



Mapping the Landscape of Climate Change in Higher Education Policy Across the United States

Full Report

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Mapping the Landscape of Climate Change in Higher Education Policy Across the United States

Higher Education has a “critical role to play in driving the scientific, political, technological, and cultural change needed to avoid the worst-case climate change scenarios” (Kelly et al., 2022, p. 5).¹

The need to respond to climate change is not a distant possibility; it is current reality. This is highlighted in the 2023 IPCC report, which indicates that the window of opportunity to ensure a habitable planet for the future is rapidly closing.

There is immense opportunity for the higher education system to be key in mobilizing greater societal action on climate change.^{2,3} These opportunities include not only net-zero or decarbonized energy systems on campuses, but also students gaining the skills, knowledge, and action dispositions to become the next generation of climate leaders. Institutions can also partner with communities, industry, and civil society organizations to develop climate change innovations. Research initiatives and funding supports are also key in higher education responses to climate change, as is inclusion in overall strategic planning and governance.

Benchmarking whether and how institutions are currently including climate change in their policies can help inform and motivate further inclusion.

To date, minimal research has been conducted on the extent and type of inclusion of climate change in higher education policy in the United States (U.S.). What research there is has tended to focus on whether higher education course curricula include a focus on climate change.^{4,5,6,7} Some research has also focused on how climate change is addressed in facilities and operations policies, such as an analysis of whether or not university climate action plans include a focus on mitigating greenhouse gas emissions from air travel⁷ or potential emissions reductions from better management of university food systems.⁸

By examining policy from a sample of higher education institutions across the United States, this study provides recommendations that higher education institutions can learn from to advance climate change education and action. Benchmarking whether and how institutions are currently including climate change in their policies can help inform and motivate further inclusion. Strong uptake of climate change in higher education policy supports climate education and action across institutional domains of overall governance, teaching and learning, facilities and operations, community partnerships, and research. It also helps ensure administrators, educators, students, and communities understand the important role of education in building future climate leaders, motivating climate action, and addressing climate-related mental and social health issues.*

*To learn more about how states are responding to the climate crisis within Kindergarten to grade 12 (K–12) education, please read the companion report *Mapping the Landscape of K–12 Climate Change Education Policy in the United States*.

About the Research

This higher education study reviewed 764 publicly available policies across all 50 U.S. states and the District of Columbia.[†] The policies were collected from a sample of 230 public higher education institutions and 36 state boards of higher education.

When selecting institutions to include in the sample, the following characteristics were considered, when possible, for each state:

1. Five public institutions per state
2. Accredited institutions only
3. A ratio of universities, colleges, technical institutes, and community colleges (2:1:1:1)[‡]
4. Range of urban/rural settings
5. Range of student body size

The sample was also proportionally representative** across all states for the following characteristics:

1. Research intensive institutions (i.e., R1 and R2 institutions)
2. Climate-affiliated institutions (i.e., Second Nature University Climate Change Coalition, Second Nature Climate Leadership Network, and We Are Still In^{††} institutions)
3. Sustainability-affiliated institutions (i.e., Association for the Advancement of Sustainability in Higher Education (AASHE), Sustainability Tracking, Assessment & Rating System (STARS) rated institutions, and Global Council for Science and the Environment (GCSE) institutions)
4. Minority-serving institutions (i.e., Historically Black Colleges and Universities, Tribal Colleges and Universities, etc.)

In the study, “policy” refers to official education policy texts, such as strategic plans, teaching and learning policies, operations policies, sustainability policies, emissions reduction policies, and community partnership policies. The study used a “whole institution approach” for data collection and analysis, which includes five domains of institutional activity: 1) overall governance, 2) teaching and learning, 3) facilities and operations, 4) community partnerships, and 5) research (Figure 1). A whole institution approach has been found to be effective for ensuring broader and deeper incorporation of climate change across higher education policy and practice, and is also recommended by international and intergovernmental bodies such as UNESCO and the International Association of Universities.^{9,10,11,12,13}



[†] Policies were collected from January 2022 to May 2022.

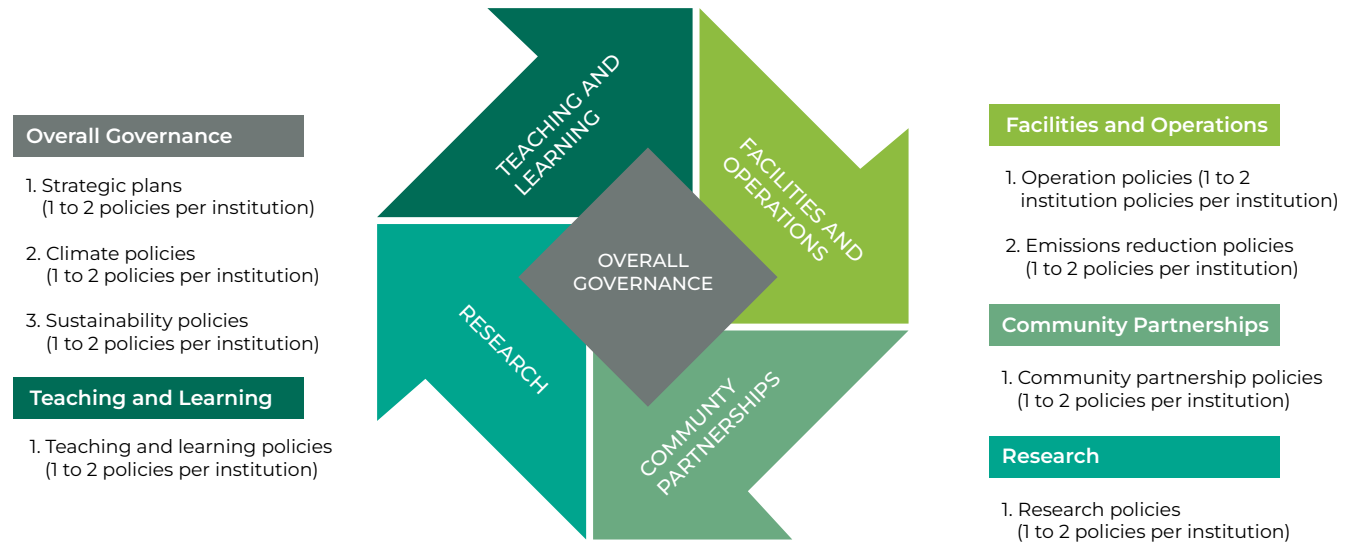
[‡] For the purposes of this study, institutions with both graduate and undergraduate programs were usually classified as universities. Institutions that mainly focused on undergraduate programs were labeled as colleges. Technical institutes offer certificates, diplomas, and technical degrees in occupational-related programs. Community colleges usually offer two-year degrees to meet general education requirements that can be transferred to four-year universities.

**That is, we determined the percentage of institutions in the United States that met each criterion (i.e., research-intensive institutions, climate-affiliated institutions, sustainability-affiliated institutions, and minority-serving institutions) and ensured that the sample included the same percentage of institutions.

^{††} We Are Still In is now called America Is All In. <https://www.americaisallin.com/>

Policies were found by searching institutional and state board of higher education websites and more generally on a web search engine, using specific climate change keywords (herein “content”). The extent and type of climate change inclusion in policies was examined using NVivo 12 qualitative research software.## The relative frequency of climate change keywords within the policies identified the extent of climate change inclusion, with a focus also on the type of content included. The keywords were divided into clusters that show the different ways that climate change is engaged in higher education (Appendix 1).

Figure 1. A whole institution approach to addressing climate change in education, and data collection across whole institution domains.



To consider varying policy lengths and numbers of policies per state, keyword frequencies were standardized by 1,000,000 words.



