

MAKING THE GREEN GRADE

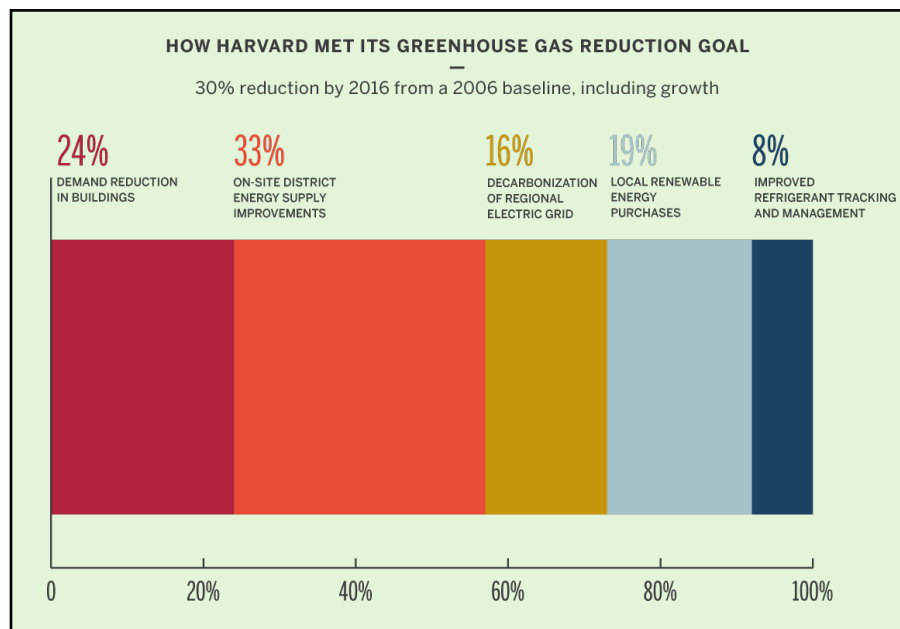
HARVARD UNIVERSITY'S ASPIRATIONAL SUSTAINABILITY GOALS

In 2008, Harvard University built upon its longstanding research and teaching on climate change by setting a unique and ambitious goal to reduce University-wide greenhouse gas emissions 30 percent by 2016, from a 2006 baseline. The aggressive target was based on climate scientists' consensus for what's necessary to avoid two degrees Celsius of warming, instead of what was achievable through on-campus reductions alone. While many universities and corporations have set GHG reduction targets, it's rarer to find ones based on science.

Harvard's goal was designed to account for the full scope of the University's emissions footprint, taking into consideration growth and the more than 600 Harvard-owned and Harvard-operated properties across North America. The University aligned its decentralized organization around a common set of

principles and policies that provided individual units with the autonomy to act and innovate within the unique constraints of their school or department.

The far-reaching plan included energy audits and energy efficiency measures, and installation of renewable energy technology.



green.harvard.edu/climategoal

ENERGY EFFICIENCY FIRST

Harvard's first step was a University-wide initiative to increase the energy efficiency of its buildings. More than 80 percent of the campus was energy audited, including all energy-intensive spaces, with energy reduction requirements incorporated into the five-year capital planning process. Facilities teams and building managers took advantage of a \$12 million Green Revolving Fund, Life Cycle Costing Policy, and Green Building Standards to install cutting-edge energy efficiency technologies and optimize existing systems through ongoing commissioning.

More than 1,600 energy efficiency measures were completed, the most common being HVAC and lighting upgrades - reducing campus-wide energy use by 10 percent. This reduction was achieved despite the addition of over three million square feet of space and an increase in the energy intensity of existing spaces for research and other uses. Without campus expansion, the energy reduction would have been 23 percent.

RENEWABLE ENERGY-EARLY ADOPTERS

Another significant component of Harvard's climate goal was the installation of renewable energy technology, including geothermal wells, thousands of solar panels on rooftops, and fuel-switching and other improvements to campus utilities that lowered carbon pollution.

Harvard has been a consistent early adopter of renewable energy. For the past decade, the University has piloted emerging technologies like small-scale wind, assessed wind energy potential along the Charles River, and invested in over 1.5 MW of rooftop solar PV to accelerate the transition to clean energy.

In 2009, the University entered into a long-term power purchasing agreement for 12 MW of carbon-free energy from the Stetson II wind farm in

Maine, making it the largest purchaser of wind power by a college or university in New England at the time.

In 2015, a faculty-led advisory group determined that the markets for off-site emissions reduction are "complex and evolving." As a result, Harvard funded a three-year, multi-disciplinary graduate level course, as well as research projects to design and analyze practical tools for using off-site means as a component of achieving carbon neutrality.

The Green Ribbon Commission's Higher Education Working Group convenes a group of Greater Boston's leading academic institutions to address carbon reduction challenges facing universities, from reducing energy in labs, to sharing best practices in innovation.

RESULTS - A WHOLE CAMPUS EFFORT

Students, staff, and faculty at every level of the University embraced the challenge of meeting the aggressive 30 percent reduction goal. Changes to energy supply and demand, including the decarbonization of the regional electric grid, resulted in a 24 percent absolute reduction in emissions despite the addition of over three million square feet of space. Purchased electricity from local renewable energy sources fulfilled the remaining 6 percent reduction needed to meet the goal.

GOING FORWARD

Harvard has convened a Climate Change Task Force composed of faculty experts, senior administrators, and students to envision a new set of ambitious climate commitments that will define its work on campus over the next decade.



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Sustainability

<https://green.harvard.edu/>

The Boston Green Ribbon Commission is a group of business, institutional, and civic leaders in Boston working to develop shared strategies for fighting climate change in coordination with the City's Climate Action Plan. Learn more at www.greenribboncommission.org.