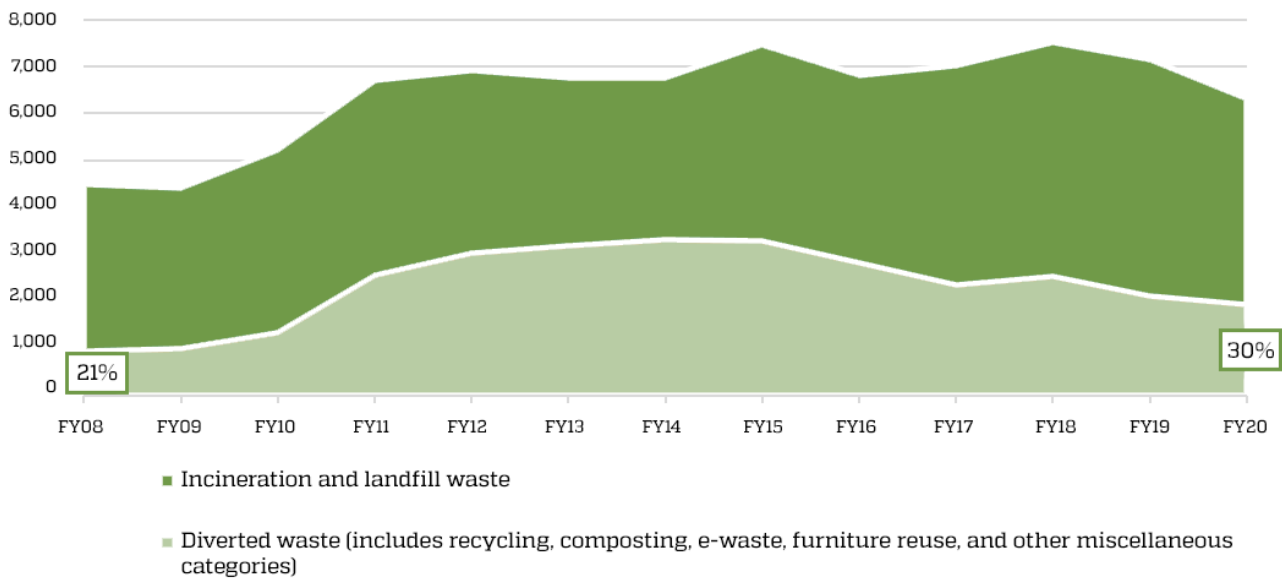
Section 3 Waste

Johns Hopkins University strives to reduce waste by promoting source reduction, reuse, and recycling. While overall the university's progress has been positive, with a diversion rate growing from 21% to 30% from 2008 to 2020, FY19 and FY20 proved particularly challenging. Since 2018, recycling has decreased as a result of changes to global recycling markets in many receiving countries with lasting effects on recycling programs at JHU and beyond. Materials that the university traditionally diverted from the landfill, such as #3–5 plastics or pallets, were no longer recycled or composted.

COVID also impacted the university's waste streams significantly. Total waste decreased by 13%

from FY19 to FY20 as waste streams were displaced to employees', professors', and students' residences. This decrease impacted waste diversion in similar proportions to incinerated and landfilled waste. In this changing landscape, JHU is working toward reducing waste at the source and finding new outlets for many of its waste streams that are not yet being recycled. Finally, JHU keeps improving the reliability of its data and performed an in-depth audit for FY17 to FY19. Further, the Office of Sustainability continues to improve the reliability of its data and performed an in-depth audit for FY17 to FY19, which revealed inconsistencies that have been corrected within this report. Further auditing prior to FY17 will continue where appropriate.

Graph 3: Waste Streams (Tons)



Spotlight: Reusing Electronics at the Applied Physics Laboratory

Shayne Twigg is the surplus property administrator at the Johns Hopkins Applied Physics Laboratory (APL). In his role, Shayne seeks new homes for used electronics, equipment, and hardware from more than 20 major buildings across APL. As a part of his process, before packing items to send to APL's contracted recycling vendor, he repurposes equipment for other uses, such as APL projects and for interns. Shayne processes

over 14,000 pieces of equipment annually and leads the effort to find new owners for discarded equipment. In 2020, due to impacts stemming from COVID-19, monitors and other equipment were used to support the increased number of staff members working from home (about 40%) who required extra equipment to work remotely. Thanks to his efforts, a large amount of surplus equipment is reused rather than recycled and brings considerable financial savings.



Section 4 Engagement

Students

- Eco-Reps: 8 undergraduates joined the FY20 cohort of Eco-Reps and hosted over 15 education events over the course of the year.
- Pre-O: 11 first-years students participated in the Eco Pre-Orientation program.
- Green Lead: 9 first-years joined the spring 2020 cohort of the Green Lead program, developing project proposals to address sustainability challenges at JHU.

Staff

- Green Office: 7 new and renewing offices became Green Office Certified in 2020. Since 2021, 71 offices have become Green Office certified, for a total of 240 awarded feathers.



Green Blue Jay Awards

- 19 JHU affiliates and partners were recognized at the 2020 Green Blue Jay Awards.
- Since 2013, the Green Blue Jay Awards have recognized 100 JHU affiliates, projects, and partners.

Sustainability Leadership Committee

- 31 faculty, 28 staff, 15 students, and 1 alum were nominated to address four areas of sustainability at Johns Hopkins: Academic, Engagement, Operations, and Research.

TIMELINE OF UPCOMING PROJECTS

In the upcoming months, Johns Hopkins University is reaching several significant milestones and launching noteworthy projects, which will contribute to scaling sustainability more broadly throughout the university.

