

MITIGATION



HIGHER ED
CLIMATE ACTION
aspen institute

The higher education sector substantially impacts the environment through emissions related to land use, water and energy consumption, construction, food waste, and transportation. Higher education institutions must make measurable progress to reduce their carbon pollution.

Colleges and universities manage over 210,000 buildings with 6.2 billion square feet of floor space and spend \$36.8 billion annually on facilities operations, maintenance, and utilities, of which \$27.8 billion goes toward new construction or renovation.¹ They also spend an estimated \$6 billion annually on energy.² Many facilities were built over 50 years ago to make space for the baby boomer generation in the 60s and 70s, and state underinvestment in higher education has contributed to an enormous maintenance backlog.³ The APFA, an association for education facilities professionals, estimates that colleges require \$112.3 billion to close the gap.⁴

KEY DEFINITION

Climate Mitigation refers to measures to reduce the amount and speed of future climate change by reducing emissions of greenhouse gasses (GHGs) or by increasing their removal from the atmosphere.⁵

Old buildings are much less likely to be energy efficient or use modern HVAC technology, like geothermal heat pumps. Community colleges and regional state universities that enroll more low-income students and students of color are much more likely to own older infrastructure, further exacerbating educational inequities. College campuses also frequently rely on fossil fuels, including carbon-intensive sources such as fuel oil, in their own power plants and heating systems, contributing to our country's carbon emissions.⁶

According to one international comparison, energy use through electricity as well as heating, cooling, and cooking are typically the largest emissions generators on campus. On average these sources account for 52.1% of emissions with some schools reaching as high as 76.8% and others as low as 8.6%. Broadly mobility and transportation-related emissions take up an average of 45% of a campus's carbon pollution with commuting alone accounting for 27.7% on average.⁷



Mitigation in Action

Higher education institutions across the country have already taken action to reduce their carbon pollution. Led by Second Nature, more than 900 colleges have signed onto carbon neutral climate commitments.⁸ These climate commitments push institutions to develop climate action plans to reduce their emissions across their campuses and measure and evaluate progress along the way. Additionally, the Association for the Advancement of Higher Education Sustainability (AASHE) has created voluntary targets for higher education institutions through their Sustainability Tracking, Assessment & Rating System (STARS).⁹ STARS includes carbon emissions reductions as part of its rating system.

On-campus climate mitigation efforts can include electrifying building systems and transportation, retrofitting, or building new healthy, efficient learning spaces. Clean energy production on campus is another avenue for colleges and universities to mitigate societal carbon emissions and possibly raise revenue should projects generate enough power. Butte Community College in California is the first college to generate enough clean energy to give back to the grid.¹⁰



BRIGHT SPOT

The Presidents' Climate Leadership Commitment, led by Second Nature, invites colleges and universities to take a leadership role addressing climate change by publicly signing onto one of three options. The Carbon Commitment promises a college will create a plan to achieve carbon neutrality and report on progress annually. The Climate Resilience Commitment involves a similar process focused on adapting a campus to climate change. The Presidents' Climate Commitment includes both carbon neutrality and resilience. As an example, [Colgate University signed onto the Carbon Commitment in 2009¹¹](#) and achieved carbon neutrality in 2019, placing it among 13 institutions to accomplish this goal so far.



State Policy Opportunities

State policymakers can take a range of actions to accelerate campus climate mitigation solutions. Funding allocated through state bonds and general appropriations can help public institutions modernize existing buildings, build new infrastructure, or establish clean energy power sources. State higher education executives or governing boards can set goals and standards for infrastructure at public institutions. More broadly, state regulations like building codes can speed electrification of new and modernized buildings, while allowing for power purchase agreements can increase production and use of clean energy. States can also play a critical role in helping institutions understand how they can best leverage federal resources through the Inflation Reduction Act (IRA) and the Infrastructure Investment and Jobs Act (IIJA) to accelerate mitigation.



Photo by Allison Shelley for American Education: Images of Teachers and Students in Action.



BRIGHT SPOT: CALIFORNIA

The University of California committed all nine of its campuses to Second Nature's carbon neutrality standards by 2025 for all emissions generated on campus and through indirect emissions from power generation (also known as scope 1 & 2 emissions). By 2050, the UC system aims for carbon neutrality across all its activities, including commuting and air travel (scope 3 emissions).¹²



BRIGHT SPOT: PENNSYLVANIA

Penn State, in 2019, signed a power purchase agreement to secure 25% of its statewide electricity needs for 25 years from three solar power projects. The university expects to save \$14 million over the contract term and reduce its greenhouse gas emissions by 57,000 metric tons of carbon dioxide per year — the equivalent of taking over 12,000 cars off the road.¹³ Over 30 states currently do not allow these types of agreements.¹⁴

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