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HIGHER ED CLIMATE ACTION PLAN

ACKNOWLEDGMENTS



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This Is Planet Ed, an initiative of the Aspen Institute’s Energy and Environment program, aims to unlock the power of education as a force for climate action and solutions. We believe young people will drive the necessary and sustained action we need to address climate change, and we must partner with them to advance a more sustainable, resilient and equitable society. www.ThisIsPlanetEd.org

The Aspen Institute is an educational and policy studies organization based in Washington, D.C. Its mission is to drive change through dialogue, leadership, and action to help solve the greatest challenges of our time in service of a more free, just and equitable society. www.aspeninstitute.org

The Aspen Institute’s **Energy and Environment Program** (EEP) is a 53-year-old initiative that collaborates with individuals, organizations, and governments to address climate change. It provides a platform for innovative dialogues, encouraging leaders to rethink achievable solutions by integrating policy, economics, technology, and relationships for a sustainable future. Additionally, EEP promotes equity and justice by amplifying diverse voices, urging responsible entities to take action, and fostering community engagement in climate solutions while connecting collaborators to enhance collective climate action. www.aspeninstitute.org/ee

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This report acknowledges that all higher ed institutions within the United States reside on the lands of Indigenous Peoples. We acknowledge the painful history of Indigenous nations’ dispossession and honor the contributions, cultures, and resilience of communities across the country. Higher education has an obligation to support the ongoing education, inclusion, and empowerment of Indigenous communities, both past and present, as well as future generations.

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Photo courtesy of Second Nature

EXECUTIVE SUMMARY



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Our society is in a moment of transition. The effects of climate change are harming people and communities across our country and the globe. These effects will only worsen in the decades to come. We have an opportunity to advance the urgent and lasting solutions we need to foster a climate safe, just, and vibrant future. Yet, we need to empower people with the knowledge, awareness, skills, and mindsets to support our societal transformation. There is a critical opportunity for higher education to leverage its strengths to build knowledge, foster innovation, enhance communities, and model solutions to help build a sustainable, resilient, and just world.

In this action plan, we identify the opportunity for the higher education sector to advance climate solutions, adapt to our changing climate, and prepare students for success in a sustainable, resilient, and just society. Every higher education institution, from community colleges and regional public universities to private institutions and Minority Serving Institutions (MSIs), are affected by climate change and have the opportunity to contribute to solutions. To maximize impact, federal, state, and local policymakers, businesses, philanthropy, and community based organizations must work jointly with higher education. This action plan provides a roadmap to support comprehensive action across higher education and outlines recommendations for different stakeholders to catalyze and scale these efforts across the country.

We envision a future where higher education leverages its strengths to collaboratively support our social transformation to a sustainable, resilient and just world. For this vision to occur, America's 4,000 institutions of higher education can engage, prepare, and support the 19 million students enrolled in colleges and universities for success in a changing climate and economy. They can engage and support the communities they serve through meaningful partnerships, knowledge sharing, and applied research. They can model, research, and develop innovative climate mitigation and adaptation solutions. Higher education—the students, faculty, institutions, governing boards, and systems—can act collaboratively with each other, communities, policymakers, business, philanthropy, and more to foster a climate safe, just, and vibrant future.



Higher Ed Climate Action Task Force

In the spring of 2023, we came together to chart a course for the higher education sector to reach its full potential in building our societal capacity to address climate change. We are students, faculty, college presidents, state higher education system leaders, policymakers, researchers, and more. We believe people will drive the urgent and lasting solutions we need to thrive in a changing climate, and we must empower them with the awareness, knowledge, skills, and mindsets necessary to advance a more sustainable, resilient, and just society.

We hosted a series of public listening sessions to learn from leading experts working at the intersection of higher education and climate action. We met with leaders across the sector, identified colleges and universities taking action, and evaluated a range of innovative policy ideas to support climate action. We learned how institutions of higher education are currently leading and the urgency and opportunity for higher education to expand its reach and impact. From our learnings, we created a roadmap to guide action across the sector.

To unlock the power of the higher education sector, we must build on existing successes to catalyze and scale further action to address climate change. We have identified the need to:

EDUCATE AND SUPPORT STUDENTS

With about 19 million students enrolled annually, higher education is uniquely positioned to engage students in learning across a variety of contexts, interests, communities, and languages. Through undergraduate education, workforce training, and graduate education, higher education can engage students in learning about climate change and solutions. To ensure student success in a changing climate, higher education must support necessary services outside of the classroom from basic needs to mental health to help students navigate a climate changed world. **To educate and support students in a changing climate, the higher education sector can ensure that all students have a foundational level of climate literacy, an opportunity for deeper learning about climate across disciplines and through workforce development, and access to services and support in the face of climate disruptions.**

ENGAGE AND SUPPORT COMMUNITIES

Higher education institutions, from community colleges and regional comprehensive universities to MSIs and research institutions, have deep connections to the communities they serve. **Institutions can leverage these connections—engaging students, families, and community members in their language and space—to support broader action on climate change.**

MODEL SOLUTIONS

With about 4,000 institutions located in communities across the country, higher education institutions can model, research, and develop climate mitigation and adaptation solutions. To mitigate impact on the environment, higher education must reduce carbon pollution from operations. To build resilience, higher education must prepare for climate-related impacts and adapt to reduce the potential risks to students, communities, and institutions. **The higher education sector can model, research, and develop climate mitigation and adaptation solutions that reduce carbon pollution, build resilience to potential risks, and foster innovation.**

ADVANCE EQUITY

Black, Indigenous, Latino, and other communities of color, as well as low-income rural and urban communities, are disproportionately impacted by climate change and educational inequities. We recognize that the imperative to center and advance equity crosscuts all strategies to accelerate action in higher education. **To advance equity and climate justice, higher education can ensure equal opportunity for all students, institutions, and communities to benefit from a more sustainable, resilient, and equitable society.**

For the higher education sector to effectively educate and support students and communities, as well as model, research, and develop solutions while advancing equity and climate justice, all aspects of higher education—institutions, systems, faculty, students, and statewide networks—must drive this response. But they cannot do it alone. Federal, state, and local policymakers, business, philanthropy, and community-based organizations must work collaboratively with higher education to maximize opportunities to spur climate action.

Opportunities for Higher Education

RECOMMENDATION

1

Prioritize the development and implementation of a plan for equitable climate action and ensure accountability across systems and institutions.

RECOMMENDATION

2

Educate, engage, and support all students to ensure success in a changing climate and economy.

- 2.1:** Engage students in building climate literacy and baseline understanding of climate change, its causes, consequences, and solutions.
- 2.2:** Develop pathways to clean economy jobs in a sustainable, resilient, and equitable society.
- 2.3:** Support student needs and well-being in a changing climate.

RECOMMENDATION

3

Engage and support communities, particularly the communities most affected by our changing climate and the transition to a clean economy, in advancing meaningful solutions.

- 3.1:** Bring together community leaders to solve local climate challenges.
- 3.2:** Provide technical assistance to community members.
- 3.3:** Advance research efforts tied to communities' needs and meaningfully include community members in project design.
- 3.4:** Center equity in efforts to engage and support communities.

RECOMMENDATION

4

Model, research, and develop solutions to reduce carbon pollution, adapt to a changing climate, and advance sustainability goals.

- 4.1:** Model mitigation solutions to reduce carbon pollution.
- 4.2:** Model adaptation solutions to build resilience in a changing climate.
- 4.3:** Model mission-aligned investment decisions to promote a more sustainable future.
- 4.4:** Test and develop innovative climate solutions.
- 4.5:** Involve students in creating and implementing climate action plans.

RECOMMENDATION

5

Communicate higher education's knowledge more effectively and model solutions to spur broad, equitable climate action.

- 5.1:** Develop a robust communications strategy.
- 5.2:** Make climate expertise available to policymakers, community leaders, industry, and others.
- 5.3:** Open in-person and virtual events to the public.

Opportunities for Federal Policymakers

RECOMMENDATION

1

Elevate and amplify the role of higher education in climate solutions.

- 1.1:** Coordinate cross-agency collaboration to create opportunities for higher education to advance climate solutions.
- 1.2:** Establish climate change as a U.S. Department of Education priority.
- 1.3:** Center higher education student voices in developing national plans for climate action.
- 1.4:** Elevate the role of Tribal Colleges and Universities (TCUs), Historically Black Colleges and Universities (HBCUs), and other Minority Serving Institutions (MSIs) in advancing climate solutions.

RECOMMENDATION

2

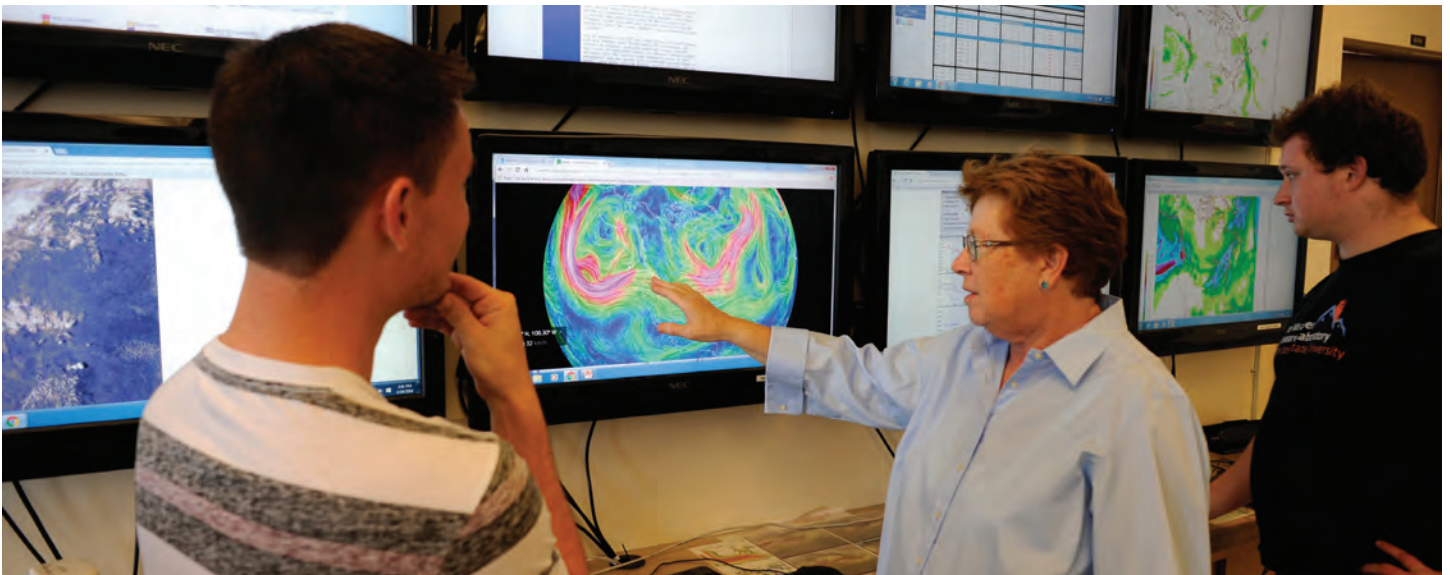
Support institutions, through federal policies and programs, in preparing students, engaging communities, and modeling solutions.

- 2.1:** Support institutions of higher education in accessing federal funds, including from the Inflation Reduction Act.
- 2.2:** Ensure ambitious federal efforts to prepare a climate-ready workforce and to research and test innovative solutions.
- 2.3:** Expand federal opportunities for students to pursue climate careers and climate experience, including through the American Climate Corps.
- 2.4:** Allocate research funding for adaptation and mitigation strategies that engage local communities and community leaders in planning and execution.
- 2.5:** Consider opportunities for accrediting agencies to support higher education in taking climate action.

RECOMMENDATION

3

Partner with higher education to communicate the impacts of a changing climate on communities and the effectiveness of solutions to inspire and build support for broader climate action.



Opportunities for State Policymakers

RECOMMENDATION

1

Develop a comprehensive statewide plan and policies to address climate change and advance solutions within and beyond higher education.

- 1.1:** Define the role of higher education and leverage higher education partners to develop and implement state climate action plans.
- 1.2:** Prioritize students and communities most impacted by climate change and education inequities.
- 1.3:** Center student voices in developing statewide plans for climate action.
- 1.4:** Appoint higher education leaders committed to climate priorities and ensure climate leaders recognize the importance of leveraging education in solutions.

RECOMMENDATION

2

Support institutions, through state policies and programs, in preparing students, engaging communities, and modeling solutions.

- 2.1:** Coordinate state agencies with higher education to prepare students for clean economy jobs.
- 2.2:** Support institutions in efforts to model, research, and develop climate mitigation and adaptation solutions by ensuring sufficient resources.

RECOMMENDATION

3

Ensure higher education is eligible for state capital investments and that those investments prioritize climate mitigation, adaptation, and sustainability.

RECOMMENDATION

4

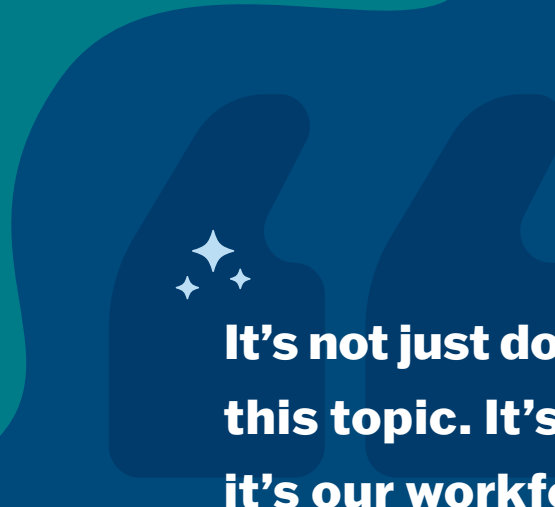
Partner with higher education to communicate the impacts of a changing climate on communities and the effectiveness of solutions to inspire and support broader climate action.

Opportunities for Local Policymakers, Business, Philanthropy

Local policymakers can incorporate higher education in the development, framing, and implementation of local climate action plans (CAPs), submit joint grant applications in partnership with higher education institutions, partner to create accessible public transportation routes to campuses, and create formal coordination roles between local government and higher education institutions.


Businesses can partner with higher education to prepare students for clean economy jobs, support equitable pathways to clean economy jobs, and hire the next generation of climate leaders.

Philanthropy can signal to the field and to grantees the importance of advancing projects at the intersection of climate and higher education, equitably invest in efforts that help institutions educate, engage, and support students in a changing climate, engage local communities, model climate solutions, and communicate to the broader society about how we can address climate change.



It's not just doctors who need to be educated on this topic. It's college students, it's companies, it's our workforce. Everyone needs to have a thorough understanding of climate change and how it impacts our world. I urge you to recognize the wide-ranging and multifaceted ways that climate impacts your students, your organizations, your missions, and your communities."

— **Kanika Malani**, Medical Student,
Brown University and Medical Students
for a Sustainable Future



"Higher education has such remarkable institutional power and privilege that often goes unused. It's not simply the ability to affect and build strong students, faculty, and staff, it's also the ability to impact, engage, and invite communities to understand."

— **Stacey Abrams**, Senior Advisor, Rewiring
America, Former Minority Leader of the
Georgia House of Representatives



INTRODUCTION



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Scientists identified 2023 as the hottest year on record, and extreme weather—from wildfires and droughts to floods and hurricanes—is increasing in intensity and frequency. Higher education students, institutions, and communities across the country regularly experience these significant impacts. But higher education can leverage its strengths to advance bold, systemic solutions to help build a more sustainable, resilient, and equitable world.

We are students, faculty, college presidents and chancellors, state higher education system leaders, policymakers, researchers, and more. We came together to chart a course for higher education to reach its full potential in building our societal capacity to address climate change.