Summary of Findings

- ① A majority of institutions did not have climate change content in their policies.
- ② Policies published within the past ten years included more climate change content than those published more than ten years ago.
- ③ Climate change content was typically only included in relation to one domain of institutional activity, and was more commonly found in overall governance or facilities and operations policies.
- ④ “Emissions” and “climate change” were the most commonly used terms to discuss climate change. Discussions of energy were often related to carbon offsets; it was rare for institutions to mention climate change mitigation or adaptation in policies.
- ⑤ There was little mention of climate justice or Indigenous knowledge in addressing climate change.
- ⑥ Climate- and sustainability-affiliated institutions were more likely to have climate change content in their policies.
- ⑦ Urban, larger, and more research-intensive institutions were more likely to have climate change content in their policies.
- ⑧ Institutions were more likely to have climate change content in their policies if they were located in states that: are Democrat-led, have a state climate plan, or are affiliated with the United States Climate Alliance.
- ⑨ State board of higher education policies rarely included climate change.



Table 1. Key Findings on Climate Change in U.S. Higher Education Policies (sample of 230 higher education institutions across all 51 U.S. jurisdictions)

Topic	Policy Highlights
Climate change content	<ul style="list-style-type: none"> • 37% of institutions (85/230) had some climate change content in the institutional policies. • 63% of institutions (145/230) did not have any climate change content in the institutional policies.
Extent of climate change content	<ul style="list-style-type: none"> • 44% of institutions with climate change content (37/85) had a very low level of climate change content in their policies. • 33% (28/85) had a low level of climate change content in their policies. • 24% (20/85) had a moderate level of climate change content in their policies.
Whole institution coverage	<ul style="list-style-type: none"> • 54% of institutions with climate change content (46/85) included that content in policies of one whole institution domain type. • 40% (34/85) included climate change content in policies of two whole institution domain types. • 6% (5/85) included climate change content in policies of three whole institution domain types. • None (0/85) included climate change content in policies of four or five whole institution domain types.
State level coverage	<ul style="list-style-type: none"> • 2 states had board of higher education policies with climate change content.

Key Findings 1



A majority of institutions did not have climate change content in their policies.

Of the 230 institutions, only 37% (85) mentioned climate change at least once in their policies (Figure 2).

Where there was climate change content, it was included an average of 6 times per policy, with considerable variation across institutions. For instance, climate change content was mentioned an average of 2 times per policy across 6 policies from Madison Area Technical College, whereas climate change content was mentioned an average of 110 times per policy across 3 policies from Rutgers University.

To further determine the extent of climate change inclusion, institutions were categorized into groups based on how many times climate change content was included in their policies. A policy was categorized as having “no focus” if it had 0 climate change keywords out of a million words, “very low focus” if it had 1–300 keywords per million words, “low focus” if it had 301–1,000 keywords per million words, and “moderate focus” if it had over 1,000 keywords per million words.***

Of the 85 institutions with climate change content in their policies, 44% (37/85) had a very low level of inclusion, 33% (28/85) had a low level of inclusion, and 24% (20/85) had a moderate level of inclusion (Figure 3).

Figure 2. Percentage of institutions with climate change content in their policies.

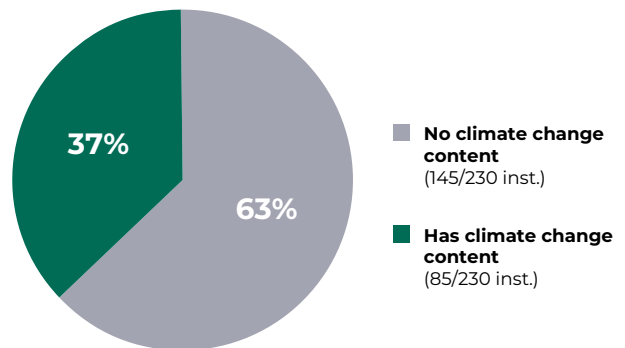
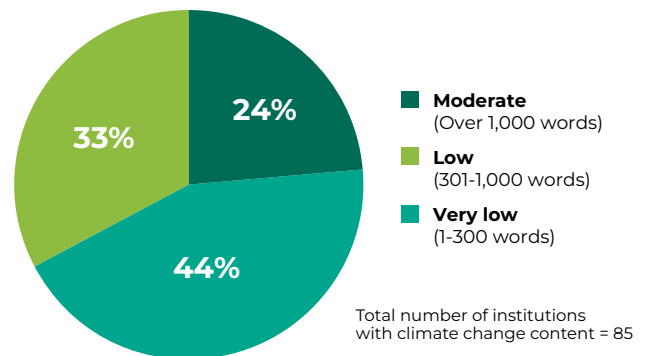


Figure 3. Percentage of institutions by extent of climate change content.



***This categorization follows that used in a UNESCO (2021) report which classified the level of focus on environmental themes in countries' national curriculum frameworks and education sector plans.

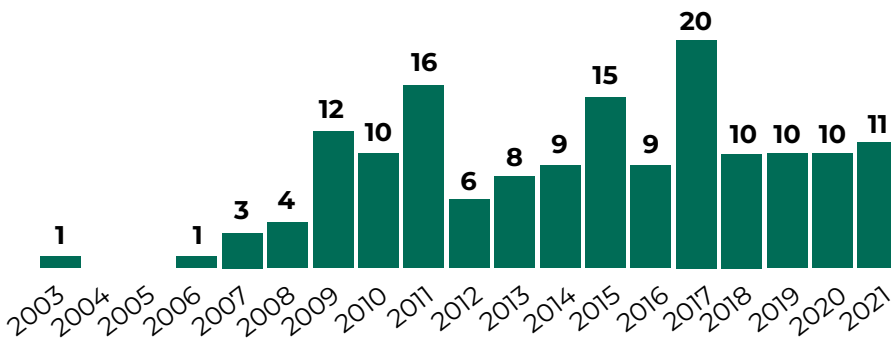
Key Findings 2

Policies published within the past ten years included more climate change content than those published more than ten years ago.

There was a general trend for institutions to include more climate change content if policies were published within the past ten years (Figure 4). The spike during and just following 2015 may be related to the signing of the Paris Agreement and the launching of the Sustainable Development Goals (SDGs) in 2015. For instance, Appalachian State University’s climate policy lists the SDG that links with their own goals for climate action.

Policies published in the last 5 years often referred to either the 2018 Intergovernmental Panel on Climate Change report^{†††,15} (e.g., Auburn University) or to their Second Nature Climate Leadership Commitment (e.g., Northern Kentucky University) as a reason to aim for carbon neutrality by 2050.

Figure 4. Number of institutional policies with climate change content by publication year.



“Create a **campus-wide climate education coordinator** [Short-term goal] **SDG: 4, [13]**”
 —Appalachian State University climate policy, 2021, p. 30¹⁴

“According to the **Intergovernmental Panel on Climate Change (IPCC)**, in order to achieve this ambitious international target of 1.5° Celsius in warming, we must limit atmospheric concentrations of CO₂ to around 430 parts per million. **Achieving these targets will require us to cut carbon pollution to zero by 2050.**”
 —Auburn University climate policy, 2019, p. 3, emphasis added¹⁷

^{†††}This report mentioned that limiting global temperature rise to 1.5 degrees Celsius would require reaching net-zero emissions by 2050.

Key Findings 3

Climate change content was typically only included in relation to one domain of institutional activity, and was more commonly found in overall governance or facilities and operations policies.

Whole Institution Domain Coverage
 Fifty-three percent of institutions (45/85) with climate change content in their policies only included that content in policy from one whole institution domain (Figure 5). Forty-one percent of institutions (35/85) included climate change content in policies from two domains. Only 6% of institutions (5/85) had climate change content in policies from three domains, and no institutions had climate change content in policy types from more than three domains.