MISSION Our mission is to fully mobilize higher education—the students, faculty, institutions, governing boards, and systems—to act collaboratively to foster a climate safe, just, and vibrant future.

BELIEFS We believe people will drive the urgent and lasting solutions we need to thrive in a changing climate, and we must empower them with the awareness, knowledge, skills, and mindsets necessary to advance a more sustainable, resilient, and just society. There is a critical opportunity for higher education institutions to support people by building knowledge, fostering innovation, and enhancing communities.

VISION We envision a future where higher education leverages its strengths to collaboratively support our social transformation to a sustainable, resilient and just world. For this vision to occur, America's 4,000 institutions of higher education will be engaging, preparing, and supporting the 19 million students enrolled in colleges and universities for success in a changing climate and economy. They will be engaging and supporting the communities they serve through meaningful partnerships, knowledge sharing, and applied research. They will be modeling, researching, and developing innovative climate mitigation and adaptation solutions. Higher education—the students, faculty, institutions, governing boards, and systems—will be acting collaboratively with each other, communities, policymakers, business, philanthropy, and more to foster a climate safe, just, and vibrant future.

The Fifth National Climate Assessment—the United States (U.S.) Government's comprehensive analysis of the impact of climate change on the country—notes that in the 1980s, the U.S. experienced a billion-dollar natural disaster about once every four months. Between 2018 and 2022, the U.S. experienced a billion-dollar natural disaster once every three weeks.¹ Heat, flooding, droughts, and wildfires are impacting students, institutions, and communities across the country. Historically marginalized and economically vulnerable communities disproportionately bear the negative effects of extreme weather, meaning a changing climate threatens to widen existing inequities.²

The effects of a warming planet are not limited to extreme weather events. From healthcare to agriculture, business to manufacturing, our society is grappling with the realities of a changing climate and determining how to advance solutions. This means that higher education must as well. Higher education must do its part to mitigate its carbon pollution, adapt to the consequences of climate change, and leverage the unique strengths of its diverse students, faculty, institutions, governing boards, and systems.

A range of leading schools, from community colleges, dual mission institutions, and regional public universities to private institutions and Minority Serving Institutions (MSIs), have taken steps to reduce carbon emissions in campus operations. Yet, commitments to carbon neutrality should be seen as a standard step for every institution rather than an admirable outlier. Academic research has dramatically enhanced our understanding of human-caused climate change along with potential solutions, but scientific and technological research without action is insufficient to build the societal transformation we need.

People will drive the urgent and lasting solutions we need to reduce our impact on the environment, adapt to a changing climate, and establish balance. Higher education's potential lies in its ability to leverage its knowledge about climate change with its role as an educator, expert, and community leader to drive society-wide transformation. Whether through teaching and learning, connections to communities, professional education, upskilling, research and innovation, or modeling climate solutions, higher education can empower all people to build a brighter future for generations to come.



Photos courtesy of Second Nature

Over the past year, we hosted a series of public listening sessions, bringing together leading experts working at the intersection of higher education and climate action. We heard from a student organizer in Texas helping fellow classmates and her university adapt to a changing climate. We heard from a Washington state college president who built her school's curriculum, research, and operations around the restored wetlands on campus. And we heard from an education secretary in New Jersey who helped launch a job training and research center on offshore wind. We met with dozens more leaders across the higher education sector, identified colleges and universities taking action now, and evaluated a range of innovative policy ideas to support climate action on campus. We learned how higher education is currently leading on climate issues and about the urgency and opportunity for higher education to expand its reach and impact.



We have grounded this action plan in what we have learned to map a comprehensive vision for the entire higher education sector, reflecting what we believe our nation's colleges and universities must do to fulfill their social responsibility and accelerate society-wide climate action. Specifically, we outline how higher education can leverage the following strategies:



EDUCATE AND SUPPORT STUDENTS

With about 19 million students enrolled annually, higher education is uniquely positioned to engage students in learning across a variety of contexts, interests, communities, and languages. Through undergraduate education, workforce training, and graduate education, higher education can ensure all students have a foundational level of climate literacy, an opportunity for deeper learning about climate across disciplines, and an opportunity to understand sustainability through workforce development. To ensure student success in a changing climate, higher education must support necessary services outside of the classroom from basic needs to mental health to help students navigate a climate changed world. ***In this action plan, we highlight how higher education can prepare students for success while effectively supporting students in a changing climate.***



ENGAGE AND SUPPORT COMMUNITIES

Higher education institutions, from community colleges, dual mission institutions, and regional public universities to private institutions and MSIs, have deep connections to the communities they serve. Institutions can leverage these connections—engaging students, families, and community members in their language and space—to support broader action on climate change. For instance, higher education can support local leaders, through convening, communications, and applied research, in solving specific mitigation and adaptation problems in their communities, especially marginalized populations historically subject to environmental harms. ***In this action plan, we highlight the need and opportunity for higher education to engage and support communities in a changing climate.***



MODEL SOLUTIONS

With about 4,000 institutions located in communities across the country, higher education institutions can model climate mitigation and climate adaptation solutions.³ To mitigate impact on the environment, higher education must reduce carbon pollution from operations. To build resilience, higher education must prepare for climate-related impacts and adapt to reduce the potential risks to students, communities, and institutions. ***In this action plan, we highlight the need and opportunity for higher education to model, research, and advance climate mitigation and adaptation solutions across institution types.***



ADVANCE EQUITY

There is a critical opportunity to ensure the transition to a clean economy and sustainable society advances equity and climate justice. Black, Indigenous, Latino, and other communities of color, as well as low-income rural and urban communities, are disproportionately impacted by climate change and educational inequities. We recognize that the imperative to center and advance equity crosscuts all strategies to accelerate action in higher education. In each section we address the need to ensure equal opportunity for all students, institutions, and communities to benefit from a more sustainable, resilient, and equitable society. ***In this action plan, we highlight the intersections across education, climate change, and equity, and the opportunity to support a just and sustainable future.***





SNAPSHOT OF AMERICAN HIGHER EDUCATION

TYPES OF INSTITUTIONS:

Community College: A public institution that typically confers certificates and associate degrees—though some now offer limited bachelor’s degrees.

Dual Mission: Institutions that offer a blend of liberal arts programs and hands-on career skills training under one roof, generally through a mix of undergraduate offerings. These institutions may be either public or private.

For-Profit or Proprietary School: A college or university run for profit or without public sector funding.

Minority Serving Institutions: A college or university that enrolls a significant proportion of students from specified minority groups. These institutions include Historically Black Colleges and Universities (HBCUs); Tribal Colleges and Universities (TCUs); Hispanic-serving institutions (HSIs); Asian American and Native American Pacific Islander-serving institutions (AANAPISIs); and Predominantly Black Institutions (PBIs).

Online Colleges and Universities: Institutions that provide education entirely online. These are typically, though not exclusively, in the for-profit sector.

Private Nonprofit College or University: A college or university that is not under direct state control and is a nonprofit organization.

State Universities: A public institution that confers bachelor’s degrees and graduate degrees. Regional state universities typically emphasize undergraduate and master’s degree programs, while state research universities usually host the largest public doctoral programs.

Implementing an action plan for higher education will not be easy. Higher education faces significant headwinds including aging infrastructure, shifts in enrollment, and skepticism about its value. It is often caught in political crosshairs or targeted for state budget cuts.

However, the current moment also presents a tremendous opportunity. With the passage of the Inflation Reduction Act, the Infrastructure Investment and Jobs Act, and the CHIPS and Science Act, higher education can access significant resources to conduct research, provide technical assistance, and install clean energy technologies in their own operations. Perhaps more importantly, this historic inflection point is seeing enormous demand for the services higher education has to offer, whether that involves training people for new jobs, advising government leaders on allocating resources, or jump-starting innovative industries. Higher education must also play a critical role in ensuring students from historically marginalized communities can reap the health, environmental, and economic benefits as our society transitions to a clean and sustainable economy.

In addressing climate change, higher education can demonstrate the value it brings to society at large in grappling with and facing our most pressing challenges. Yet, to harness this moment, higher education needs not only active leadership on the part of students, faculty, staff, and administrators, but also engagement and support from system leaders, local, state, and federal policymakers, and community-based partners. We can work collaboratively to support higher education in taking comprehensive and systemic action to build the capacity of people to lead a climate safe, just, and vibrant future.

Higher Education Fast Facts



ENROLLMENT

The U.S. Higher Education system enrolled 19 million students in Fall 2021.⁴

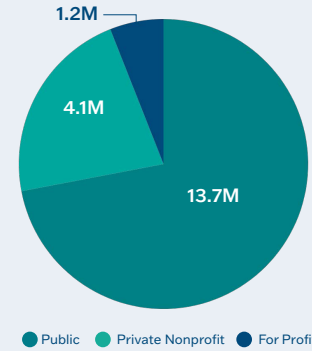


VAST MAJORITY OF STUDENTS ARE UNDERGRADUATES

The vast majority of students are undergraduates (15.8 million), with a smaller proportion attending graduate school (3.2 million).⁵



Some estimates from the 2024 Spring term show an increase in enrollment, indicating a return to prepandemic levels of student enrollment.⁶



FALL 2020 UNDERGRADUATE ENROLLMENT BY INSTITUTION TYPE

Three-quarters of undergraduate students attend public institutions (13.7 million) vs. private nonprofit (4.1 million) or for-profit (1.2 million) institutions.⁷

TODAY'S COLLEGE STUDENTS ARE DIVERSE⁸

37% ARE 25 YEARS OLD OR OLDER

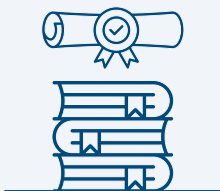
24% HAVE CHILDREN OR OTHER DEPENDENTS

>31% COME FROM FAMILIES AT OR BELOW THE FEDERAL POVERTY LEVEL

64% WORK DURING SCHOOL

49% QUALIFY AS FINANCIALLY INDEPENDENT OF THEIR PARENTS

>40% ARE STUDENTS OF COLOR

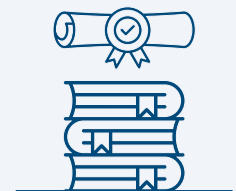


14M FOUR-YEAR COLLEGES



5M TWO-YEAR COLLEGES

2021 Fall Student Enrollment



INSTITUTIONS AT A GLANCE¹⁰



~42%

PUBLIC SCHOOLS



~42%

PRIVATE NONPROFIT INSTITUTIONS



~16%

FOR-PROFIT INSTITUTIONS



Federal Funding Opportunities

The federal government's recent investments in the Inflation Reduction Act, the Infrastructure Investment and Jobs Act, and the CHIPS and Science Act provide opportunities for higher education to expand climate research and build partnerships to meet the needs of communities, working people, and entrepreneurs.



THE INFLATION REDUCTION ACT (IRA)

Representing a climate investment unprecedented in U.S. history, The Inflation Reduction Act of 2022 includes tax credits that will support institutions of higher education in mitigating their climate impact by transitioning to clean energy and transportation. Notably, the investment and clean transportation tax credits in the IRA include a Direct Pay option, which allows tax-exempt entities, such as colleges and universities, to receive the eligible tax credit as a direct payment from the IRS. Additional provisions included in the IRA, including grants for research and community partnerships, will help unlock the higher education sector's ability to mitigate and adapt to climate change, within their own organization and in surrounding communities.



THE INFRASTRUCTURE INVESTMENT AND JOBS ACT (IIJA)

The Infrastructure Investment and Jobs Act (IIJA) provides billions of dollars that can be used for the education sector to address climate change. Along with the IRA, federal investments in renewable energy and infrastructure will require more trained workers—up to nine million new jobs over the next decade—in fields such as electrical work, heat pumps, clean energy construction, advanced manufacturing, and STEM. Colleges and universities, particularly community colleges with strong ties to local communities and industries, can ensure that students are prepared for these roles.



CHIPS AND SCIENCE ACT

The CHIPS and Science Act authorizes new and expanded investments to advance climate solutions. CHIPS includes billions of dollars in funding for research and development to agencies such as the National Science Foundation and the Department of Energy, which can then be funneled to institutions of higher education. Additionally, the Act includes significant investments in STEM education and training to develop the workforce of the future.



Photo courtesy of Second Nature

EDUCATING STUDENTS



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Colleges and universities have a responsibility to prepare students for success in a changing climate. To understand our changing world, every student should know how the climate affects their lives and society, from their personal healthcare to broader public policy. In the narrowest sense, higher education must train people for new types of work in specific industries like clean energy or clean transportation. More broadly, all jobs face climate impacts and require people who understand climate change, its consequences, and how to advance solutions as they relate to their particular field, industry, or area of study.

Higher education enrolls 19 million students annually, ranging from undergraduates just out of high school, to adult learners returning to education, to graduate students pursuing doctoral research.¹ The sector's ability to deliver a skilled and knowledgeable workforce and citizenry who can generate new ideas contributes substantially to our economic growth, national security, and societal well-being.² As climate change accelerates, a foundational and applied understanding of a changing climate is essential to develop the skilled workforce and engaged citizens we need.

Climate Education for All

Most Americans believe in the importance of helping people understand climate change and solutions to help address the challenge. In fact, polling by the Yale University's Center on Climate Communications consistently finds teaching about climate change as one of the most popular climate solutions, with 77% of Americans indicating their support.³

While many institutions have started recognizing the need for trans- and inter-disciplinary climate education, the work to integrate climate across higher education institutions is in its infancy with limited understanding of the most effective strategies for success. Many of the news headlines about climate education have been spurred by extremely large philanthropic gifts to elite private institutions.



For instance, in 2022, Harvard University, with a philanthropic gift of \$200 million, established the Salata Institute to foster cross-university climate education partnerships.

WHAT WE HEARD: "In every single county in America, you have a substantial majority of Americans who support climate being taught by our schools. That's true in Texas, it's true in Oklahoma, it's true in Wyoming, and North Dakota and West Virginia and Alaska; all of our big large fossil fuel patches. People everywhere think this is an important thing that we should be doing for our kids." — Dr. Anthony Leiserowitz, founder and Director of the Yale Program on Climate Change Communication.



For the vast majority of institutions, securing this type of philanthropic support is out of reach, but several colleges, recognizing the urgent need, have made strides to prepare students for the future. The California State University system currently offers over 4,500 sustainability-related courses and a growing number of campuses are creating sustainability-focused general education pathways to reach a wide variety of students regardless of major. Similarly, Eastern Connecticut University made significant strides in climate education by adding coursework and supporting their faculty to integrate climate with their curricula.



WHAT WE HEARD: We have now added climate courses and sustainability courses across the curriculum—it's in Sociology, it's in Political Science. We are at a place now where the curriculum is deep and wide in terms of climate action, with an equity lens." — Dr. Elsa Núñez, President, Eastern Connecticut State University

UNDERGRADUATE EDUCATION

Over 15 million students attend undergraduate higher education every year in the United States.⁴ The vast majority of those—roughly three out of four—study at public colleges and universities. While some liberal arts colleges emphasize cross-disciplinary studies, most undergraduate students choose a field of study for their major and take the balance of their classes focused on that subject.

Historically, colleges have relegated climate change to environmental studies and science disciplines. According to a recent survey of college students, fewer than half take a course related to environmental sustainability.⁵ But the scale of the challenges we face demands that all people have baseline understanding. With climate change existing as an underlying context, crosscutting our experiences in society, higher education must advance a learning agenda that mirrors this reality with cross-disciplinary educational offerings. If climate education is available only through courses on environmental sustainability, many students are missing the opportunity to develop climate literacy. In order to help all students develop a foundational understanding of climate, higher education can make adjustments to policies, coursework, and curricula to ensure all students are prepared for success in our changing world.



Bright Spot: The University of Washington Bothell (UWB)

The University of Washington Bothell (UWB)—a leading voice for an expansive climate curriculum—demonstrates how a curriculum on climate and sustainability can be integrated in student learning. The institution was founded through a transformative journey from a cattle ranch to college campus. Located on a 58-acre restored floodplain, the University opted to restore the wetlands and incorporate the natural asset into all of the school's academic programs. The University invests heavily in policy, infrastructure, and institutional incentives to encourage faculty to develop a climate-focused curriculum and research.



Bright Spot: The University of Miami's Climate Resilience Academy

The University of Miami's Climate Resilience Academy aims to support the University's 12 schools and colleges in undertaking interdisciplinary climate research, training the next generation of climate scientists and practitioners, and addressing pressing climate change challenges through partnerships with industry, government, and other stakeholders. Through the Academy, teams at the University of Miami along with local stakeholders lead over 85 projects in the local and regional area to support adaptation and resilience efforts.⁶

INDIGENOUS KNOWLEDGE SYSTEMS

Indigenous peoples have a deep relationship with the land, water, and other natural elements, which are integral to their cultures, knowledge, and livelihoods. These relationships have been developed and taught in Indigenous communities since time immemorial, long before the American public education system was established. Indigenous Knowledge Systems (IKS) shape Indigenous youth identity and perceptions of the world.

Indigenous peoples, despite representing 6% of the population globally, manage 80% of the world's remaining biodiversity.⁷ They have maintained long-standing respect for, connection to, and a reciprocal relationship with the natural world. As a result, they are essential leaders and partners in addressing climate adaptation.

For instance, Native American tribes practice controlled burns to limit the reach of wildfires.⁸ Federal government policy prohibiting this practice during the 20th century may have contributed to the increase in wildfires in the American West.⁹ Some leaders have pointed to the resilience of Indigenous communities in surviving historical trauma like forced removal from their lands and forced assimilation that could provide further understanding for climate adaptation and resilience.

While science and social science education in the U.S. often includes human-environment interactions, there is an emphasis on empirical data and Western science. Rarely do these classes include IKS, which is a holistic, observational, and systematic way of understanding the environment



WHAT WE HEARD: “Universities must embrace that, when it comes to climate change, we need to go deeper in advancing and applying Indigenous Knowledge in our programs. We need to bring in Indigenous Knowledge holders and give them the same standing as faculty with PhDs so that they can be part of research design projects - because that will bring success in working on climate change.” — Mr. James Rattling Leaf, Sr., Tribal/Indigenous Advisor at CIRES and the University of Colorado Boulder

When integrating Indigenous Knowledge, it is crucial that higher education institutions prioritize engaging in thoughtful conversations with tribal communities and leaders regarding their initiatives, research, and curriculum. Colleges and universities of all types can partner with Tribal Colleges and Universities to integrate IKS across higher education.



Bright Spot: Leech Lake Tribal College

Leech Lake Tribal College provides an Associate of Arts Degree in Indigenous Science, featuring courses that incorporate traditional and modern knowledge sources. The curriculum is designed to not only provide students with the knowledge to transition to a four-year STEM Bachelor of Science degree, but instill Anishinaabe values, teachings, and cultural history. The college received funding from the American Indian College Fund (AICF) Scholarly Emergence for Environmental Design and Stewardship (SEEDS) program to help prepare students for environmental careers through community building, place-based research, and environmental awareness and stewardship.¹¹





OVERCOMING BARRIERS TO CLIMATE INTEGRATION

Integrating climate change across curriculum requires extended planning, supports, and incentives to overcome institutional barriers. For instance, many faculty may need support in understanding climate change, how it interacts with their area of expertise, and how they might incorporate it into their teaching. To improve climate literacy among professionals across the system, the California State University (CSU) system created the Faculty Learning Community for Climate Change and partnered with faculty development centers across all 23 of its campuses.

Faculty incentives, including tenure, may pose another barrier. Faculty, in particular in the earlier stages of their career, are incentivized to specialize their research within a discipline rather than pursue cross-disciplinary pursuits. As a result, there are few incentives for younger faculty to invest heavily in adapting curricula or better understanding cross-cutting issues. As institutions of higher education seek to integrate climate across curricula, they should provide faculty with effective supports that further develop their careers.

Clean Economy Workforce Development

Our changing climate is reshaping our economy. The clean energy transition is dramatically shifting job market demands. New policies such as the Inflation Reduction Act (IRA) and the Infrastructure Investment and Jobs Act (IIJA) have accelerated private sector investment in clean technologies. Researchers estimate that the U.S. will need a million more electricians to meet its clean energy goals.¹² LinkedIn reported that jobs in renewable energy and environmental fields rose by 237% in the five years prior to 2022.¹³

The need for new skills extends beyond traditionally environmental or clean energy sectors. Jobs for the Future recently analyzed over 198 million job postings demonstrating an increasing demand for green skills across a much wider range of industries than commonly expected.¹⁴ Business



WHAT WE HEARD: “All jobs have the ability to become quality, green jobs.” — Taj Ahmad Eldridge, Managing Director of Climate Innovations, Jobs for the Future

leaders increasingly make decisions that account for anything from carbon emissions in supply chains to investment risk from climate change. Engineers must design climate-adaptable structures.

Teachers and health care workers need to understand how increased heat and disaster recovery affects the people they serve. Higher education institutions can better prepare students for this new reality by including employers and other key stakeholders in conversations about developing educational programs.

COMMUNITY COLLEGES

Community colleges, in particular, play a major role in workforce development in communities across the country. Students can earn short-term credentials or associate's degrees that prepare them for specific jobs in a range of fields from nursing to advanced manufacturing. Students can also use their experience as a springboard to pursue bachelor's or graduate degrees. They are typically among the most affordable options in higher education. In addition to cost, community colleges tend to offer more flexibility geared toward working students who may need to take classes at night and on weekends. Given their reach, affordability, and flexibility, they can play a pivotal role in building community support with new industries.

Many new, clean economy careers can start at a local community college. Central New Mexico Community College (CNM) exemplifies the role that these colleges can take in clean energy workforce development. The college built a 1.3 megawatt solar farm which it uses to train students in its electrical trades solar program. The faculty also updated its automotive curriculum to include hybrid and electrical vehicles to meet increasing demand for skills in these areas. The college partners directly with businesses in the energy sector through its non-profit affiliate CNM Ingenuity to deliver skills training tailored to specific employer needs.



WHAT WE HEARD: “The role of the community two-year college cannot be underestimated. We really are an economic engine when it comes to workforce training and development.” — Karin Hilgersom, President, Truckee Meadows Community College

PROFESSIONAL AND GRADUATE EDUCATION

While undergraduate institutions typically provide broader general education, graduate and professional programs are designed to prepare students for specific careers. Currently, over three million students are enrolled in graduate and professional schools.¹⁵ With the focus on specific careers, the need for climate literacy may go unnoticed. However, because climate change affects every aspect of our society, a wide range of professional fields will need to understand how climate change impacts and intersects with their profession. Graduate and professional schools should look to analyze existing curricula and identify opportunities to support climate learning.

The student organization, Medical Students for a Sustainable Future, launched for exactly this reason. A group of medical students felt underprepared for health issues exacerbated by climate change including heat stroke, heart attacks, and preterm births. Now, their medical school chapters use the [Planetary Health Report Card](#) to grade their school's curricula on its ability to prepare doctors for a climate-changed world. Students can use this tool as leverage to advocate for a comprehensive incorporation of climate change-related health impacts, including topics from neurological flare-ups in hot weather to mandatory hospital waste training. The efforts of these medical students demonstrates how widely climate will impact fields in sometimes unexpected ways, as well as the power of students to shape their own learning experiences.

Beyond knowledge required for professional careers, individuals need to understand climate change as citizens and to live healthy and safe lives. Building broad comprehension of climate, from understanding how climate affects economic opportunities to how individuals can advance solutions in their homes and communities, will assist the transformational shift to a more sustainable and adaptable society.



WHAT WE HEARD: “It's not just doctors who need to be educated on this topic. It's college students, it's companies, it's our workforce. Everyone needs to have a thorough understanding of climate change and how it impacts our world. I urge you to recognize the wide-ranging and multifaceted ways that climate impacts your students, your organizations, your missions, and your communities.” — Kanika Malani, Medical Student, Brown University & Medical Students for a Sustainable Future

Equitable Access to Climate Learning and Clean Economy Jobs

As colleges and universities prepare the next generation for success in a changing climate, it is critical that they work to overcome historical inequities that have marginalized Black, Latino, Indigenous and other students of color. An analysis of the U.S. green workforce in 2021 revealed that 80% of workers were white and 75% were male.¹⁶ Further, areas of study required for the clean workforce are not currently being pursued by underrepresented groups. The academic field of environmental studies, for example, is among the least racially diverse in all of higher education.¹⁷ Without actionable steps to address this issue, colleges risk perpetuating historic inequities by excluding marginalized students from clean economy jobs that will drive significant economic growth.

Despite the potential for new jobs, there remains a real risk that opportunities exclude historically marginalized communities or communities that currently rely on fossil fuel-dependent industries. Ensuring a just transition means institutions of higher education provide access to high-quality programs for communities disproportionately impacted by climate change, environmental injustice, and the transition to a clean economy. This is a challenge for a higher education system where nearly 90% of high school students from high-income families enroll every year, compared to half of students from low-income families¹⁸

Ensuring that the voices and experiences of populations disproportionately impacted by climate change play a central role in the development of climate-related curricula and workforce development programs can help. Community-based organizations can be critical partners in these



WHAT WE HEARD: “Society will require an environmentally educated populace to sustain our lifestyle and save the planet. That will mean that equity and justice will become a natural component of all curriculum. And that we should train a workforce to lead an equitable transition to a renewable economy.”— Dr. Beverly Wright, Founder & Executive Director, Deep South Center for Environmental Justice

efforts. While HBCUs, TCUs, HSIs, and other MSIs are essential in creating career pathways for Black, Indigenous, Latino, and other students of color, all colleges must provide equitable opportunity to prepare for success in our changing climate and economy. That entails evaluating recruiting pathways, financial aid, advising, and career coaching to ensure success for students from marginalized backgrounds.

Partnerships with high schools, and in particular with their career and technical programs, can also assist in supporting a just transition. Early college high schools, or other models such as dual enrollment, that allow existing high school students to enroll in college classes and receive credit, can help students—particularly students from low-income families—overcome barriers to college enrollment.



Bright Spot: The HBCU Climate Change Consortium

The HBCU Climate Change Consortium, launched in 2011 by Dr. Beverly Wright and Dr. Robert Bullard, seeks to diversify leadership in the environmental field. Through conferences, mentorship, and research partnerships, they work to build a diverse field of students, scientists, and advocates working toward environmental justice.





Bright Spot: P-TECH Programs

Pathways in Technology and Early College High School (P-TECH) programs provide workforce development and career opportunities for low-income students of color through partnerships with community colleges and businesses. The P-TECH model lets students both explore careers related to sustainability and learn the technical skills needed to qualify for jobs in sectors such as automotive engineering and construction. Students at P-TECH schools graduate with both a high school diploma and an associate’s degree in six years and are first in line for jobs with industry partners.



Bright Spot: Climatarium Hubs

Climatarium Hubs work across rural Colorado to expand pathways to climate-related careers. They bring together K-12 schools, institutions of higher education, and industry partners to expose students to in-demand jobs and climate-related skills. As part of the Southwest Colorado Education Collaborative (SWCEC), Pueblo Community College and Fort Lewis College have supported school districts in Durango, Ignacio, Bayfield, Archuleta, and Silverton to understand new career pathways, including environmental careers focused on water quality, agriculture, and outdoor education.

Partnerships and Resources to Prepare Students

Higher education institutions of all types can expand partnerships with policymakers, private sector employers, and labor to ensure curricula, pathways, and programs adequately prepare students and meet demand for clean economy jobs.

Business partnerships in particular can help colleges develop practical curricula and create internships and other on-the-job training opportunities for their students. These learning opportunities can help institutions develop pathways to high-wage, high-skill jobs.



Bright Spot: Truckee Meadows Community College (TMCC)

Truckee Meadows Community College (TMCC) built the Tesla START advanced manufacturing program in close partnership with Tesla Motors after the company announced a new factory in the region. The initiative offers paid apprenticeships to traditional and non-traditional students, integrating classroom learning with on-the-job training and building durable economic prosperity in the local community. Tesla helped finance the development of the program and TMCC has graduated more than 70 students ready to join the company’s high-skilled workforce. The partnership serves as a model that other businesses and community colleges can replicate across the country.



Businesses are not the only potential partners for institutions of higher education to help shape learning opportunities for students. States can also be critical workforce partners. States can create partnerships between economic development and educational agencies that align public universities with state economic goals. For instance, New Jersey identified offshore wind as a major opportunity—not only to generate emission-free power but as a potential economic driver around offshore wind expertise, manufacturing, and innovation. They launched the Wind Institute as a partnership between the New Jersey Economic Development Authority and the State Higher Education Agency. The initiative brings together public universities and community colleges to make New Jersey a hub of offshore wind learning, research, and innovation and provides the growing industry with trained employees.

Institutions of higher education can work with organized labor to ensure that students are prepared for success in high-wage jobs in in-demand industries. For instance, community college partnerships with local electrical unions can



WHAT WE HEARD: “New Jersey has been very intentional about making postsecondary opportunity more accessible and affordable while working with institutions to promote pathways that prepare students for careers as part of the green economy.” — Brian Bridges, New Jersey Secretary of Higher Education

help to ensure electrician apprentices gain skills in solar installation, charging stations, heat pumps, and other clean energy skills. Apprenticeships and cooperative agreements provide paid, on-the-job training and help employees gain skills. Employers experience financial returns of \$1.44 for every \$1 invested by developing employees that meet their business needs.¹⁹ Crucially, community colleges can support effective apprenticeships by providing classroom training to complement on-the-job training.²⁰

Research universities can further strengthen workforce development partnerships. For instance, AFL-CIO, the largest federation of unions in the country, has partnered with Carnegie Mellon University to increase worker voice in the innovation ecosystem. Through information sharing and research, the two organizations hope to find successful models to involve workers in technology development and to ensure safe, quality jobs during transitions to new forms of work.



WHAT WE HEARD: “As an economy transitions, it is imperative that workers at any point in their career, whether they are starting their apprenticeship or upskilling, have access not only to high-quality training but also to good jobs at the end of the training.” — Amanda Ballantyne, Director, AFL-CIO’s Technology Institute and Working for America Institute

ACCESSING RESOURCES

Higher education can seek federal, state, and private sector resources to bolster its efforts to prepare a clean economy workforce. Recent federal investments through the Infrastructure Investment and Jobs Act, the Inflation Reduction Act, and the CHIPS and Science Act, in addition to providing funding to support installation of clean energy, can support climate-related research and workforce development. For instance, the IRA includes a program through the U.S. Department of Agriculture to build and expand climate-related pathways in the agriculture sector. Specific states may also have funding available to support workforce development for clean economy jobs. For instance, Michigan recently created the Community & Worker Economic Transition Office to help residents take advantage of new clean energy jobs coming to the state.²¹





Bright Spot: The Kern Community College District

The Kern Community College District in California recently secured multiple federal and state grants to build a hub for carbon capture in the San Joaquin Valley.²³ Historically, Kern's community colleges trained local students for jobs in the oil industry. With oil jobs expected to decline, Kern community leaders identified its empty oil fields as a prime opportunity for carbon capture. California allotted a \$50 million investment in a consortium of organizations across industry, technology, academia, national labs, community, government, and labor to seek additional resources from the federal government. Recently, the U.S. Department of Energy invested another \$20 million in the consortium. The project exemplifies the increased public investment available for community colleges around the country and benefits of cross-sector collaboration.