Overall Governance Domain
 Ninety-eight percent of institutions (225/230) had an overall governance policy, such as an institutional strategic plan, and/or a climate or sustainability policy addressing multiple institutional domains.^{###} Of these, 27% had climate change content (60/225, Figure 6).

The majority of institutions (225/230) had strategic plans, but only 9% of these (20/225) included climate change content (Strategic plans are one type of governance policy). Where climate change was addressed, it was often regarding an overarching direction of becoming carbon neutral or reducing the campus' carbon footprint (e.g., Pittsburg State University). Some strategic plans also referred to support for climate change research or to climate action as a cost saving measure.

Figure 5. Percentage of institutions addressing climate change across institutional domains.

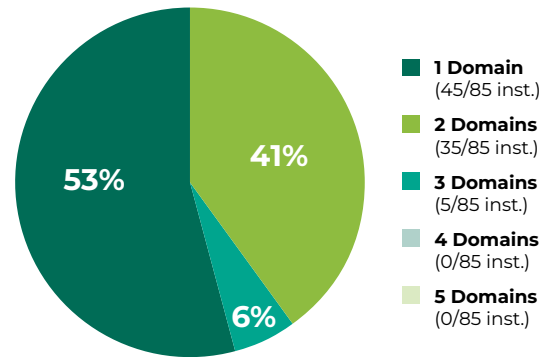
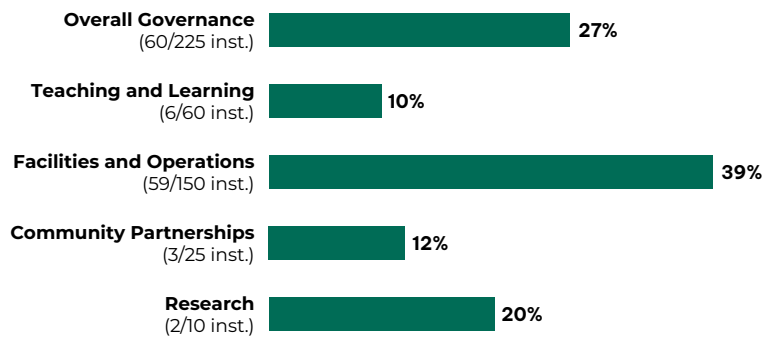


Figure 6. Percentage of institutions with climate change inclusion by institutional domain.



“SUSTAINABILITY: Recognize there are limited and finite resources in the world, and, therefore, commit ourselves to establishing best practices to conserve resources as well as decrease the university's carbon footprint.”

—Pittsburg State University strategic plan, 2016, p. 5, emphasis added¹⁸

^{###} Climate and sustainability policies were classified as overall governance because they addressed actions in more than one whole institution domain.

Teaching and Learning Domain

Only 26% of institutions (60/230) had teaching and learning policies, such as overarching guidelines for approaching teaching and learning at the institution (e.g., Academic Master Plan). Only 10% of these (6/60) included climate change content. Several institutions highlighted climate change as a topic that should be covered by multiple disciplines (e.g., University of Northern Iowa). There was no mention of how climate change should be taught or learned (e.g., cognitive, socio-emotional, or action-oriented capacities).

The [Center for Excellence in Teaching and Learning] will offer two half-day workshops for the cohort of faculty interested in this type of work. **Faculty will work together to identify the most impactful ways to bring the topic of climate change into their courses, especially courses outside of the natural sciences.**

—University of Northern Iowa Teaching and Learning policy, 2019, p. 10, emphasis added¹⁹

Facilities and Operations Domain

Sixty-five percent of institutions (150/230) had facilities and operations policies, such as overall operations policies or emissions reductions guidelines. Of these, 39% (59/150) had climate change content. Facilities and operations policies often detailed specific actions to reduce emissions and the institution's carbon footprint. The policies frequently advocated upgrading to newer, more energy-efficient infrastructure, including in relation to campus vehicles (e.g., electric cars) and public transportation systems (e.g., University of Vermont).²⁰

“The Active Transportation Plan provides UVM with a greenprint to move the campus environment to the next level. **By moving more people with fewer cars, the University will reduce its carbon footprint,** improve health and safety, support educational leadership, and integrate the values that define the unique experience that continues to attract faculty, students, staff, and visitors to the University of Vermont.”

—University of Vermont emissions reduction plan, 2017, p. 6, emphasis added

Community Partnerships Domain

Only 11% of all institutions (25/230) had community partnership policies, such as a policy promoting and guiding an institution's community outreach and engagement (e.g., Civic Action Plan). Only 12% of those (3/25) had climate change content. When climate change was discussed, it was usually in relation to how to educate the campus community about climate change or reduce the campus carbon footprint (e.g., Grand Valley State University).

“**Establish a body of knowledge** among faculty regarding **climate change and global warming.**”

—Grand Valley State University Community Partnership Plan, 2009, n.p.²¹

Research Domain

Only 4% of all institutions (10/230) had research policies, such as an overarching research strategy or a listing of strategic research priorities for the institution (e.g., Research Plan). Of these, only 20% (2/10) had climate change content. The two institutions that included climate change content in their research policies (i.e., Delaware State University and Central State University²²) discussed how research can contribute to climate change mitigation and adaptation efforts.

“In response, we expect to **build integrated teams of research and extension scientists** to work in close cooperation with farmers, natural resource managers, state and federal agencies, and not-for-profit organizations **to develop research-based strategies to mitigate the pending negative effects of climate change.**”

—Delaware State University research policy, 2016, p. 43, emphasis added²³

Key Findings 4



“Emissions” and “climate change” were the most commonly used terms to discuss climate change. Discussions of “energy” were often related to carbon offsets; it was rare for institutions to mention climate change mitigation or adaptation in policies.

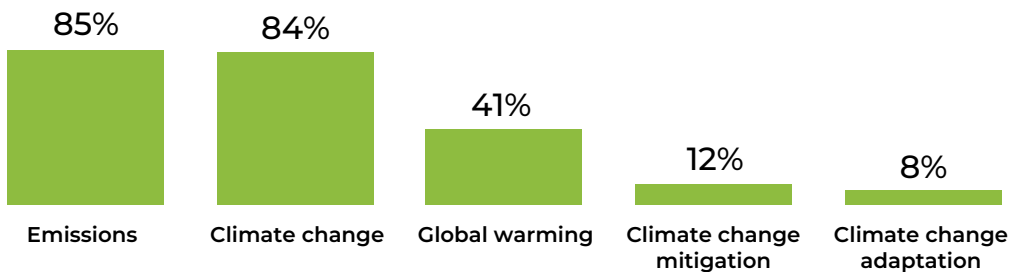
Emissions

Eighty-five percent of institutions (72/85) included content related to greenhouse gas emissions (Figure 7). This content usually focused on current greenhouse gas emissions, plans to conduct an emissions inventory, or strategies to reduce greenhouse gas emissions. At times, this content was also connected to teaching and learning initiatives (e.g., University of New Hampshire). Some policies discussed how student calls for action had influenced the decision to commit to emission reductions.

“A second approach [to better connect UNH operation to academics and broaden the sustainability learning community to address UNH specific challenges] has focused on **engaging students in net-zero emissions research through courses or summer fellowship research projects on net-zero emissions or buildings’ climate resilience.**”

—University of New Hampshire’s Climate Action Plan, 2021, p. 45²⁴

Figure 7. Percentage of institutions by climate change terminology used within the policies collected.



Climate Change and Global Warming

Eighty-four percent of institutions (71/85) mentioned “climate change” in their policies, and 41% (35/85) mentioned “global warming.” Policies that were published in the last five years usually used the term climate change as opposed to global warming.

Climate Change Mitigation and Adaptation

Only 12% of institutions (10/85) with climate change content in their policies mentioned climate change mitigation, and only 8% of institutions (7/85) discussed climate change adaptation (Figure 7). Most of the content related to climate adaptation came from climate policies from two institutions (i.e., Rutgers University,²⁵ University of New Hampshire²⁴), accounting for 77% of the content. While most of the content related to climate change adaptation and mitigation was mentioned in climate or general sustainability policies, one research policy from Delaware State University²³ outlined the tangible role research can play in assisting farmers to mitigate the effects of climate change. Some institutions also discussed their institutional responsibility to help the community mitigate climate change and its effects (e.g., University of Southern Maine).

“As a partly coastal university within a community vulnerable to climate change, USM has a special role to play in helping to mitigate climate change and its effects. USM is also uniquely situated to support Maine’s economic legacy through responsible forestry and local food production, two key sectors of sustainability research.”

—University of Southern Maine general sustainability policy, 2017, p. 7, emphasis added²⁶

Energy

Energy was another term searched to find relevant climate change content and tended to be commonly used. Forty percent of institutions (91/230) included energy content in their policies, though not only in relation to climate change. When the energy content was related to addressing climate change, discussions of moving towards renewable energy using carbon offsets or renewable energy credits were common.**** Several institutions also mentioned goals or plans for fossil fuel divestment (e.g., Rutgers University,²⁵ University of Delaware) or indicated they were considering sustainable investment (e.g., Cuyahoga Community College²⁷). At some institutions, switching to renewable energy was considered as being a last resort after other avenues for emissions reductions were exhausted. A transition from fossil fuels to methane gas was also discussed at one institution (i.e., Dakota County Technical College²⁸).

Fossil fuel divestment was listed as one of five goals: **“100% divestment from fossil fuels in the [University of Delaware] Endowment by 2030”**

—University of Delaware general sustainability policy, 2022, p. 18, emphasis added²⁹



****Renewable energy credits (sometimes called certificates) are market-based solutions that represent property rights to renewable energy generation. They are the renewable energy equivalent to carbon offsets, except instead of offsetting greenhouse gas emissions, renewable energy certificates offset electricity generation from non-renewable sources.

Some institutions also discussed how campus renewable energy generation could be incorporated into academic programming (e.g., Grand Valley State University³⁰ and University of Alaska Anchorage³¹). Finally, three universities (i.e., Rutgers University,²⁵ Evergreen State College,³² and University of Washington Tacoma³³) discussed energy in relation to a goal to become carbon negative (i.e., removing more greenhouse gases than those emitted). Rutgers University also placed a strong emphasis on community partnerships for achieving these goals for the campus and broader state communities.

“A key element of the task force’s charge is that **these strategies do not stop at Rutgers’ borders**. As the state university of New Jersey, **Rutgers has an opportunity and an obligation to help lead the State to a more just, sustainable, and resilient future**; in so doing, we can **build a model for community-engaged climate leadership** in higher education that can serve as a guide for other public universities around the country and the world. Thus, the theme of linking activities on campus to the broader goal of climate-positive, equitable economic development—the socially equitable transformation of New Jersey’s economy to one that is powered by clean, renewable energy, **produces net-negative carbon emissions**, and is resilient to climate and related impacts and shocks—should be fully integrated into Rutgers’ climate strategies.”

—Rutgers University climate policy, 2021, p. 11, emphasis added²⁵



Key Findings 5



There was little mention of climate justice or Indigenous knowledge in addressing climate change.

Climate Justice

Only 6% of institutions with climate change content (5/85) in their policies referred to climate justice issues, such as how communities of color are disproportionately affected by climate change. The institutions that discussed climate justice in their policies usually mentioned concrete actions they were taking or planned to take to advance climate justice in the institution and/or local community. For example, proposed actions for climate justice at Appalachian State University encompassed three of the five whole institution domains (i.e., teaching and learning, research, and community partnerships). Connections were also made to how a whole institution approach can enhance student learning. Middlesex Community College's climate policy³⁴ discussed a prior conference on climate justice solutions. The College of New Jersey discussed plans to create an environmental justice database with students, faculty, and community partners, to document local knowledge about environmental and climate justice issues, as well as action strategies.³⁵

“Building on the university’s long-standing tradition of sustainability education and its more recent focus on **climate education and climate justice**, App State has the opportunity to support these efforts through **curriculum, research, and faculty engagement**. This **enhances student learning** by providing them with opportunities to participate in **hands-on applied research, co-curricular activities, and community engagement experiences that support climate education, climate action, and climate justice**.”

—Appalachian State University climate policy, 2021, p. 30, emphasis added¹⁴

Indigenous knowledge

Only 6% of institutions with climate change content (5/85) mentioned Indigenous knowledge in addressing climate change. No Tribal institutions (0/7) had climate change content in their policies. When Indigenous knowledge was included, it was usually in relation to helping address climate change (e.g., Montana State University), or understanding how Indigenous peoples are often disproportionately affected by climate change (e.g., Rutgers University²⁵). No policies specifically discussed climate change education that fosters relationships with the land in forms of Indigenous cultural and land-based education.^{††††}



“[Montana State University]-Bozeman lies within the traditional bioregion, or ecoregion, of a number of Native American Nations. These nations have developed a sophisticated yet seldom externally accessed body of knowledge regarding methods of living sustainably in this environment. While **this plan currently deals primarily with “technical” solutions, indigenous people have long stated that there are not only technical and practical but also “conceptual” solutions to climate change embedded in indigenous science, traditional knowledge and world view.** The incorporation of these conceptual tools includes, but is not limited to: seven generation planning; indigenous architectural and landscape ecology models; indigenous conceptions of the nature of human/environment interfaces and interactions; traditional ecological knowledge, and indigenous science.”

—Montana State University climate policy, 2011, p. 28-29, emphasis added³⁶

^{††††} Land-based education has been described by Alex Wilson, Opaskwayak Cree Nation, as being “relational and focus[ing] on understanding how knowledge connects to and comes from land, including water, sky, and everything connected to them (CCUNESCO, 2021).” Wilson also described land-based education at one end of a spectrum with outdoor education on the far end, which involves doing activities outside (CCUNESCO, 2021). Place-based education is further along on the spectrum but “is still mostly about location, not necessarily about the spiritual and cultural knowledge that has been part of [the location] or created through it” which is included in Indigenous land-based education (CCUNESCO, 2021).

Key Findings 6

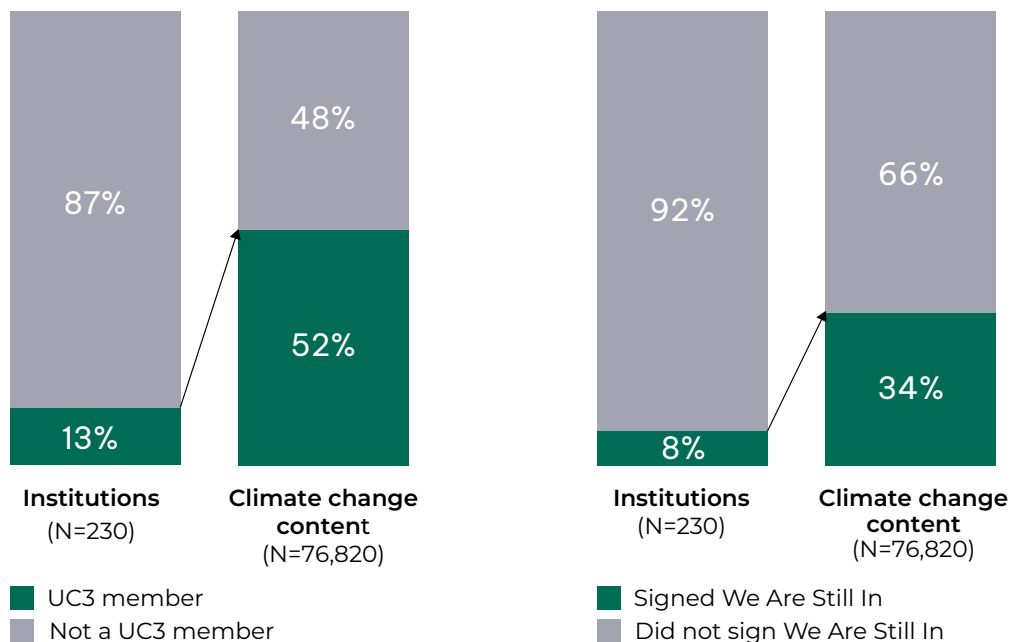
Climate- and sustainability-affiliated institutions were more likely to have climate change content in their policies.