Bright Spot: Binghamton University

Binghamton University in New York recently led a coalition that won a regional tech hub designation from the Economic Development Administration under the CHIPS Act. The coalition also includes Cornell University and SUNY Broome Community College alongside private sector employers, local governments, and community-based organizations. Binghamton and its partners are tasked with speeding up EV battery innovation and developing a skilled workforce to meet demand. Under the program, they will receive significant funding for multiple projects over the next several years, ultimately supporting development of better batteries and a fast transition to the clean energy economy.



SUPPORTING STUDENTS



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From increased heat to more dangerous storms, climate instability impacts the health, well-being, and economic opportunity of students across the country. These effects permeate students' lives and can harm student enrollment and success in higher education, particularly for students disproportionately affected by climate change. To ensure student success, higher education must anticipate and adapt to support students' basic needs and well-being in a changing climate.

As institutions of higher education seek to support, recruit, and engage students, they need to consider how they will continue to do this in a changing climate. Colleges and universities should employ a holistic approach. That requires assessing a range of potential impacts from affordable and safe housing and reliable drinking water to mental health supports and emergency responses to extreme weather. Higher education must plan for a changing climate now to most effectively support students.



WHAT WE HEARD: "Climate change isn't just about warmer temperatures. It's about instability." — Dr. Spencer Glendon, Probable Futures

SUPPORTING STUDENT MENTAL HEALTH

Over the past few decades, higher education has increasingly served a more diverse student body across demographic, language, economic, and life experiences.¹ This change has spurred institutions to recognize and allocate resources towards supporting basic needs for students. Food, housing, mental health, caregiving, transportation, and technology are essential for student success. These foundational supports are affected by a changing climate. Food costs are projected to increase, safe and affordable housing could become harder to find, and caregiving and transportation could experience disruptions.² In fact, research has shown that students whose families experience extreme weather disasters are more likely to earn lower grades, withdraw from difficult courses, and struggle to repay their student loans.³ Populations such as rural or low-income students, who already face challenges such as affording heating or air conditioning bills, could fall even further behind.⁴



WHAT WE HEARD: "We need to ask questions about what it means to support students inside and outside of the classroom and continue to make going to university a viable and safe choice for students." — Anya Gandavadi, Student, The University of Texas at Austin

Institutions that proactively consider meeting students' basic needs in a changing climate will be more successful in enrolling and graduating their students. Oregon's Benefits Navigator bill exemplifies the type of holistic approach colleges and policymakers can take. The state invested \$5 million dollars to place benefits navigators on community college and university campuses that connect students to SNAP, housing assistance, scholarships, childcare, and other services. In its first year, the program helped meet basic needs for 11,000 students.⁵ Ensuring that these supports, policies, and programs remain flexible to adapt to evolving needs as climate instability increases will be critical.

SUPPORTING STUDENT MENTAL HEALTH

The changing climate, with more extreme weather, brings emotional trauma and anxiety.⁶ Without directly experiencing an extreme weather event, people may experience “eco-anxiety” or significant worry about the uncertainty and potential harmful consequences of a warming planet. In fact, one recent survey indicated 74% of 16- to 25-year-olds in the U.S. have moderate to extreme worry about climate change.⁷ Youth of color are more likely than their white peers to experience a negative health impact related to a climate or environmental event.⁸ To address these concerns, institutions of higher education should provide affordable, accessible mental health services, ensure that students are aware of these services, and work to destigmatize their use.

Additionally, psychology research consistently shows that having a sense of personal agency and a feeling of control can reduce depression and anxiety in response to stress.⁹ Consistent with these findings, several listening session



WHAT WE HEARD: “If you see your campus as a microcosm of society modeling changes for the future that we all need to see, that helps alleviate climate anxiety and makes one feel that their climate action has efficacy,” — Ayana Albertini-Fleurant, Sustain the Culture

speakers encouraged colleges to use their educational tools to help students cope by engaging students in efforts to advance solutions, including through coursework and research. Higher education is a key incubator for climate leadership, especially among students. Colleges and universities can also promote student agency through extracurricular activities that encourage civic engagement and include students in institutional projects to reduce carbon pollution and adapt to a changing climate. For instance, externships with organizations working on the frontlines of climate change adaptation could increase feelings of empowerment.



WHAT WE HEARD: “We really need to emphasize collective care, in addition to individual care, and think about how to apply this to universities and those working in universities and with students.” —Dr. Kristen Goodrich, a faculty member of the interdisciplinary Master’s program in Engineering, Sustainability, and Health at the University of San Diego and a co-leader of the Adaptive Mind Project (ADP). ADP’s research emphasizes community connections and social support as key coping mechanisms for the emotions that accompany traumatic events. Strong social connections can increase psychological resilience to major life changes and traumatic events.



ENGAGING AND SUPPORTING COMMUNITIES



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Across the country and the globe, communities are grappling with questions about how to effectively address climate change. The need for continued leadership will only expand as climate change, and its impact on society, intensifies. To fulfill its social mission, higher education can leverage its community connections, convening power, and research to support communities in advancing meaningful solutions. They can provide resources and technical assistance to community leaders and serve as a place to bring diverse groups of people together to drive equitable climate action.

Higher education has a unique ability to help communities respond to threats from climate change and advance localized solutions. As anchors in their communities and as stewards of place, higher education can help communities by creating tools and resources, facilitating dialogue, and supporting local action and decision-making. For instance, higher education can help local officials prioritize steps to reduce carbon pollution. In coastal communities, higher education institutions can help facilitate challenging conversations about increased risks to people and property from sea-level rise and the potential need for solutions including managed retreat.¹ And higher education can help individuals, community-based organizations, and local businesses understand the opportunities to leverage incentives within the Inflation Reduction Act.



WHAT WE HEARD: “Higher education has such remarkable institutional power and privilege that often goes unused. It’s not simply the ability to affect and build strong students, faculty, and staff, it’s also the ability to impact, engage, and invite communities to understand.” — Stacey Abrams, Senior Advisor, Rewiring America, Former Minority Leader of the Georgia House of Representatives

One of the challenges in addressing climate change on both a local and global level is that it requires collective action beyond any single individual or organization’s narrow interest. Colleges and universities have ample experience serving as leaders and conveners. They serve many community roles including major employers, educators, and technical assistance providers. As a result, college and university leaders frequently exercise convening power to help communities solve local challenges.

To effectively engage and support their communities, higher education institutions must meaningfully partner with communities to ensure that research, awareness, and knowledge is accessible to a wider audience. Higher education can communicate in the ways, places, and languages that reach those across their communities to spur informed action.



Partnerships with Communities to Advance Lasting Impact

Too often, research in higher education has focused on distancing itself from people being “researched.” In this moment, where large-scale and global collaboration is needed, higher education must recognize its role in working with communities to ensure long-term and meaningful change. Students and their families can be engaged together, in their language and space, on these critical issues that affect their lives. To overcome legacies of distrust, higher education has an opportunity to include communities from the beginning in research, convening, and action to ensure inclusive public engagement.

Regional Comprehensive Universities and Minority Serving Institutions, including TCUs and HBCUs, have worked to develop meaningful partnerships with their communities and can help higher education understand effective and inclusive strategies for engagement. For instance, in *Recommitting to Stewardship of Place*, the American Association of State Colleges and Universities (AASCU) identifies the following key strategies for meaningful community partnerships: **1) Sharing power; 2) Understanding stakeholders; 3) Building reciprocal relationships; 4) Adapting communication; 5) Learning and relearning the community; and 6) Amplifying and listening to community voices.**²



Bright Spot: Environmental Justice Thriving Communities Technical Assistance Centers

The EPA recently invested \$177 million in 16 Environmental Justice Thriving Communities Technical Assistance Centers (EJ TCTACs). These centers will help underserved communities learn about and apply for additional federal grants available under numerous federal programs. Public colleges and universities hosted nearly half (7) of the successful consortiums, and joined several other winning applications.



Bright Spot: The Bullard Center for Environmental and Climate Justice

The Bullard Center for Environmental and Climate Justice at Texas Southern University announced a research project partnering with five predominantly Black communities in the Gulf Coast region. They will evaluate how employment prospects, health care access, and income inequality can result in environmental and health harms. The project uses participatory research design to involve Black communities in research decisions about their region.

APPLIED RESEARCH GROUNDED IN COMMUNITY NEED

Applied research can be a particularly useful tool for higher education to support communities in a changing climate when grounded in community needs, culture, and values. Higher education can convene community stakeholders to understand the most pressing needs and co-design research questions to find meaningful solutions.

Dr. Beverly Wright, founder of the Deep South Center for Environmental Justice (DSCEJ), developed the Communiversity model to describe an ecosystem approach that joins effective research and policy development with community input and life experiences. For instance, DSCEJ created a community advisory board for the Louisiana Mississippi River Chemical Corridor made up of grassroots community leaders, non-profits, academics, and government officials. DSCEJ provides technical assistance to community leaders as they monitor environmental hazards, evaluate risks based on the available data, and advocate for policies and government action that remedies environmental harms and prevents future damage.



Tribal Colleges and Universities frequently seek to tailor research to community needs, often by involving community members directly in their research initiatives. A core strength of Tribal Colleges and Universities is the culturally relevant programming; their missions and identities are rooted in local knowledge—including Tribal Ecological Knowledge (TEK)—cultural practices, and language. The emphasis of Indigenous values and community cultivates a student body with a kinship-based and holistic way of thinking. The 35 accredited TCUs in the U.S. are located on Indigenous lands, whether formally recognized reservations or historic territories.³ This connection fosters an environment where TCUs play a pivotal role in addressing the environmental issues and inequalities that affect the community. Dr. Ruth Plenty Sweetgrass-She Kills, a senior researcher at the University of Montana and the Food Sovereignty Director at Nueta Hidatsa Sahnish College, emphasized the importance of community-driven research to ensure university initiatives meet community needs.



WHAT WE HEARD: “Our research is directly the needs of our community, we’re able to include our community members and they help us to identify what are the specific needs that we need to be talking about... being able to develop sustainable practices within our communities, responsive in food development production, and what are the traditional crops that are drought resistant,” — Dr. Ruth Plenty Sweetgrass-She Kills, Food Sovereignty Director at Nueta Hidatsa Sahnish College and Co-Principal Investigator for the Willow AGEP Alliance

To address community challenges, higher education can examine how climate will impact the economy, health, and well-being of those in their community. The University of California, Merced is located in the San Joaquin Valley in California, the most important food producing region in the United States. As an HSI and AANAPISI, UC Merced serves a diverse student

body and many diverse communities. Climate change reduces food production, threatening livelihoods for those communities, and can have broader societal implications for food availability and affordability. To identify solutions, UC Merced has established a series of initiatives to tackle food resilience, including the Center for Food Resiliency through Equity, Sustainability, and Health (FRESH).

The Center for Food Resiliency through Equity, Sustainability, and Health launched a 45 acre farm on campus with a \$5 million state grant. FRESH aims to make this “the farm of the future” through “research on sustainable land management, regenerative agriculture, precision agriculture, automation/robotics, machine learning/AI” and more.⁴ The University also received a \$10 million grant from the U.S. Department of Agriculture to provide expertise and training on water management to local decision-makers. The project brings together a variety of stakeholders including researchers, growers, and land and water managers to provide useful data on issues, ranging from aquifer recharging to managing water resale markets.



Bright Spot: Haskell Indian Nations University

In 2022, Haskell Indian Nations University received a \$20 million grant from the U.S. National Science Foundation. The grant was used to create the Rising Voices, Changing Coasts (RVCC) Hub—a new research hub where Indigenous knowledge—holders work with university-trained scientists to address the impacts of a changing climate on their coastal communities.



WHAT WE HEARD: “We are working to advance not just the research and development aspect of developing the climate resilient food system but more importantly to work with our local community colleges to address the future of work in agriculture.” — Dr. Joshua Viers, Associate Vice Chancellor for Interdisciplinary Research and Strategic Initiatives at University of California, Merced, Professor of Water Resources Management, UC Merced School of Engineering

PARTNERSHIPS WITH GOVERNMENT AND INDUSTRY

To tackle broad societal challenges related to climate change and the transition to a clean economy, higher education can support and partner with government and industry. There are critical questions that higher education can address to enhance productive advancements in industry and to inform the government's ability to coordinate across sectors, support workforce development, and advance solutions across communities. For instance, many state and local governments have developed climate action plans to drive goal-directed climate mitigation and adaptation strategies across their states and localities. Higher education can help prioritize state and local actions, inform and implement strategies, and measure progress against the goals.



Bright Spot: State University of New York (SUNY)

In 2023, the State University of New York (SUNY) announced the establishment of a \$700 million climate campus and “living laboratory” for climate solutions on Governors Island. Led by Stony Brook University and in partnership with 40+ other universities, companies, and community-based partners, the New York Climate Exchange will accelerate climate research, solution development, education, workforce training, and public programs.⁵



Bright Spot: Indiana University's Environmental Resilience Institute (ERI)

Indiana University's Environmental Resilience Institute (ERI) partners with local communities around the state to increase climate resilience through multiple programs. Over 30 local governments have joined a Resilience Cohort to jointly evaluate and implement mitigation and resilience strategies. The Indiana Resilience Funding hub provides technical assistance to governments, businesses, and CBOs in under-resourced rural counties as they submit competitive grant applications. ERI also recently launched a “Beat the Heat” pilot program with Clarksville and Richmond, helping them hire full-time heat coordinators and lead the development and implementation initiatives to help their communities respond to extreme heat.⁶

American Climate Corps

The Federal Government has opened applications for the American Climate Corps. This initiative will support 20,000 young Americans through career training and paid service opportunities in areas of clean energy, conservation, and climate resilience. Institutions of higher education can play a crucial role in this initiative by sharing best practices for training, establishing American Climate Corps programs on campuses and in communities, and connecting Corps members to future learning opportunities upon program completion.



MODELING AND RESEARCHING SOLUTIONS



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CLIMATE ACTION
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To address climate change globally, all of society must take steps to reduce carbon pollution and adapt to a changing climate. To serve 19 million students annually, higher education contributes to our country’s carbon pollution through its energy use, transportation, buildings, athletic facilities, food systems, waste, purchasing, and land use. Additionally, higher education faces climate vulnerabilities to operations, learning, and infrastructure. The 4,000 institutions of higher education across the country can model, research, and develop climate mitigation and adaptation solutions across their operations.

In serving 19 million students annually, higher education institutions collectively have an expansive physical footprint, and every college must take steps to mitigate and adapt to climate change. Hundreds of institutions have invested in renewable energy on and off campus, overhauled existing heating and cooling systems, and made existing buildings more efficient. Many others have started adapting to climate change with strategies like conserving water in the face of extended droughts or adjusting landscapes to reduce flooding. Some research institutions have developed and tested innovative climate mitigation and adaptation solutions. All institutions of higher education can accelerate action to reduce carbon pollution and build resilience to climate risks. As they take steps to reduce carbon pollution and adapt to climate change, institutions of higher education can research the effectiveness of solutions and test new solutions to extend their knowledge to the broader community.



KEY DEFINITIONS

Mitigation: Measures to reduce the amount and rate of future climate change by reducing emissions of heat-trapping gasses (primarily carbon dioxide) or removing greenhouse gasses from the atmosphere.

Adaptation: The process of adjusting to an actual or expected environmental change and its effects in a way that seeks to moderate harm or exploit beneficial opportunities.

Resilience: The ability to prepare for threats and hazards, adapt to changing conditions, and withstand and recover rapidly from adverse conditions and disruptions.¹



Climate Mitigation in Operations

Whether it is decisions about how to power lights, heat buildings, water landscaping, or get students around campus, the 4,000 colleges and universities across the country can take steps to reduce carbon pollution and promote a healthier, more sustainable environment.

Many of the nation's 4,000 colleges and universities function like small cities, serving tens of thousands of students, faculty, administrators, and support staff. As a result they contribute significantly to our carbon emissions. For example, Texas A&M covers more than three times the land area and has two times the population of Beverly Hills, California. Collectively, higher education institutions manage over 210,000 buildings with 6.2 billion square feet of floor space. They spend \$36.8 billion annually on facilities operations, maintenance, and utilities.² Colleges must manage large-scale heating and cooling systems, and many even run their own power plants. Higher education can also affect change through its purchasing power. Reducing waste begins with choice in purchases, and universities purchase billions of dollars of goods every year. Campuses have the opportunity to create circular economies. To reduce its impact on the climate, higher education needs to decarbonize energy sources, upgrade existing infrastructure, electrify transportation modes, and better manage waste.

To do this, institutions should understand where their carbon pollution originates. Sustainability directors, faculty members, and other staff have spearheaded important campus mitigation and adaptation efforts around the country. Second Nature has secured over 900 signatories to Presidential Climate Commitments toward mitigation, resilience, and carbon neutrality. As part of the mitigation commitment, colleges perform an extensive inventory of campus systems to identify sources of carbon pollution. Knowing where carbon pollution comes allows institution leaders to target reduction efforts where they will have the largest impact and track progress toward decarbonization goals. Similar to the largest sources of our emissions nationwide, college campuses often find that energy sources, heating and air conditioning, and transportation drive the bulk of their carbon pollution.





The imperative to reduce carbon emissions provides an opportunity for campuses to integrate mitigation efforts with their educational missions. The need to renovate buildings to ensure energy efficiency, install modern HVAC systems, and utilize clean renewable energy sources mirror the decisions that businesses, governments, and households must make throughout our society. Colleges and universities can use on-campus climate action plans to teach students about these new technologies, imparting practical skills, while also reducing carbon pollution.

Higher education institutions will not be able to take these steps alone. While better resourced institutions have the ability to invest in new, energy efficient buildings, many MSIs, community colleges, and regional state schools may lack the necessary capital.³ Yet, making these investments can reduce the amount higher education institutions pay annually on utilities. Policymakers, including higher education system leaders, legislators, and governors, must prioritize investments to support the clean energy transition on campus.

Decarbonizing Electricity Sources

Globally, universities' largest source of carbon pollution comes from purchasing electricity—typically accounting for around 40% of their carbon footprint.⁴ In the U.S., colleges and universities spend an estimated \$6 billion annually on energy.⁵ Some schools use so much energy that they locate power plants on campus, which historically has meant relying on fossil fuels. Given the scope of the problem, institutions often start mitigating their climate impact by switching to renewable energy.

Setting a national example, more than 40 colleges and universities across the country now receive all of their power from renewable sources.⁶ Colleges are increasingly producing large amounts of renewable energy on campus. To shift to renewable sources for electricity, institutions of higher education can consider direct installation on campus through options like solar panels or purchasing renewable energy from utilities. The dramatic fall in solar panel prices has made shifting to solar energy more cost-effective than fossil fuels.⁷ In 2011, California's Butte College became the first higher education institution to generate all of its electrical power through renewable sources by installing over 25,000 solar panels on campus.⁸ The college now gives excess energy back to the grid and estimates it will save up to \$100 million over 30 years.⁹



Bright Spot: University of Delaware

The University of Delaware (UD) installed a wind turbine that powers its Lewes campus and dozens of homes in the local community.¹¹ UD's wind turbine has facilitated research on avian and bat mortality, sea-air corrosion, and drivetrain optimization while serving as an adjunct training tool for the university's wind power program.¹²



While solar panels are the most common on-campus source of renewable electricity, they are not the only one—some institutions are installing other systems, including wind turbines and geothermal systems. Nebraska's Central Community College built a series of wind turbines and solar installations that not only provide electricity to the institution but also serve as training facilities for the college's energy technology program.¹⁰ Following these examples, higher education institutions can invest in clean energy production while providing students with hands-on experience with new technologies.

Not all universities have the space or resources to install renewable energy generation on campus, but they can still choose to purchase power from renewable sources. Several institutions purchase more renewable power than they directly consume either to account for carbon emissions elsewhere or to prepare for future growth. Georgetown University in Washington, D.C. has led the way nationally, generating 130% of its energy needs from renewable sources.¹³

For institutions concerned about costs or finding renewable power companies, a financial tool known as a power purchase agreement (PPA) can help. A PPA is a long-term contract for power between a college and a renewable energy provider which can be used to generate on-site or off-site renewable energy. For off-site generation, the security of the contract allows the energy company to build a renewable energy facility such as a solar power plant. In exchange for the long-term financial commitment—usually between 15 and 25 years—the university receives consistent clean power without having to invest up front capital or handle maintenance costs.

Shifting to renewable energy also saves colleges and universities money on their annual energy costs. For instance, Penn State's 25-year solar energy purchase agreement saved the university \$2.5 million in energy costs over just the first two years—more than four times what it expected.¹⁵ This is money that can be redirected to support the educational mission of higher education.



Bright Spot: The University of California System

The University of California (UC) system sets a goal of using 100% carbon-free electricity by 2025 across all 10 of its campuses and six academic health centers, setting the bar for large-scale institutional change.¹⁴ The UC system runs its own power company, allowing it to centrally provide clean power to seven of its campuses at below market rates. In addition, campuses across the state are improving energy efficiency, building solar power plants, and purchasing solar, wind, and hydroelectric power from other sources.



Many colleges and universities around the country could benefit from power purchase agreements, although they are not yet legal in some states.¹⁶ Policymakers can help higher education institutions and other large institutions secure cleaner, cheaper power by permitting these relationships.





CLEAN AND EFFICIENT INFRASTRUCTURE

A related avenue to reduce campus carbon pollution involves shifting heating and cooling systems to renewable power sources while investing in energy efficient buildings. Many higher education facilities in the U.S. are over 50 years old, and state underinvestment in higher education has contributed to an enormous maintenance backlog.¹⁷ Colleges require an estimated \$112.3 billion to close the gap.¹⁸ Reducing higher education’s carbon pollution will require addressing this backlog and replacing outdated systems with modern, efficient technologies.

Heating water and buildings consumes over half of the energy at colleges and universities, powered primarily by gas and other fossil fuels.¹⁹ Colleges at the forefront of decarbonization have applied several strategies. Electrification of HVAC systems is often the first step. Shifting to energy efficient air-source heat pumps and powering them with renewable sources reduces carbon pollution and often saves universities money in the long run. In 2015, Stanford University exchanged its natural gas heating system for an electric one, powering part of it with solar energy. The investment reduced carbon emissions by 65% and will save the university an estimated \$420 million over 35 years.²⁰

Another option is using geothermal heat pumps to heat and cool campus buildings. Several colleges and universities installed geothermal systems in the 1970s and 1980s in response to rising oil prices.²¹ Now decarbonization commitments are driving interest again. For instance, Carleton College in Minnesota recently replaced a fossil fuel steam heating system for a geothermal system as part of its plan to eliminate greenhouse gas emissions by 2050 or sooner.²²

Alongside changing energy sources for heating and cooling buildings, colleges can save money by upgrading buildings to be more energy efficient, including through using LED lighting and energy management systems. The U.S. Department of Energy recently highlighted the work of Allegheny

County Community College (ACCC). ACCC reduced its overall energy usage by 22% across 18 buildings and 1.5 million square feet of floor space through replacements and upgrades to its HVAC and lighting systems. It also implemented an innovative power management system across 4,000 personal computers and its campus data center that reduced their energy use by 74%, driving \$70,000 in annual savings.²³



WHAT WE HEARD: “It’s really important that—as institutions that own buildings, that oftentimes have power plants on our own campuses—we actually think about the fossil fuel infrastructure in our own systems.” - Dr. Leah Stokes, Associate Professor, University of California, Santa Barbara



ELECTRIFYING TRANSPORTATION

Transportation typically forms the third largest source of carbon pollution generated by college campuses.²⁴ Students, faculty, and staff account for most emissions commuting to and from campus, while college-owned vehicles contribute as well.

Leading colleges have found multiple ways to reduce transportation emissions, including transitioning vehicle fleets to fully electric. Ringling College of Art and Design (RCAD) in Florida has led all colleges and universities nationally with 85% of its 41 campus vehicles fully electric. With a student body of just 1,600 students, RCAD's smaller campus footprint demands a smaller investment compared to other institutions. Replacing vehicle fleets at larger campuses can require upgrades to campus electrical grids to support continuous charging by large numbers of vehicles. That has not prevented California State University, Northridge—with a campus of over 350 acres and a student body of over 30,000—from acquiring 70% electric vehicles. Large institutions can learn from CSU Northridge's example.

Although universities do not directly control how people move to and from campus, they can influence commuters. The University of California Irvine's (UCI) Pump2Plug program incentivizes adoption of zero-emission vehicles for faculty and staff.²⁵ UCI provides complimentary charging for all electric vehicles using normal electric power outlets and subsidized charging at more intensive power levels. The campus also plans to add incentives for faculty and staff to purchase cars at local dealers in Southern California. By purchasing electric vehicles, investing capital in charging stations, and encouraging community members to use zero-emission forms of transportation, colleges can dramatically reduce carbon pollution.



OTHER SOURCES OF CARBON POLLUTION

While electricity, heating and cooling, and transportation account for a large proportion of colleges' carbon pollution, a number of other campus sources contribute. Food is a common indirect source of carbon pollution because certain agricultural processes, particularly related to animal products, can emit potent greenhouse gases like methane. Supply chains can be highly carbon intensive, and higher education leverage their purchasing power to alter their own supply chains toward more carbon neutral goals. Creating more circular economies on campus can lead to reductions in emissions, waste, costs, and create opportunities for enhanced learning about consumption patterns and their impact. Some higher education institutions also lease their lands for fossil fuel production which further accelerates climate change. Achieving carbon neutrality at America's colleges and universities requires an extensive review of all operations to assess and mitigate direct and indirect sources of emissions.²⁶

EQUITABLE CAPITAL INVESTMENTS AT UNDER-RESOURCED INSTITUTIONS

Though addressing expensive maintenance backlogs can provide an opportunity to upgrade HVAC systems and improve overall efficiency, major renovations or transportation transitions require large financial investments upfront to realize long-term savings. Capital costs are a key challenge for MSIs, HBCUs, and TCUs pursuing sustainability. Expert Anastasia Rodriguez, Vice President for Finance and Administration at the HBCU University of Maryland Eastern Shore (UMES) identified the need to be entrepreneurial in the face of resource constraints. For instance, UMES is collaborating with the Maryland Department of Energy and a private company to develop a micro-grid, upgrading aging electrical infrastructure, and reducing its carbon pollution, all while increasing power reliability. The project uses creative partnerships to make the most of limited funding and will ultimately improve the school's bottom line. However, UMES lacks the financial capital for many cutting-edge construction projects.

Community colleges and some state colleges and universities also routinely face greater resource constraints compared to state flagship universities. A study by the National Association of College and University Business Officers showed that over 800 colleges have a median endowment above \$142 million while the median community college endowment amounted to just \$12 million.²⁷ This leaves little room for major clean energy investments compared to elite private institutions or major public research universities.

Even the most innovative under-resourced institutions may struggle to fully eliminate their carbon pollution by themselves. Policymakers must address historic state underinvestment experienced by MSIs, HBCUs, TCUs, community colleges, and regional public universities and provide necessary support to help these institutions decarbonize. In particular, increasing awareness and removing barriers for these institutions to access the resources in the Inflation Reduction Act (IRA) and Infrastructure Investment and Jobs Act (IIJA) can support a more equitable transition to sustainable infrastructure in higher education.



WHAT WE HEARD: “We need a sustainable mindset to think about how to make improvements and maintain our campus in a way that also advances environmental justice and maintains the affordability of the education provided here at UMES.” — Anastasia Rodriguez, Vice President for Administration and Finance, University of Maryland Eastern Shore (UMES)



ACCESSING RESOURCES FROM THE INFLATION REDUCTION ACT

The Inflation Reduction Act's largest area of investments come in the form of tax credits. Most higher education institutions, as nonprofit, tax exempt entities, do not typically benefit from tax incentives. However, the IRA permits non-taxable entities to claim and obtain credits. For instance, under the Investment Tax Credit if a college builds a \$1 million solar facility, it could be entitled to a base 30% credit worth \$300,000, cutting the cost of the project by nearly a third. Additional stackable credits can be added if the project is located in a low-income community or uses domestic materials. In addition to non-competitive tax credits, the IRA also creates financing opportunities for clean energy projects and a variety of grant programs that colleges can secure, often in partnership with their local communities. These opportunities to access resources can help catalyze efforts to decarbonize institutions of higher education.

Adaptation and Resilience

The pandemic's severe disruption of higher education signals important lessons for college leaders addressing climate risks to their institutions. Enrollment dipped significantly after COVID-19 arrived.²⁸ More extreme weather already threatens campus operations and impacts student and staff mental health. Colleges and universities must prepare now to consider systemic risks resulting from our changing climate and adapt and build resilience to the challenges ahead.

By 2050, scientists expect locations in Southwestern Texas and South Florida to average 125 days per year over 100 degrees Fahrenheit.²⁹ Much of the Southwest U.S. could face severe water shortages that impact agricultural and drinking water availability.³⁰ Under these circumstances, colleges will need to rethink basic functions like whether to hold class on extreme heat days and when to begin and end the academic year. During a West Coast heat wave in 2022, college students in older dorms without air conditioning struggled to focus on academics.³¹ Research backs up the students' experience: K-12 students without air conditioning experience academic declines on hot days.³²

The risks extend beyond heat. Consistent with climate model predictions, hurricanes, floods, and wildfires have already grown more intense.³³ As the trend continues, many higher education institutions will find themselves in harm's way. Eighteen of California's public universities are in wildfire-prone zones.³⁴ Colleges on the Atlantic or Gulf Coast need to prepare for stronger hurricanes. Midwest colleges and universities need to prepare for more dangerous floods and tornadoes. Higher education institutions must begin preparing now for predictable threats to institutional operations.



ASSESSING CLIMATE RISK

Higher education, as well as our society as a whole, exists in a changing climate. As a result, leaders in higher education must grapple with questions about how a changing climate will impact their ability to fulfill their mission. For instance, how will a changing climate impact the ability to recruit and retain a diverse student body? How will a changing climate impact the ability to serve students on campus? How will it impact costs of operations or relevance of existing programs? How will it impact the broader communities served? The answers to these questions will be different for different institutions based on their institution type, the students served, and the geographic locality.

Thoughtful planning that brings together administration, faculty, staff, students, and community members can help higher education institutions determine climate risk and build more resilient institutions. Second Nature's resilience toolkit encourages colleges and universities to conduct thorough self-assessments on topics ranging from infrastructure and finances to ecosystem health and community well-being.³⁵ Resources from Probable Futures can help institutions consider how different warming scenarios are likely to impact heat, precipitation, and drought in the community. Once institutions determine their likely climate risks, they can make informed decisions about programmatic, health, and comprehensive support for students, campus master planning, partnerships with communities, and resource investments.



RESILIENT OPERATIONS AND INFRASTRUCTURE

After assessing climate risks, institutions must take bold steps to address them. Needs will vary widely by where a college is located and the student population that it serves. A university facing potential power shortages might consider installing solar micro-grids and battery storage to prepare for anticipated outages. A college anticipating major flooding events can invest in a variety of storm drainage infrastructure from natural landscaping to larger sewers. As more students took a portion or all of their classes online after the COVID-19 pandemic, remote dynamics offer both challenges and opportunities to colleges. Supporting students through a changing climate now requires institutions with large online populations to think well beyond their physical location to provide services to students facing extreme weather. On the other hand, the increased use of remote learning may also provide additional tools for colleges and universities to employ in response to climate disruptions.