Climate-Affiliated Institutions

Institutions participating in Second Nature’s University Climate Change Coalition (UC3)^{###} or Second Nature’s Climate Leadership Network,^{####} or that had signed the “We Are Still In” declaration in support of climate action,^{####} were considered climate-affiliated institutions.

Second Nature Climate Leadership institutions made up only 13% of all institutions (29/230), but their policies included 52% of the total climate change content (Figure 8). Similarly, We Are Still In institutions made up 8% of all institutions (18/230), but their policies accounted for 34% of the climate change content.

Figure 8. Climate affiliated institution status (UC3 membership and signed We Are Still In) compared to climate change content in policies.



^{###}The University Climate Change Coalition connects 23 research universities committed to climate action. The coalition provides opportunities to share knowledge of best practices for climate change adaptation, mitigation, and resilience, to collaborate on climate solutions, and to influence national and international climate policy (see <https://secondnature.org/initiative/uc3-coalition/>).

^{####}Higher education institutions join the Climate Leadership Network signatory program when their president/chancellor signs one of the President’s Climate Leadership Commitments developed by Second Nature (see <https://secondnature.org/climate-action-guidance/network/>).

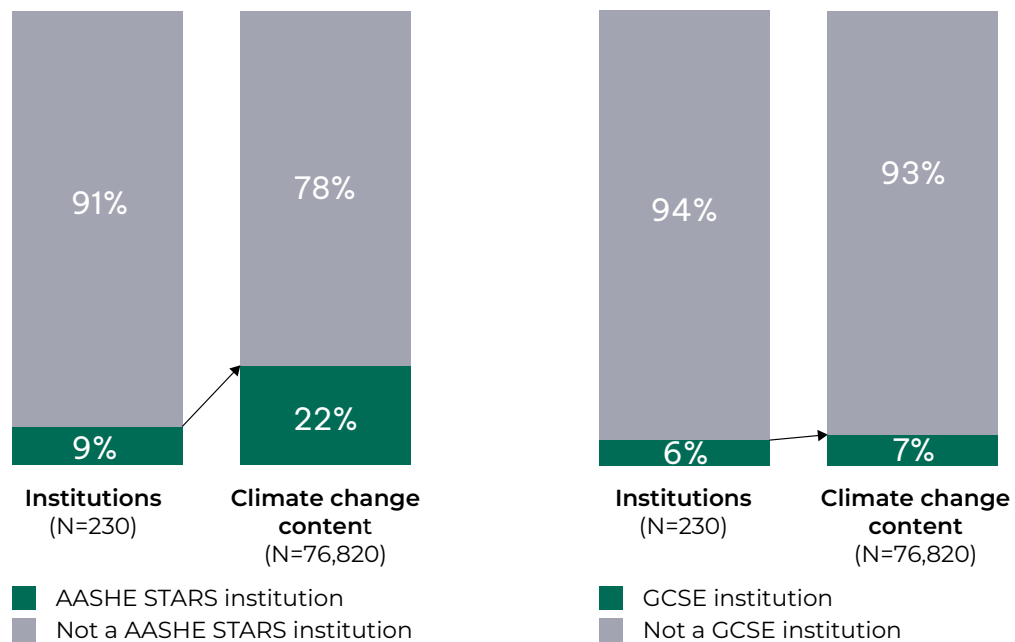
^{####}We Are Still In is a climate change declaration that began when the United States withdrew from the Paris Agreement. Signatories include states, tribes, businesses and investors, cities and counties, colleges and universities, cultural organizations, health care organizations, and faith groups. See signatories here. It is now called America Is All In (<https://www.americaisallin.com/whos-in/>).

Sustainability-Affiliated Institutions

Institutions participating in the Association for the Advancement of Sustainability in Higher Education (AASHE) Sustainability Tracking, Assessment & Rating System (STARS)#### and member institutions of the Global Council for Science and the Environment (GCSE)***** were considered sustainability-affiliated institutions.

AASHE STARS institutions accounted for only 9% of institutions (20/230), but their policies included 22% of the climate change content (Figure 9). GCSE institutions accounted for 6% of all institutions (14/230), and their policies included 7% of all climate change content.

Figure 9. Sustainability-affiliated institution status (AASHE STARS and GCSE) compared to climate change content in policies.



AASHE's STARS is a self-reporting platform for higher education institutions to measure their sustainability performance (see <https://stars.aashe.org/>).

*****GCSE members collaborate on scholarship to "prepare the next generation of environmental leaders for the workforce of the future" (see <https://www.gcseglobal.org/>).

Key Findings 7

Urban, larger, and more research-intensive institutions were more likely to have climate change content in their policies.

Institution Location

Institutions located in cities⁺⁺⁺⁺ or suburban areas were the most likely to have climate change content in their policies. Forty-six percent of institutions located in cities (40/87) and 42% of institutions located in suburban areas (19/45) included climate change content in their policies (Figure 10). Only 11% of institutions located in rural areas (4/35) had policies with climate change content.

Institution Size

The extent of climate change content in institutions' policies increased with institution size until the size reached over 20,000 students at which point, the extent of climate change content decreased slightly (Figure 11).

Institutional Type

Four higher education institution types were included in the study: universities, colleges, community colleges, and technical institutes (i.e., institutions that focus on occupational programs). Universities were the most likely institution type to include climate change content, with 55% of universities (57/104) including climate change content in their policies (Figure 12).

Figure 10. Percentage of institutions with climate change content by setting location.

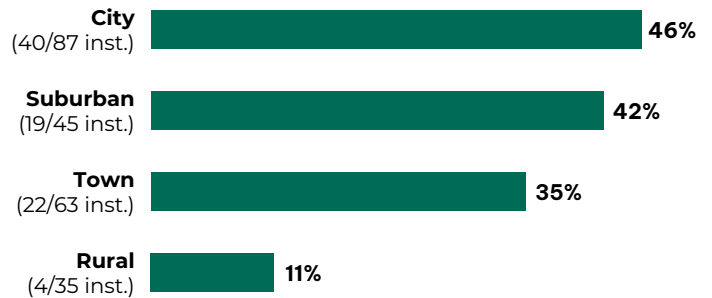


Figure 11. Percentage of institutions with climate change content by setting size.

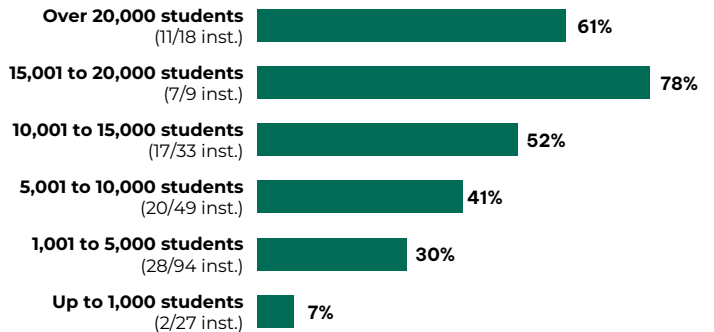
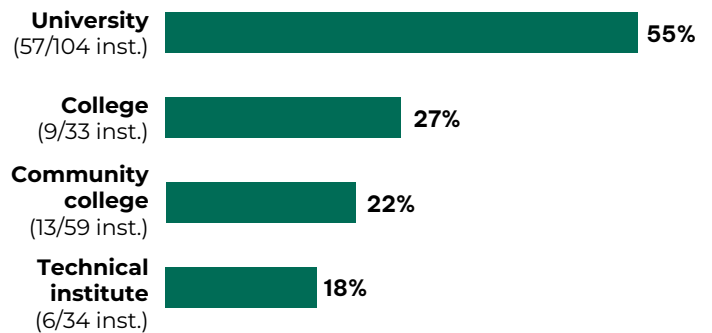


Figure 12. Percentage of institutions with climate change content by institutional type.

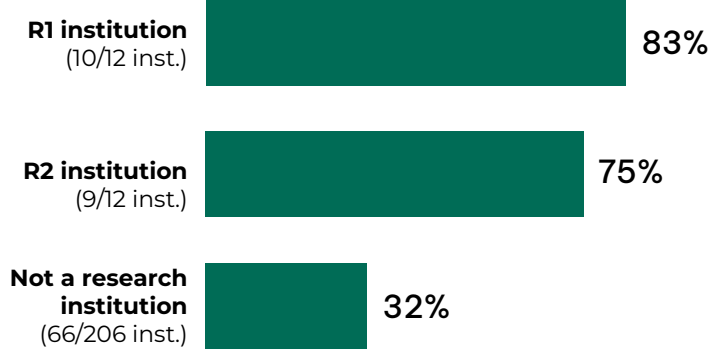


⁺⁺⁺⁺ The National Center for Education Statistics definitions for city, suburban, town, and rural were used (see <https://nces.ed.gov/surveys/annualreports/topical-studies/locale/definitions>).

Research Institutions

The two main types of research-intensive institutions in the United States are R1 institutions, which are considered to have “very high research activity,” and R2 universities, which have “high research activity.” Research intensive institutions were most likely to include climate change content, with 83% of R1 institutions (10/12) including climate change content in their policies (Figure 13). Similarly, 75% of R2 institutions (9/12) included climate change content in their policies, in contrast to 32% of non-research intensive institutions (66/206).

Figure 13. Percentage of institutions with climate change content by research-intensive classification.



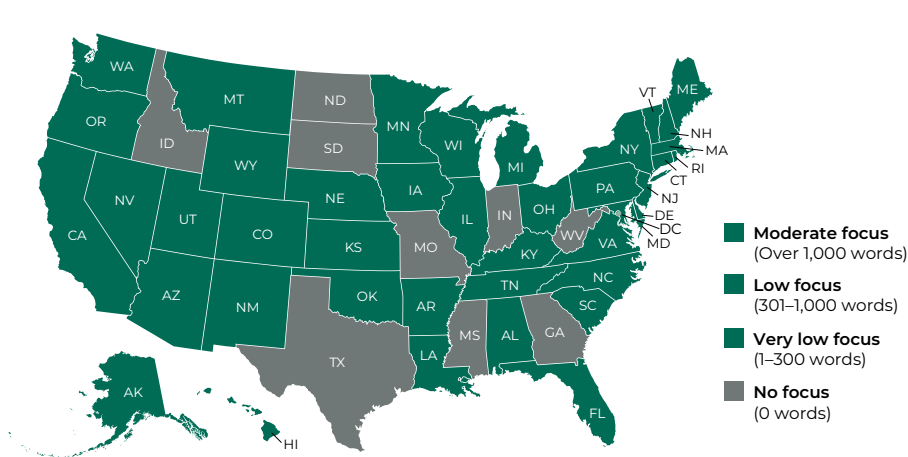
Key Findings 8



Institutions were more likely to have climate change content in their policies if they were located in states that: are Democrat-led, have a state climate plan, or are affiliated with the United States Climate Alliance.

Eighty-two percent of jurisdictions (42/51) had at least one institution whose policies included climate change content (Figure 14).

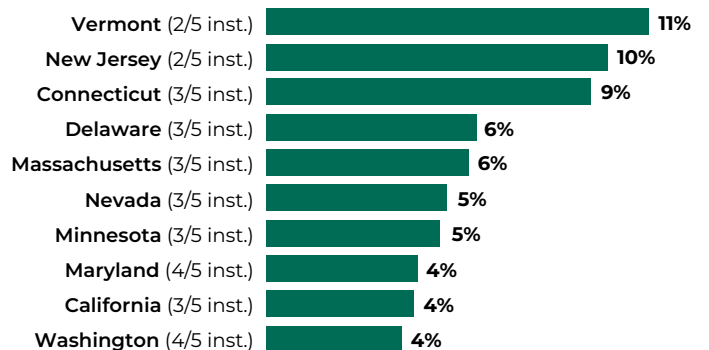
Figure 14. Jurisdictions by extent of focus on climate change.



Political Leadership

State political leadership (i.e., Democrat or Republican) was determined by the political affiliation of the state governor (as of February 2021). The majority of the top ten states with climate change content in institutional policies were states that are Democrat-led, with three exceptions (i.e., Maryland, Massachusetts, and Vermont, Figure 15). Institutions in Vermont and New Jersey had the most climate change content.

Figure 15. States whose institutions had the most climate change content in their policies.



In total, 51% of institutions (53/104) in Democrat-led states included climate change content in their policies (Figure 16). In comparison, 25% of institutions (32/126) in Republican-led states included climate change content in their policies.

Seventy percent of the top ten institutions (7/10) with climate change content were located in Democrat-led states (Figure 17). Only Castleton University, Massachusetts College of Liberal Arts, and St. Mary’s College of Maryland were in the top ten for extent of content and also located in Republican-led states.

State Climate Plans

Forty percent of institutions (79/197) in states with a climate plan included climate change content in their institutional policies (Figure 16). In contrast, 18% of institutions (6/33) in states without a climate plan included climate change content in their institutional policies.

Figure 16. Percentage of institutions with climate change content by state characteristics.

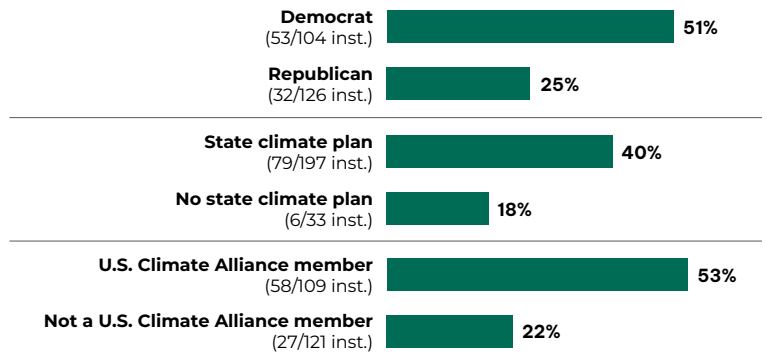
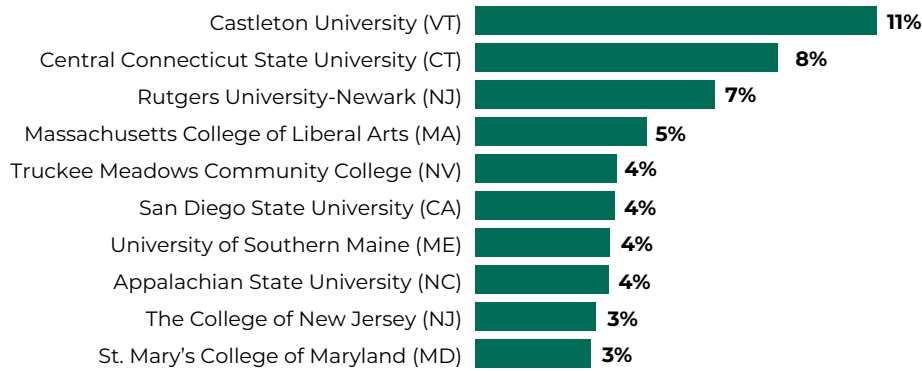


Figure 17. Top ten institutions with climate change content.