Bright Spot: Arizona State University

Arizona State University (ASU), located in Tempe—outside Phoenix—has responded to its changing environment with several ambitious steps. It invested in a series of initiatives from energy efficiency to water conservation to keep its desert campus sustainable in the face of extreme heat. The university provides public access to a Campus Metabolism dashboard, allowing all community members to track and take responsibility for resource use.³⁶ Duke Reiter, Senior Advisor to the President of Arizona State University and the Executive Director of the University City Exchange explained, “We are actively participating in what it means to live in an environment which unfortunately will never become cooler in our lifetime.” ASU also serves a significant population of students virtually, meaning these students may face climate risks that ASU is not experiencing directly on-site, and ASU is considering how to best support students who are not on-site. Reiter noted, “This is a new way of thinking about what your campus is, what your student body is, and what your obligations are to those people who are degree seekers even if they are not on campus.”

CONTINUING BASIC RESEARCH

Although higher education must take a more expansive approach to tackling climate change, it should also continue core strengths in basic research. Academic researchers deserve tremendous credit for alerting the world to the dangers of climate change and tracking its progress. Extensive modeling of climate risks large and small will continue to form the foundation to the global response to climate change. For instance, research and analysis of what works to respond to anticipated risk will have implications far beyond colleges and universities, reaching into all aspects of society—from personal health decisions to global treaties—to build resilience in our changing climate.

RECOMMENDATIONS



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Like all other sectors, higher education must adjust to navigate the realities of a changing climate. This sector offers tremendous and unique potential to expand its impact beyond itself and to build our societal capacity to address climate change. All aspects of higher education—institutions, systems, faculty, students, and statewide networks—will drive this response, but they cannot do it alone. State and federal policymakers must work collaboratively with higher education in maximizing opportunities to spur climate action. Business, philanthropy, and community-based organizations also play critical roles in catalyzing action. We outline opportunities for these stakeholders to accelerate solutions across America’s 4,000 institutions of higher education and engage diverse stakeholders to drive public and private commitment to addressing climate change.

Opportunities for Higher Education

The higher education sector comprises a diverse array of public systems, institutions, and constituencies pursuing goals from workforce training to professional education, from advanced research and development to community engagement. Higher education institutions bring together diverse communities of students, faculty and staff, administrators, governing boards and system leaders. Higher education must engage all of its stakeholders in collaborative work to pursue common strategies, harnessing varied institutional and system strengths, to achieve its full potential for advancing climate solutions. Success will depend on marshaling higher education’s capacity to drive change in education, research, and physical infrastructure, and influence people and institutions throughout society.

Higher education institutions of all types, from private research universities to two-year community colleges, and from regional open-access colleges to technical schools, are the core drivers for action in this sector. Connecting the charge to develop knowledge with immense social capital, higher education can model and advance effective climate solutions across sectors. Colleges and universities can demonstrate both the benefits of action and the costs of inaction through interdisciplinary research, teaching, and outreach. They can also effectively reflect the concerns of future generations, who will be most impacted by the long-term consequences of our changing climate.

Faculty, institutions, and higher education systems will need to support and prepare students for our changing climate, engage local communities, model climate solutions, and communicate to the broader society about how we can address climate change. The roadmap below is intended to guide actions across the higher education sector and is followed by specific moments to engage higher education institutions, faculty, students, and state systems. All these steps should begin with adoption of a comprehensive climate action plan at both institutional and system levels.

RECOMMENDATION

1

Prioritize the development and implementation of a plan for equitable climate action and ensure accountability across systems and institutions. Higher education exists in a changing climate and must adjust to remain effective, relevant, successful, and, in some cases, safe. Rather than an isolated issue to be tackled by a single department or research center, the changing climate affects all aspects of the world students will enter and thus requires every part of an institution to respond. Through climate action planning, state systems and institutions—both public and private—can prioritize climate action, educate, engage, and support students, engage and support communities, model, research, and develop solutions, communicate action and knowledge, and identify metrics to gauge success. ***Comprehensive institutional or system action plans should be tailored to and leverage unique institutional or system-wide strengths and missions.*** In advancing comprehensive plans for action, higher education can advance equity by prioritizing support for students and communities who are impacted the most by climate change and educational inequities. Institutions should also consult with local Tribal nations and adopt ecological practices of the land's original stewards to increase climate resilience.

RECOMMENDATION

2

Educate, engage, and support all students to ensure success in a changing climate and economy. Leveraging its immense human capital and talent, higher education has a responsibility to ensure that people are prepared and empowered to lead in a climate-changed world. Higher education must provide every student with a baseline understanding of climate change, consider the cross-disciplinary, holistic impacts of this global shift, and support workforce development and training for jobs in a clean economy. To increase relevance, higher education can ensure learning is connected to students' communities, culture, and language. In addition, institutions must continue to ensure all students, regardless of race, place, language, or economic circumstances, have adequate support, including provision of basic needs, to navigate and complete their education in a changing climate.

2.1: Engage students in building climate literacy and baseline understanding of climate change, its causes, consequences, and solutions. Higher education should provide opportunities for all students, regardless of their discipline or professional track, to learn about climate challenges and solutions. Central to this is building an understanding that all people and all disciplines are connected to our climate and environment and must adapt to its changes.

2.1.A: Infuse climate literacy across the curriculum. All institutions from community colleges and technical schools, to liberal arts and research institutions should ensure that all undergraduate and graduate students have an opportunity to learn about the ways in which their discipline is impacted by and can respond to climate change.

2.1.B: Support faculty and staff to consider how climate change impacts their work and to identify opportunities for curricular integration. Provide learning opportunities for all faculty and staff to engage with climate literacy and understand how they can support students and one another in exploring the centrality of climate change to all fields. Provide faculty with time and resources to convene, share best practices, and implement cross-disciplinary courses and projects. Incentive structures should recognize opportunities for tenure-track professors to explore intersections of climate change in education, research, and service activities.

2.2: Develop pathways to clean economy jobs in a sustainable, resilient, and equitable society. Higher education can leverage partnerships with K-12 school systems and employers to build bridges from high school levels to climate and clean economy careers. Working with local and regional employers, state systems and institutions of all types should develop certificate and degree programs and adapt existing pathways to prepare students for clean economy jobs. Pathways should exist for a wide variety of students from recent high school graduates, transfer students between higher education, and returning adult learners seeking to garner additional clean economy skills. Sufficient mentorship and financial support are essential to enable students to pursue clean economy career pathways.

2.3: Support student needs and well-being in a changing climate. Adopt policies, programs, and practices to flexibly meet student needs and accommodate the unique challenges students may face in a changing climate.

2.3.A: Understand how climate change will impact students. Impacts that affect learning may include risks related to extreme weather, like hurricanes or persistent heat, or fears related to change and uncertainty. Recognizing the intersecting identities of their student body, institutions should observe and prepare for any disproportionate impact of climate change students may face and adjust educational delivery as needed. They should offer a variety of student voices regular opportunities to provide input and feedback through channels such as listening sessions, surveys, and meetings between students and administrators.

2.3.B: Support student well-being and mental health. Ensure robust physical and mental health resources are available for students to build their resilience to future climate impacts. This includes support for students who are physically on campus, as well as those who attend remotely.

2.3.C: Ensure wraparound services and financial supports account for the impacts of a changing climate. Climate change further complicates efforts to support student success for low-income students, for instance, by making food and housing more expensive. Higher education should anticipate how a changing climate affects students' basic needs and respond flexibly to assist students.



3

Engage and support communities, particularly the communities most affected by our changing climate and the transition to a clean economy, in advancing meaningful solutions. As anchors in their communities, colleges and universities have the ability to empower and support not only students but also community members in navigating a changing climate. Each institution has unique relationships with its communities, and all institutions have levers to engage these relationships to advance solutions. Connecting to communities—their cultures, values, and language—can ensure meaningful partnership.

- 3.1: Bring together community leaders to solve local climate challenges.** As major local employers with resources and social capital, institutions often have significant influence with other local stakeholders. Colleges can leverage these relationships to convene local community leaders, policymakers, businesses, early childhood and K-12 education leaders, and others to tackle local climate challenges. In rural areas with fewer potential partners, colleges can look to other anchor institutions such as local hospitals, public agencies, or networks of rural institutions such as the Rural Community College Alliance.
- 3.2: Provide technical assistance to community members.** Higher education should support a wide range of community members adjusting to a climate-changed world. From helping farmers understand and respond to new weather patterns to assisting community-based organizations applying for federal funding opportunities, institutions have valuable knowledge and expertise to provide in service to community. They need to ensure they have the cultural competency to be able to deliver effective technical assistance.
- 3.3: Advance research efforts tied to communities' needs and meaningfully include community members in project design.** Higher education can prioritize climate research that responds to specific community needs. For instance, a coastal campus can focus on a range of interdisciplinary research tied to sea-level rise, from modeling in the physical sciences to actuarial research in the business department. Institutions should regularly engage community members to identify applied research projects of particular concern in the campus's immediate locale. Colleges and universities can learn from the experience of communities that can inform anything from future academic initiatives to institutional operations.
- 3.4: Center equity in efforts to engage and support communities.** Institutions should intentionally pursue partnerships with historically marginalized communities disproportionately impacted by climate change, including Black, Latino, Indigenous, and other communities of color, people with disabilities, LGBTQ+, as well as low-income rural and urban communities, to ensure their voices are heard as part of comprehensive community engagement efforts related to climate work.



Model, research, and develop solutions to reduce carbon pollution, adapt to a changing climate, and advance sustainability goals. Like other sectors, higher education must reduce greenhouse gas emissions, prepare for a changing climate, and respond to short- and long-term impacts. Entering into formal commitments, such as Second Nature’s Climate Leadership Commitment and the Association for the Advancement of Higher Education Sustainability (AASHE)’s Sustainability Tracking, Assessment & Rating System (STARS), is a strong first step. While campuses naturally start by looking at carbon pollution from their own physical plants, energy, food, waste, transportation, and procurement systems, they should think beyond operations. Rooted in their education, training, and research missions, higher education can serve as living laboratories to experiment with new approaches, pilot successful solutions, and demonstrate to other members of society that climate mitigation and adaptation are achievable and desirable.

4.1: Model mitigation solutions to reduce carbon pollution. Higher education institutions and state systems should assess their existing carbon pollution across energy usage, infrastructure, transportation, purchasing, food, and land use and take steps to reduce their emissions.



4.1.A: Assess infrastructure needs and create plans to support lasting change toward healthy, sustainable learning environments. New buildings, retrofits, and renovations should be designed to optimize health and sustainability and utilize energy-efficient clean technology. On-campus supports, such as housing, should also be assessed for sustainability and livability in a changing climate. As repairs or replacements become necessary for building systems, including heating, cooling (HVAC), insulation, and roofing, institutions should require the use of energy-efficient, clean technology and prioritize electrification.

4.1.B: Transition to renewable energy. Institutions and systems should consider installing renewable energy options such as solar, wind, geothermal heating and cooling, and more, particularly when underused land is available. Off-campus options such as power purchase agreements can guarantee renewable energy providers that institutions will buy power for a set period of time and may also save money. To the extent that state laws and regulations complicate adoption, these concerns should be raised with policymakers.

4.1.C: Transition to electric transportation. Higher education systems and institutions should develop and implement plans to electrify bus and vehicle fleets. They should also install vehicle charging stations that can serve both campus users and surrounding communities. Institutions can also develop infrastructure to support walking, biking, and taking public transit, encouraging students to make sustainable transportation choices.

4.1.D: Identify resources, including from the Inflation Reduction Act and the Infrastructure Investment and Jobs Act, to support the clean energy transition. Higher education can use federal and state funding opportunities such as the tax credits, grants, and financing mechanisms established by the Inflation Reduction Act to support on-campus mitigation projects. As institutions reduce energy costs through mitigation strategies, they should consider investing savings in a green revolving fund to support future green infrastructure investments or for student research and projects related to climate transition.

4.1.E: Provide sustainable food services. Higher education should ensure that on-campus food services prepare onsite and serve fresh, locally sourced, and minimally processed or packaged produce. Underutilized land can be repurposed to host gardens that both teach students basic horticultural practices and produce food for the dining halls. Implementing composting programs on campus and in student housing, providing sustainable foodware options, and partnering with community organizations to donate unused food will reduce food waste and support the well-being of surrounding communities.



4.1.F: Incorporate sustainability and climate goals into procurement processes and policies. Many core functions of colleges and universities, from providing meals to constructing new buildings, rely on goods and services supplied by the private sector. Institutions and systems can provide business opportunities to suppliers who practice sustainability and climate awareness, focusing on vendor inputs as well as outcomes to spur innovation. Institutional and state procurement services teams can consider vendors' production, transportation, and packaging processes, along with supplier diversity and commitments to sustainability, as part of the Request for Proposals process. Higher education institutions can also leverage their purchasing power to encourage current vendors to adopt sustainable and climate-friendly practices.



4.2: Model adaptation solutions to build resilience in a changing climate.

Higher education can assess anticipated climate risks and take steps to adapt and build resilience into operations, infrastructure, and land use.

4.2.A: Adapt campus infrastructure to the anticipated regional climate.

Higher education should holistically review infrastructure and land use for potential climate risks and vulnerabilities and adapt systems to be resilient. This can include implementing water conservation techniques to anticipate more frequent droughts or building permeable landscapes to absorb increased precipitation.



4.2.B: Prepare for extreme weather events like hurricanes and flooding as well as ongoing risks like persistent heat and drought. Institutions and systems should collaborate with emergency agencies in their local communities, regions, and states to establish emergency plans for extreme weather events. These plans should identify ways to communicate risks to students, faculty and staff, support students in accessing transportation and safe housing, and ensure continued learning and support services. Based on the plan, the institution should dedicate resources to ensure readiness to respond to anticipated events.

4.2.C: Consider and develop operational solutions for any outdoor activities impacted by climate change. Any campus activity can be impacted by changing weather patterns. For instance, more frequent extreme heat days may make commuting to campus hazardous, while flooding could render buildings inaccessible. Institutions of higher education should establish policies and practices to promote the safety and well-being of students, faculty, staff, and visitors in extreme conditions.



RECOMMENDATION

4 CONTINUED

- 4.3: Model mission-aligned investment decisions to promote a more sustainable future.** Institutions with permanently endowed funds should explore adopting investment practices that promote sustainability, resilience, and climate awareness. Networks including the Intentional Endowments Network can support institutions in making investment decisions consistent with these priorities.
- 4.4: Test and develop innovative climate solutions.** While many solutions already exist, institutions can play a critical role in considering improvements, advances, new technologies, and additional questions—such as how to elevate Indigenous Knowledge Systems to shift public understanding or how to decarbonize hard-to-abate sectors. Institutions are clear leaders in driving social, applied, and basic research to develop innovative solutions.
- 4.5: Involve students in creating and implementing climate action plans.** Encourage students to participate directly in learning how to measure, recommend, and implement climate/sustainability-oriented changes at their colleges. The opportunity can provide technical training for students that they can apply later in their careers. Beyond the concrete skills and knowledge, students can also learn to drive organizational change—a critical skill in moving other institutions to take bold climate action.

RECOMMENDATION

5

Communicate higher education’s knowledge more effectively and model solutions to spur broad, equitable climate action. Leveraging their brand recognition and credibility, higher education institutions can share information about climate change, build awareness of issues and solutions, and make the case for other entities to participate in or lead climate action.