United States Climate Alliance

Fifty-three percent of institutions (58/109) in states that are United States Climate Alliance members included climate change content in their institutional policies (Figure 16). In comparison, 22% of institutions (27/121) in states that are not United States Climate Alliance members included climate change content in their institutional policies.

Key Findings 9



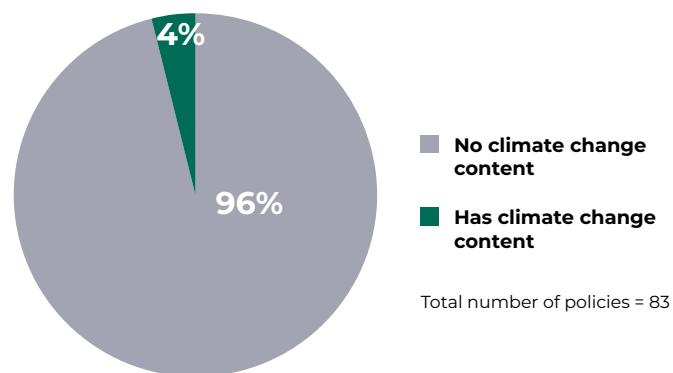
State board of higher education policies rarely mentioned climate change.

Of 36 state boards of higher education with policies, only 6% had any climate change content (2/36, i.e., Idaho and New Mexico).

In total, 83 state-level policies were collected, only 4% (3) of those policies had climate change content (Figure 18).

Content in these policies included how institutions are engaging in research on climate change (i.e., Idaho), programs that include a focus on climate change (i.e., Idaho), and commitments to reducing campus carbon footprints to meet the Paris Agreement (e.g., New Mexico).

Figure 18. Percentage of state-level higher education policies with any climate change content.



“Idaho’s universities have expertise in water resources, wildfire management and restoration, agriculture, forestry, recreation, and geophysics and geochemical detection, geographical information systems, and monitoring of groundwater pollutants. For example, **university geologists, ecologists, and policy experts are collaborating on broad-ranging research projects that examine and predict the impact of climate change on Idaho’s water resources.**”

—Idaho Board of Higher Education research policy, 2017, n.p.³⁹



Summary and Recommendations

In summary, few institutions had publicly available policies with climate change content. When there was content, it was most commonly in overall governance or facilities and operations policies. No institutions included climate change content in policies across more than three institutional domains. While most institutions had strategic plans, they rarely had climate change content.

In terms of the type of content included, climate change mitigation and adaptation, climate justice, and Indigenous knowledge were rarely discussed. Discussions of reducing greenhouse gas emissions often focused on purchasing carbon offsets or renewable energy credits. There was also some discussion of plans for fossil fuel divestment and/or sustainable investment. Only two institutions mentioned a goal to go beyond carbon neutrality to become carbon negative.

Institutions that were climate- or sustainability-affiliated were more likely to have climate change content within their policies. Minority-serving institutions were slightly more likely to include climate change content in their policies, and no policies from Tribal institutions had climate change content. Institutional demographics related to location, size, type, and research intensity correlated with the extent of climate change content in their policies.

Institutions located in Democrat-led states, states that have overarching climate policies, and states that participate in the United States Climate Alliance were more likely to have climate change content. While some state boards of higher education had publicly available policies, very few addressed climate change.



Recommendations 1

Address climate change across all higher education policy types.

Higher education institutions can include climate change in policies across all whole institution domains. This helps ensure campuses, students, and communities are prepared to help reduce climate change impacts and adapt to an already changing climate. Raising the issue of climate change without an action plan is more likely to result in anxiety and denial responses for students and other members of a campus community.⁴⁰ Students are also increasingly asking that their education institutions address climate change.⁴¹ Higher education institutions can both respond to this call and take additional leadership in addressing this urgent and pressing global challenge.

All subject areas and academic programs can address the complex and interdisciplinary challenge of climate change. Pedagogies can support learning not only about the science of climate change, but also working with peers and communities towards climate solutions, which has been found to help address student climate anxiety and feelings of hopelessness.

The role of higher education institutions in promoting cutting edge research on climate change cannot be understated.⁴² Higher education institutions can include climate change as a strategic research area faculty are encouraged to investigate, and provide research incentives (e.g., grants, centers, chair positions) and recognition (e.g., awards).⁴³ Infrastructure can also be developed to support cross-campus climate change research (e.g., publishing lists of faculty researching climate change), including in relation to collaborative community-engaged research on local climate change solutions.³³

Tremendous potential exists for institutions to partner with local communities, organizations, and industry for climate change education and action. Institutions can partner with industries to ensure climate change education promotes a “just transition” that responds to local concerns.²⁵ Higher education institutions can also partner with municipalities to develop a campus or community microgrid to support local climate resilience,²³ as well as participate in local and state mitigation planning activities (e.g., serving on steering committees, providing data/technical assistance).²⁴ Universities can also partner with Indigenous people to understand local climate change effects on the land and community, and to identify and assist with climate change adaptation and mitigation efforts.

Including climate change in institution’s overarching strategic plans is an easy step to signal commitment to climate learning, engagement, and action. To further illustrate commitment to climate change, institutions can also employ dedicated staff and form targeted working groups focused on furthering climate action on campus and in the surrounding community (e.g., sustainable building task force, energy efficiency task force, collaborate with municipality).

Higher education institutions, as mini-cities, have the opportunity to model how to scale up climate change responses. Institutions are increasingly going beyond the goal of carbon neutrality to become carbon negative, where the operations of the institution are removing carbon from the atmosphere. Institutions can also support climate mitigation through measures that support overall sustainability, such as by partnering with community organizations to increase biodiversity (e.g., building bee habitats on campus grounds).



Recommendations ②

Move beyond heavy reliance on carbon offsets and renewable energy credits.

Within the context of a whole institution approach to climate change education, all actions taken by the institution educate students through the culture created. Purchasing carbon or renewable energy credits may offset emissions in the short term as institutions transition to renewable energy, however, they can also lead to institutions overstating their emission reductions.⁴⁵ Carbon offsets should not be used as a replacement for installing or contracting out renewable energy generation. Carbon offsets can allow institutions to claim they are carbon neutral because they are paying for emissions reductions generated in another location even though the institution may not have made any changes to their energy practices (e.g., building a solar farm). Renewable energy offsets can also enable institutions to increase their overall emissions because as their emissions go up, they can buy more carbon offsets to retain their status as carbon neutral. Additionally, there is debate about the degree to which carbon offsets represent genuine carbon reductions,⁴⁶ or whether they mean that institutions will decrease their fossil fuel use and decarbonize.^{47,48,49} Purchasing carbon offsets can leave actual emissions unchanged (or may increase emissions) and does not address local air pollution. The reliance on carbon offsets is a missed opportunity for institutions to be climate leaders while also educating students about effective and just climate change mitigation efforts through their action.

Recommendations ③

Include climate justice and Indigenous knowledge in addressing climate change across policy types.

Higher education institutions can signal commitment to climate justice by highlighting the disproportionate effects of climate change on communities of color, emphasizing the importance of including these communities in climate solution discussions, and celebrating the leadership many communities have already shown. Higher education institutions can also include specific suggestions for addressing climate justice in policies (e.g., database of climate justice solutions). Inclusion of Indigenous knowledge and priorities in education policy can include: 1) validating and respecting place-based Indigenous knowledge, 2) recognizing and valuing Indigenous understandings of what constitutes “quality” education, 3) understanding and addressing the impacts of natural resource extraction on Indigenous peoples, and 4) recognizing that Indigenous land-based education is sustainability and climate change education.