- 5.1: Develop a robust communications strategy.** Institutions and systems can inspire action by showcasing their successes through narratives of climate concerns and solutions, as well as by providing platforms for powerful student voices. Institutions should consider building messages into public events that attract wide audiences, such as graduations and sporting events, and engaging stakeholders such as alumni or policymakers to contribute their ideas and influence.
- 5.2: Make climate expertise available to policymakers, community leaders, industry, and others.** Policymakers seek support, evidence, and data to make effective decisions. Institutions are essential partners in this work, connecting policymakers and community leaders with students and faculty who can provide the latest research, data, and testimony on topics related to climate impacts and solutions. Many higher education institutions are already providing technical assistance to a wide range of industries and community leaders on topics such as agricultural resilience or decarbonizing industrial processes.



- 5.3: Open in-person and virtual events to the public.** Higher education institutions frequently host convenings from faculty meetings to large academic conferences both in person and online. Institutions should consider making some climate focused events open to the public and designed in an accessible format for non-academic audiences.

Opportunities for Institutional Administrators and Governing Boards

Administrators and governing boards at the institution level have a critical role to play in prioritizing climate action so that all students, faculty, and staff feel empowered to advance the institutional climate action plan. Specifically, administrators can:

- **Prioritize climate action.** Administrators and governing boards can establish institution-wide priorities for climate action and develop coordinated policies and practices aligned with an institution climate action plan.
- **Partner with faculty, staff, students, and communities.** Administrators and governing boards can create opportunities and space for collaboration with faculty, staff, students, and communities on institutional climate action planning and implementation.
- **Support faculty, staff, students, and communities.** By listening to and engaging with faculty, staff, students, and communities, administrators and governing boards can advance policies and practices that create supportive conditions across the institution.
- **Provide resources for climate action.** Administrators and governing boards can secure resources, including from state and federal sources, to support institutional action.
- **Hold college presidents and chancellors accountable.** Administrators and governing boards can include expectations in the contracts of presidents and chancellors around climate change and review progress on climate action plans as part of scheduled performance reviews.



Opportunities for Faculty

Faculty sit at the heart of higher education's teaching and research missions, and they have a unique responsibility to prepare the next generation for a world in a changing climate and to develop solutions for society. Specifically, faculty can leverage the follow opportunities for action:

- **Create subject matter connections to climate across disciplines.** Faculty are ultimately responsible for institutional curricula and can take a leadership role in ensuring climate literacy for every student by finding opportunities to integrate climate in their teaching.
- **Adapt existing course material and develop new courses to prepare students for clean energy jobs.** In addition to developing a broad climate curriculum, faculty can lead efforts to provide students with the specific skills needed to thrive in clean economy jobs.
- **Prioritize practical climate research and engage students and communities.** Faculty can identify practical challenges related to climate change, partner with local communities, and ensure their research is accessible and helpful in addressing societal challenges beyond the institution.



Opportunities for Students

Students, as enrolled, tuition-paying stakeholders, have a unique opportunity to drive climate action across higher education. They have organizing and mobilizing power, often have access to local communities, and can be effective communicators of urgency and specific demands for action. Students frequently have wide networks across institutions, faculty, and other students, and their capacity to take a collaborative approach can bring cohesive power in building consensus around change. While online students may lack a physical campus, they bring unique resources through the connections and experiences in their own communities as well as the power to more easily “vote with their feet” and choose schools that align with their climate priorities. Specifically, students can leverage the following opportunities for action:

- **Evaluate colleges based on their climate track record.** Students can decide to attend institutions that have robust climate action plans, offer climate curricula, and strong connections to clean economy jobs.
- **Learn and engage with climate efforts and courses.** Students can seek information and engage other students in conversation about climate change—the causes, impacts, and solutions. They can learn about existing institutional efforts and engage with research and student groups to support general and specific actions. Once enrolled in a program, students can send a clear message to faculty about the demand for climate curriculum by enrolling in classes that offer a climate change lens on their particular course of study.
- **Ask for climate focused, work-based learning opportunities.** Busy, career oriented students may not have time for extracurricular work, but they can ask career centers and work-study programs to help identify climate-related internships that ideally are paid, offer college credit, and provide an opportunity to build careers.
- **Advocate for action.** Students can use their knowledge to identify gaps in institutional climate responses and partner with other students, faculty, staff, and administration to advocate for change.



- **Collaborate with faculty, staff, administrators, and communities.** Students can partner with administrators to establish an open dialogue and identify solutions to ensure institutions develop and make progress towards climate goals. They can also work with faculty to identify topics that they want to see integrated into their courses and encourage them to implement formal cross-disciplinary climate education.
- **Use their voice.** Students can work with administrators, faculty, and staff along with community and national organizations to be a voice for broad based climate action—within their institutions, across their communities, and beyond.



Opportunities for State Higher Education Systems

In their role as governance, budgeting, and planning entities, state higher education systems and leaders provide opportunities to set priorities and support climate action across multiple institutions. The structure of public higher education governance varies widely by state. In some, a single agency, coordinating body, or governing board is charged with overseeing public higher education institutions, while in others combinations of entities administer different groups of institutions. Regardless of the formal structure, state governing systems serve as a link between individual public institutions and state policymakers.

Beyond the roadmap for the entire higher education sector, state higher system leaders have a unique ability to leverage relationships with campuses and policymakers across the state to build collaboration around common goals, including leveraging the following opportunities for action:

- **Convene institutions to share best practices and encourage adoption.** State leaders should share an inventory of existing best practices and successes and lead discussions to explore the need for further action and support. State systems can encourage campus action by featuring successful initiatives in the state and region as well as providing financial incentives supporting partnerships and performance.
- **Appoint climate champions.** State system offices should create a position for a senior leader and champion to build connections and collaborations across all campuses and support the development of institutional climate action plans.
- **Build partnerships with other state agencies and policymakers.** State higher education leaders are in a unique position to bring together institutions with policymakers, state leaders, and stakeholders to support action and advocate for climate priorities. For instance, partnering with economic and workforce development agencies can help create a comprehensive workforce strategy including pathways for Black, Latino, Indigenous, and other students of color, as well as low-income rural and urban students, to access clean economy jobs.
- **Ensure accountability and evaluate performance toward climate action.** To increase accountability, state systems should share learning across institutions and include in college presidents' performance evaluations assessments of progress toward systemwide and institutional climate action priorities.
- **Leverage advocacy to advance and secure funding for climate priorities at the institution level.** State systems leaders should use their advocacy role to advance climate action and support institutional action plans. Governing boards and system leaders can work with the governor's office to select presidents, chancellors, and board members who are supportive of system-wide and institutional climate agendas. Importantly, state systems can also make the case for resources to support both general and targeted climate action and clean economy efforts.



The Public Sector

Policymakers at every level of government have a major role to play in supporting higher education to achieve its full potential in driving society-wide climate action. The federal government allocates billions of dollars each year to institutions of higher education for research and financial aid. State governments run higher education systems that enroll the majority of America's postsecondary students and play significant financial, planning, and governance roles for colleges across the country. Local policymakers frequently partner with higher education institutions that are often major employers in addition to educators for their local communities. Policymakers at every level of government can support higher education in preparing students for a changing climate, engaging communities, and modeling and researching solutions to climate challenges.

Opportunities for Federal Policymakers

In addition to grants, student loans, and other financial aid it supports annually, the federal government also invests in research and development led by higher education. The recent Inflation Reduction Act (IRA), CHIPS and Science Act (CHIPS), and Infrastructure Investment and Jobs Act (IIJA) have provided even more funding opportunities to colleges and universities. With funding and leadership, the federal government plays a critical role in supporting higher education's efforts to advance climate action, solutions, and environmental justice.

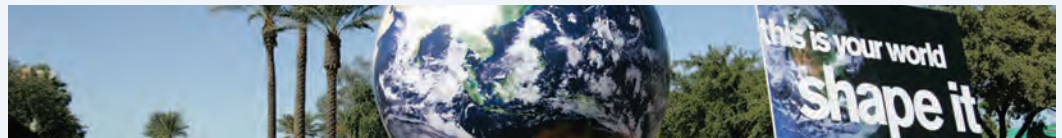
RECOMMENDATION

1

Elevate and amplify the role of higher education in climate solutions.

Policymakers at the federal level should utilize their leadership roles and communication networks to advance climate action, climate solutions, and environmental justice efforts across the national higher education sector. The White House, U.S. Department of Education, and other agencies can use their platforms and convening power to engage the higher education sector with other stakeholders in contributing to climate solutions.

- 1.1: Coordinate cross-agency collaboration to create opportunities for higher education to advance climate solutions.** The U.S. Departments of Education, Energy, Interior, and Labor, along with the Environmental Protection Agency, National Oceanic and Atmospheric Administration, White House Climate Policy Office, and other relevant federal agencies, should collaboratively identify priorities and opportunities to leverage the strengths of higher education as part of our societal capacity to address climate change and establish the clean economy.
- 1.2: Establish climate change as a U.S. Department of Education priority.** The U.S. Department of Education often signals federal priorities to institutions of higher education across the country. By including climate action, climate solutions, and sustainability as an agency-wide priority across grant programs and establishing a position within the Secretary's office to address climate change and promote solutions, the Department of Education can send a strong message to the field and provide an opportunity for higher education grantees to pursue work on climate action.



- 1.3: Center higher education student voices in developing national plans for climate action.** Students enrolled in higher education offer unique and valuable perspectives on climate change and the transition to the clean economy. Federal policymakers should listen to, support, and integrate these views, in particular perspectives from students of color, students from low-income rural and urban communities, Indigenous students, and students with disabilities, as they make decisions about climate action and the role of higher education.
- 1.4: Elevate the role of Tribal Colleges and Universities (TCUs), Historically Black Colleges and Universities (HBCUs), and other Minority Serving Institutions (MSIs) in advancing climate solutions.** TCUs are essential partners to the federal government in understanding the nation's view of our climate, environment, and relationships with Indigenous Knowledge Systems and in researching community-based solutions. HBCUs and MSIs create pathways of opportunity for historically marginalized students and can help ensure a just transition to a clean economy. Federal policymakers should elevate and support the work to advance climate solutions at TCUs, HBCUs, and other MSIs.

2

Support institutions, through federal policies and programs, in preparing students, engaging communities, and modeling solutions. The federal government can examine existing programs to ensure they support the higher education sector in advancing climate solutions.

- 2.1: Support institutions of higher education in accessing federal funds, including from the Inflation Reduction Act.** Several federal agencies, including the Internal Revenue Service, the Department of Energy, and the Environmental Protection Agency, provide opportunities through tax credits, grants, and financing mechanisms to support higher education in advancing climate solutions. Developing clear and coordinated guidance from the federal agencies, including related to the opportunity for non-taxable entities to claim tax credits, can assist institutions in accessing resources to support climate mitigation and adaptation efforts. Federal agencies can also write grant programs in an accessible way that broadens opportunities to apply especially for lower-resourced institutions. Additionally, federal agencies should provide direct outreach to institutions of higher education, particularly in disadvantaged communities as identified by the Justice40 initiative, to ensure all institutions can benefit from these resources.
- 2.2: Ensure ambitious federal efforts to prepare a climate-ready workforce and to research and test innovative solutions.** The federal government should expand and coordinate existing programs or establish programs to support ambitious efforts to prepare a climate-ready workforce and to research innovative solutions. The IRA, IIJA, and CHIPS Act have made significant investments to support industry development, and the federal government has the opportunity to match that ambition with workforce development and research to ensure people can succeed in the clean economy and to ensure transformative breakthroughs to help propel a clean economy and sustainable society. Specifically, expansion of state workforce development programs like Perkins Career and Technical Education Program or climate-related research programs can incentivize and support higher education.
- 2.3: Expand federal opportunities for students to pursue climate careers and climate experience, including through the American Climate Corps.** Federal policymakers should expand existing scholarships and provide opportunities for students to earn loan forgiveness by pursuing climate- and sustainability-related careers. They should also ensure that the American Climate Corps includes meaningful partnerships with higher education and creates opportunities for students to earn higher education credit as part of these experiential opportunities.
- 2.4: Allocate research funding for adaptation and mitigation strategies that engage local communities and community leaders in planning and execution.** Federal agencies from the U.S. Department of Agriculture to the National Institutes of Health already support climate research at institutions of higher education. Federal policymakers can examine existing programs to encourage and prioritize partnerships that lead to practical community-focused climate solutions.
- 2.5: Consider opportunities for accrediting agencies to support higher education in taking climate action.** As part of routine institutional reviews, accreditors could also evaluate institutional climate action plans and recommend best practices for institutions to further their climate impact.

RECOMMENDATION

3

Partner with higher education to communicate the impacts of a changing climate on communities and the effectiveness of solutions to inspire and build support for broader climate action. Federal policymakers should see higher education institutions as essential partners in solving climate problems and leverage their expertise and resources to develop climate policy solutions. Policymakers can partner with institutions to collect data, research key questions impacting communities across the country, share best practices, and connect with students across different communities. Policymakers can also use their national platforms to elevate stories of climate action occurring at institutions of higher education.

Opportunities for State Policymakers

Outside of institutions, state policymakers are among the most influential supporters of climate action in higher education. Legislators and governors play critical roles in establishing goals for public higher education systems and funding their operation. Consequently, state policymakers have authority to support higher education in prioritizing climate action, preparing students for a clean economy, connecting institutions with local communities, and providing the resources necessary for institutions to model climate solutions. Through such levers as legislation, appropriations, and communications, policymakers can create conditions for institutions to lead climate action in their communities and across states. Collaboration is critical to ensure policy is aligned with priorities for action, so policymakers should work in partnership with students, higher education leaders, community members, businesses, unions, and more.

RECOMMENDATION

1

Develop a comprehensive statewide plan and policies to address climate change and advance solutions within and beyond higher education. State policymakers should develop comprehensive plans to take action on climate change and leverage the strengths of higher education in their efforts. By including higher education in their climate action, states can benefit from higher education’s knowledge and expertise, deep connections to students and communities, and sizable infrastructure footprint to advance progress toward their statewide climate goals. States can further ensure that all policies and programs related to higher education are developed with a climate lens and support institutions with the resources necessary to achieve established goals.



- 1.1: Define the role of higher education and leverage higher education partners to develop and implement state climate action plans.** State climate action plans coordinate a range of state agencies including higher education institutions to address climate change impacts and identify solutions. States should engage institutions of higher education in both the development and implementation of these plans. Colleges and universities can support state climate goals in a variety of ways: providing data on climate mitigation and adaptation efforts, furnishing technical assistance to state government and business leaders, and anchoring innovation hubs for new clean energy industries. Higher education institutions are key partners, with comprehensive ability to lead efforts to grow educational attainment, communicate the impacts of climate change to multiple audiences, and harness community capacity to advance climate solutions and transition to a clean economy.



- 1.2: Prioritize students and communities most impacted by climate change and education inequities.** State policymakers play a key role in advancing equity by targeting resources and support. It is critical that support be focused on minority-serving institutions, institutions serving large populations of students from low-income families, and institutions in urban and rural communities that will be most impacted by pollution, heat, extreme weather, and other negative impacts of climate change.
- 1.3: Center student voices in developing statewide plans for climate action.** Policymakers should listen to, support, and integrate the perspectives of higher education students, in particular students of color, students from low-income rural and urban communities, Indigenous students, and students with disabilities, in climate action decisions and higher education engagement.
- 1.4: Appoint higher education leaders committed to climate priorities and ensure climate leaders recognize the importance of leveraging education in solutions.** Policymakers have extraordinary ability to shape future directions of higher education through hiring and appointment processes. In selecting statewide public leaders, including statewide higher education officers, university, college, and system leaders, statewide climate leaders, and governing board members, policymakers and political leaders should prioritize candidates who understand the critical need to support efforts at the intersection of higher education and climate.

Support institutions, through state policies and programs, in preparing students, engaging communities, and modeling solutions. State policymakers should utilize policy, regulations, guidance, and leadership to promote comprehensive climate action, including remediation efforts and solutions, across institutions of higher education.

2.1: Coordinate state agencies with higher education to prepare students for clean economy jobs. State policymakers can encourage state agencies across a variety of sectors, from workforce to economic development, to partner with higher education institutions in pursuit of state clean economy goals that also support a resilient workforce able to thrive in a climate-changed world.

2.1.A: Ensure state economic development agencies and workforce and labor agencies partner with higher education. Economic development and workforce/labor agencies tasked with growing clean economy sectors often need help producing the skilled workforce, across all job levels, critical to sustaining these industries. Higher education institutions are essential partners, training the people needed to fill these in-demand jobs. Policymakers should prioritize development of deep partnerships of economic development and workforce agencies with higher education to ensure students, especially those in underserved categories, have opportunities in the clean economy and new industries have the talent necessary to succeed.

2.1.B: Align clean economy or climate-related workforce priorities with statewide higher education attainment goals. Policymakers should refine attainment goals to highlight increases in the number of individuals achieving a postsecondary degree in clean economy and climate-related fields, including energy, aligned with the state's economic development goals.



2.2: Support institutions in efforts to model, research, and develop climate mitigation and adaptation solutions by ensuring sufficient resources. States should ensure that institutions have the resources necessary to pursue and model climate solutions. From clearing backlogged maintenance projects totaling billions of dollars to establishing research institutes focused on local climate challenges and addressing climate issues in historically marginalized communities, policymakers can bolster climate action through increased funding.

RECOMMENDATION

2 CONTINUED

2.2.A: Support institutions in accessing federal funds to advance climate solutions. State policymakers should work with statewide system offices to distribute information and offer technical assistance to campuses seeking federal funding opportunities, in particular through the Inflation Reduction Act, Infrastructure Investment and Jobs Act, and CHIPS and Science Act.

2.2.B: Ensure sufficient state resources to support higher education in advancing mitigation and adaptation, including through bonds, revolving loan funds, and appropriations. Resources allocated through state bonds, revolving loan funds, and higher education appropriations can help public institutions modernize existing buildings, develop new infrastructure, transition to clean energy, and create hand-on learning opportunities for students. These activities not only directly engage students around climate solutions, but also can demonstrate “proof of concept” of novel climate solutions to other sectors such as businesses, local governments, and community organizations, expanding the benefits of these investments well beyond higher education campuses.

2.2.C: Promote climate action through legislation and regulations. Policymakers can support climate action at higher education institutions through building codes, permitting processes, and permission for power purchase agreements. Policymakers should review existing changes to building codes, consider changes to speed electrification of new and modernized buildings, and allow power purchase agreements to increase production and use of clean energy.

RECOMMENDATION

3

Ensure higher education is eligible for state capital investments and that those investments prioritize climate mitigation, adaptation, and sustainability.

State governments can ensure that capital investment budgets include higher education institutions and that efforts to modernize state government infrastructure incorporate a climate lens.

RECOMMENDATION

4

Partner with higher education to communicate the impacts of a changing climate on communities and the effectiveness of solutions to inspire and support broader climate action. State policymakers should see their higher education institutions as partners in solving problems related to climate change and should leverage their expertise and resources to develop policy solutions. Policymakers can engage higher education institutions to collect data, research key questions impacting states, share best practices, and bring together students across different communities. Policymakers can also use their public profiles to raise awareness of climate-related actions occurring in the higher education sector.



Opportunities for Local Policymakers

Local policymakers, such as mayors or county council members, can be key stakeholders in realizing the potential of higher education to drive community climate solutions because they are closest to the climate issues that impact students and community members. Higher education institutions and students can partner with local policymakers to research, design, and implement climate solutions in tandem with community members.



- **Incorporate higher education in the development, framing, and implementation of local climate action plans (CAPs).** Across the country, students, faculty, and leaders have joined advisory boards that develop local climate action plans or have served as consultants. Cities have also partnered with institutions to conduct rigorous emissions assessments and create comprehensive CAP management and tracking systems. This engagement should continue and increase.
- **Submit joint grant applications.** Local elected officials can work with higher education institutions to jointly apply for federal grants, such as those in the Inflation Reduction Act. Colleges and universities can provide useful grant writing expertise as well as needed data and regional information to inform a proposal, while policymakers can bring together community partners for joint applications.
- **Partner to create accessible public transportation routes to higher education campuses.** Ensuring public transportation is accessible for students can remove barriers to enrollment. Transportation time and costs are frequently cited by students as a barrier to enrolling and completing a postsecondary degree. Local elected officials have unique influence over public transportation infrastructure and routes. This can help ensure accessible and efficient access to in-person classes for a wide range of students.
- **Create formal coordination roles between local government and higher education institutions.** Local policymakers can create official roles tasked with developing relationships with local colleges and serving as a point of contact. Institutions and local governments can use these channels to coordinate around joint funding and research projects. Policymakers can also look to higher education institutions as a source of qualified candidates to fill climate-related city positions.

Private Sector and Other Stakeholders

Beyond government, other organizations and stakeholders have a role to play in supporting higher education to engage the next generation of leaders, connect with local communities, model climate solutions, and communicate with the broader public.

BUSINESS AND INDUSTRY

Employers can be a key partner to advance climate action in the higher education sector, particularly as it relates to preparing students for 21st century jobs. The transition to a clean economy will require more trained workers in fields including electrical work, heat pumps, clean energy construction, advanced manufacturing, and STEM as well as climate-trained workers in fields such as business, architecture, supply chain management, and more. Businesses can partner with the government and institutions of higher education to analyze local workforce needs and to help higher education develop efficiently in the face of a fast-moving energy transition.

- **Partner with higher education to prepare students for clean economy jobs.** Employers can work with institutions of higher education to clarify local clean energy industry needs, develop training pathways that lead to employment, and lend expertise by teaching at local institutions. Employers can advise institutions of higher education on education and training curricula to ensure they are relevant to in-demand skills and jobs.
- **Support equitable pathways to clean economy jobs.** Partnering with HBCUs, TCUs, and other MSIs and creating opportunities like paid internships can help ensure diverse talent can access pathways to clean economy jobs.
- **Hire the next generation of climate leaders.** Employers can raise awareness about green employment opportunities by presenting at career fairs at local higher education institutions and advertising job openings through institution and alumni platforms. They can also offer internships and apprenticeships to develop a future workforce that benefits employers and employees.





PHILANTHROPY

Philanthropic organizations can play an important supporting role in accelerating higher education's efforts to develop and scale climate solutions. Timely and targeted catalytic funding can help higher education institutions and students pilot new curriculum models, establish community partnerships, and launch clean energy operations. They can also help to close access gaps for marginalized communities to participate in climate solutions. Philanthropy's potential to support these efforts at the intersection of climate and education can encourage larger investments from government and business. With philanthropic organizations across the country ranging from large private foundations to community foundations and small family foundations, philanthropy can help support cross-sector work by:

- **Signaling to the field and grantees the importance of advancing projects at the intersection of climate and higher education.** Philanthropy can help be a convener and connector to help those in higher education learn more about the intersection and opportunities for action.
- **Investing in efforts that help institutions educate, engage, and support students in a changing climate, engage local communities, model climate solutions, and communicate to the broader society about how we can address climate change.** Philanthropy can support catalytic action that other institutions can replicate. Funders are also a strong fit for supporting ongoing and multi-year climate-related projects in partnership with local communities. Finally, they can provide catalytic opportunities for under-resourced institutions to establish public-private partnerships or access state and federal resources.
- **Emphasize equitable investments.** Often the most marginalized communities are in need of additional philanthropic support. For instance, Indigenous communities worldwide receive less than 1% of all climate-focused philanthropic dollars.¹ In the U.S., rural communities receive just 5% of all philanthropic dollars and Indigenous communities again receive less than 1%. Foundations seeking to support climate action in higher education should work to counteract these inequities.






Climate change can spark heated debate, but we also know there is no better place than higher education to have a productive dialogue that will lead to concrete solutions. Through an open exchange of ideas, practical research, collaboration and our commitment to serve as stewards of place, higher education can provide vital tools and help shape our societal and scientific responses to climate change.”



— Higher Ed Task Force co chair, **Mildred García**, Chancellor, California State University and **Kim Hunter Reed**, Commissioner of Higher Education, Louisiana.²



Glossary of Key Terms

TERM	DEFINITION
Accreditation	Accreditation is a process in which an independent organization evaluates colleges and universities to determine if they meet minimum standards for educational programs, faculty, student services, legal compliance, and other factors. Generally, only students pursuing degrees at accredited institutions can access federal financial aid.
Alternative Fuel	Fuel derived from a source other than gasoline. Examples include electricity, biodiesel, and ethanol.
Associate's Degree	A degree that typically requires two years of full time attendance usually offered at community colleges (also referred to as a two-year degree). Many students attend part-time and may take longer to complete a degree.
Bachelor's Degree	A degree that typically requires four years of full time attendance at a college or university. Similar to associate's degrees, part-time students will take longer than four years to complete.
CHIPS and Science Act	The CHIPS and Science Act authorizes new and expanded investments in clean energy and technology, including billions of dollars in funding for research and workforce development to agencies such as the National Science Foundation and the Department of Energy.
Climate Change	Climate change refers to long-term shifts in temperatures and weather patterns. These shifts may be natural, such as through variations in the solar cycle. But since the 1800s, human activities have been the main driver of climate change, primarily due to burning fossil fuels like coal, oil and gas. Burning fossil fuels generates greenhouse gas emissions that act like a blanket wrapped around the Earth, trapping the sun's heat and raising temperatures. (From un.org)
Climate Literacy	An understanding of your influence on climate and climate's influence on you and society. In the late 2000s, scientists and educators collaborated to define climate literacy, identify principles and concepts that should be taught, and justify the teaching of climate science.
Competency-based education (CBE)	A type of program that replaces the traditional credit hour requirement focused on time in class with one that focuses on a student's ability to demonstrate specific skills. Evaluation of those skills can occur through projects, presentations, and exams among other methods. CBE programs typically allow students to study at their own pace and balance competing responsibilities such as work and childcare.
Composting	The practice of returning natural food remains back into the earth for the purpose of enriching soil.
Culturally Responsive Teaching	A method of teaching that recognizes the importance of including students' cultural references in all aspects of learning.

Curriculum	A program of courses and academic requirements that a student must complete to earn a degree or credential.
Decarbonization	The process of phasing out reliance on carbon across all parts of the economy.
Degree	A credential awarded by a college or university for completing a program of study. Typically refers to an associate's (two-year) or bachelor's degree (four-year).
District Energy System (DES)	A district energy system is a centralized energy distribution system that provides heating, cooling, and/or electricity to a group of buildings or a community from a single source.
Eco-anxiety	Persistent worries about the future and the prospects for future generations due to climate change.
Energy Retrofitting	An energy conservation measure in an existing building that aims to improve building performance.
Environmental Literacy	Develops students' understanding of how individual and collective actions impact the environment and prepares students to make environmentally conscious decisions.
Faculty	Education professionals at a college or university responsible for establishing the curriculum, teaching, and conducting research.
Federal Financial Aid (or Title IV Aid)	Federal financial aid refers to the variety of financial aid programs that the federal government offers to students through the Higher Education Act including Pell Grants, federal student loans, and work study dollars. Sometimes these programs are referred to as Title IV aid, referencing the section of the Higher Education Act in which they are located.
Financial Aid	All types of aid that a student might receive to help pay for school including grants, scholarships, loans, work study, tuition discounts, and fellowships. Aid can come from a variety of sources including higher education institutions, state governments, federal governments, or third party organizations.
Full-time Student	A student taking the minimum number of credits required by a school to meet a full course load. Usually 12 credits, but sometimes more.
Geothermal Energy	Energy derived from the earth's heat that is converted into thermal or electrical energy.
Greenhouse Gasses	Gasses that contribute to global warming by absorbing infrared radiation, such as carbon dioxide and methane.
Heat Island	Areas that have an average temperature 1.25°F higher than the surrounding city or town.
Higher Education Act	First enacted in 1965, Higher Education Act (HEA) is a federal law designed to increase access to and improve the quality of postsecondary education. The law provides funding for all federal financial aid programs including Pell grants, federal student loans, and work-study programs among others.

HVAC Systems	Heating, ventilation, and air conditioning commonly used to cool and heat residential and commercial buildings.
Indigenous Knowledge Systems	A holistic, observational, and systematic way of understanding the environment and its connection to culture and society. IKS has been taught in Indigenous communities since time immemorial, long before the American educational system was established.
Inflation Reduction Act (IRA)	A law signed in 2022 that makes historic investments in the American economy, energy security, and climate resilience. Includes both grants and tax credits that can be leveraged by the higher education sector.
The Infrastructure Investment and Jobs Act (IIJA)	The Infrastructure Investment and Jobs Act, also known as the Bipartisan Infrastructure Bill, is federal legislation that includes support for the education sector to advance climate solutions.
Informal Learning	Learning that takes place outside of structured classroom-based settings. Includes media consumption and community-based learning.
Idling	When a vehicle's engine is running while the vehicle is not in motion.
LEED Certification	Internationally recognized system for rating sustainable building design, construction, and operations. Each of the four certification tiers requires a minimum number of sustainability strategies.
Local Food Procurement	Sourcing food from local growers or producers to decrease emissions associated with transporting food. Also includes choosing sustainably produced food products.
Net-Zero Energy Emerging	Buildings that are undergoing planning, design or construction to reach net zero energy goals.
Net-Zero Energy Building	Produces enough renewable energy to meet its own annual energy consumption requirements, thereby reducing the use of non-renewable energy in the building sector.
Non-Degree Credential	A certification or training program that provides individuals with specific skills or knowledge in a particular field, but does not result in a two- or four-year degree. Non-degree credentials include industry certifications, vocational training, badges, micro-credentials, and other short-term programs.
Non-Traditional or Post-Traditional Student	A concept that seeks to overturn the stereotype that most college students attend full-time after graduating high school and live on campus. In fact, a third of students today are over age 25, 40% attend college part-time, nearly half are financially independent from their parents, and 2/3 work while in school.
Part-Time Student	A student taking fewer than the minimum number of credits required by the school for full-time study.
Project-Based Learning	A method of teaching that is driven by student inquiry, provides hands-on learning, and uses a project as the central tool for instruction.

Renewable Energy	Energy produced from resources that are easily replenished and do not have detrimental effects on the health of humans or the environment. Examples include solar, wind, and geothermal energy. Also referred to as clean energy.
Sectoral Strategy	A coordinated approach to economic development that focuses on a specific industry in a geographic region. Government, industry, and educational institutions often collaborate on workforce development programs that train workers for the target economic sector.
Shared Governance	A set of structures and processes such as faculty senates or administrative councils where faculty, professional staff, administration, governing boards and, sometimes, students influence and share responsibility for institutional decision-making.
Solar Energy	Energy derived from sunlight that is converted into thermal or electrical energy.
Solar Microgrids	System of renewable energy that is separate from the main power grid in a given area.
Sustainability	Meeting present needs without risking the health and environmental wellbeing of future generations.
Tribal Sovereignty	Tribal nationals govern themselves and their interactions with state or federal governments are considered nation-to-nation relationships.
Workforce Investment Opportunity Act	A federal law that provides funding for non-degree job training and education programs to help workers acquire in-demand skills that lead to higher wages. The law also governs a series of “one-stop” centers around the country where workers can receive help with the job search and application processes.



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2024 Higher Ed Climate Action Plan