Recommendations 4

Increase policy supports, including funding, professional development, and staffing to help advance policy enactment.

Making the change to include a stronger focus on climate change in higher education can seem like a daunting task for a campus community. Support is needed to ensure that the climate change content within policies translates into education and action in practice. For instance, higher education institutions can create staff positions to support climate change education (e.g., campus-wide climate education coordinator¹⁴); support the development of a network of faculty who can promote climate change and sustainability-related pedagogy across campus;⁵⁰ provide climate change education professional development for faculty; host an interdisciplinary summit on climate change solutions with members of the campus and local community;¹⁴ include climate change education as part of general education requirements, and develop climate change related degree and certificate programs for students and staff. These initiatives require funding support from the institution, which also signals climate change as an overall governance priority.



Limitations

Limitations of this study include that institutional or state policies may address climate change without using the exact keywords searched. In addition, inclusion of climate change content does not necessarily mean changes in practice. The policies analyzed were institution-wide policies, so the findings do not reflect any additional policy or curriculum in individual departments or classes. Recent or pending changes in policies since May 2022 are also not reflected in these findings. During a rapidly changing education policy landscape, we recommend this analysis be repeated every five years.



Conclusions

The aim of this work is to understand the current landscape of climate change in higher education policy across the United States to support higher education institutions to do all they can to support climate action. Higher education has a crucial role to play in creating a more just and sustainable future. The results of this study demonstrate several opportunities for higher education institutions in the United States and beyond to help lead efforts to address climate change and climate justice in all areas of overall governance, teaching and learning, facilities and operations, community partnerships, and research.

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Appendix 1: Keyword Clusters####

Climate Change-Overall

- climate change
- climate hazard
- climate impact
- climate vulnerable
- climate action
- climate resilience
- carbon footprint
- global warming
- GHG emission
- greenhouse gas emission
- CO₂ emission
- carbon dioxide emission
- low emission
- net-zero emission
- carbon neutral
- climate mitigation
- climate adaptation
- just transition
- climate justice

Energy

- fossil fuel
- renewable energy
- renewable resource
- alternative energy

All keywords searched for in the K-12 report were included in this analysis of climate change inclusion in higher education policy; however, some keywords listed in the K-12 report did not contribute to the findings listed in this report, so those keywords are not included here.

References

- ¹ Kelly, O., Illingworth, S., Butera, F., Steinberger, J., Blaise, M., Dawson, V., Huynen, M., Martens, P., Bailey, S., Savage, G., White, P., Schuitema, G., & Cowman, S. (2022). *Tertiary Education in a Warming World, Reflections from the Field*. Dublin: University College Dublin Press.
- ² Stevenson, K. & Peterson, N. (2016). Motivating action through fostering climate change hope and concern and avoiding despair among adolescents. *Sustainability*, 8, 6.
- ³ American College & University Presidents' Climate Commitment. (n.d.). *Higher education's role in adapting to a changing climate*. Second Nature.
- ⁴ Leichenko, R. & O'Brien, K. (2020). Teaching climate change in the Anthropocene: An integrative approach, *Anthropocene*, 30, 100241.
- ⁵ Hess, D., J. & Maki, A. (2019). Climate change belief, sustainability education, and political values: Assessing the need for higher-education curriculum reform. *Journal of Cleaner Production*, 228, 1157-1166.
- ⁶ Filho, W.L., Sima, M., Sharifi, A., Luetz, J.M., Salvia, A.L., Mifsud, M., Olooto, F.M., Djekic, I., Anholm, R., Rampasso, I., Donkor, F.K., Dinis, M.A.P., Klavins, M., Finnveden, G., Chari, M.M., Molthan-Hill, P.M., Mifsud, A., Sen, S.K., Lokupitiya, E. (2021). Handling climate change education at universities: An overview. *Environmental Sciences Europe*, 33 (109).
- ⁷ Schmidt, A. (2022). University air travel and greenhouse gas mitigation: an analysis of higher education climate policies. *International Journal of Sustainability in Higher Education*, 23(6),1426-1442.
- ⁸ Cleveland, D.A. & Jay, J.A. (2021). Integrating climate and food policies in higher education: a case study of the University of California. *Climate Policy*, 21 (1), 16-32.
- ⁹ Hargis, K., McKenzie, M., & Chopin, N. (2023). The state of environmental and sustainability education in Canada: A review of past, current, and future directions. In M. Rieckmann & R. Thomas (Eds.), *World review: Environmental and sustainability education in the context of the Sustainable Development Goals*. Science Publishers.
- ¹⁰ UNESCO. (2021). Berlin declaration on education for sustainable development, Berlin.
- ¹¹ Henderson, J., Bieler, A., & McKenzie, M. (2017). Climate change and the Canadian higher education system: An institutional policy analysis. *Canadian Journal of Higher Education*, 47 (1), 1-26.
- ¹² Holst, J. (2023). Towards coherence on sustainability in education: A systematic review of whole institution approaches. *Sustainability Science*, 18, 1015-1030.
- ¹³ Toman, I., van't Land, H., & Harris, M. (2023). 3rd *IAU global survey report on higher education and research for sustainable development: Accelerating action for the SDGs in higher education*. International Association of Universities.
- ¹⁴ Appalachian State University (2021). *Climate action plan*. Retrieved from <https://sustain.appstate.edu/initiatives/climate-action/>
- ¹⁵ IPCC, 2018: Global warming of 1.5°C. An IPCC Special Report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty [V. Masson-Delmotte, P. Zhai, H. O. Pörtner, D. Roberts, J. Skea, P.R. Shukla, A. Pirani, W. Moufouma-Okia, C. Péan, R. Pidcock, S. Connors, J. B. R. Matthews, Y. Chen, X. Zhou, M. I. Gomis, E. Lonnoy, T. Maycock, M. Tignor, T. Waterfield (eds.)].
- ¹⁶ Northern Kentucky University (2017). *Northern Kentucky University sustainability strategy*. Retrieved from <https://inside.nku.edu/sustainability/nku-climate-commitment.html>
- ¹⁷ Auburn University. (2019). *Climate action plan* v.1.1. Retrieved from http://sustain.auburn.edu/wp-content/uploads/2020/07/AU_CAP_v1.1.pdf
- ¹⁸ Pittsburg State University. (2016). *Pathway to prominence strategic plan 2016-2022*. Retrieved from <https://pathwaytoprominence.pittstate.edu/>
- ¹⁹ University of Northern Iowa. (2019). *Academic master plan draft update December 2019*. Retrieved from <https://provost.uni.edu/academic-master-plan>
- ²⁰ University of Vermont. (2017). *University of Vermont active transportation plan*. https://www.uvm.edu/sites/default/files/media/UVMoves_Active_Transportation_Plan_FINAL.pdf
- ²¹ Grand Valley State University. (2009). *Sustainable community development initiative plan*.
- ²² Central State University (2017). *2017 Central State University combined research and extension plan*. Retrieved from <https://portal.nifa.usda.gov/web/areera/plans/2017-2021/2017-Central-State-University-Combined-Research-and-Extension-Plan-of-Work.pdf>
- ²³ Delaware State University (2016). *2017 University of Delaware and Delaware State University combined research and extension plan of work*. Retrieved from <https://portal.nifa.usda.gov/web/areera/plans/2017-2021/2017-University-of-Delaware-and-Delaware-State-University-Combined-Research-and-Extension-Plan-of-Work.pdf>

- ²⁴ University of New Hampshire (2021). *WildCAP 2021 The University of New Hampshire's climate action plan*. Retrieved from <https://www.unh.edu/sustainability/operations/air-climate>
- ²⁵ Rutgers university (2021). *Climate action plan*. Retrieved from <https://climatetaskforce.rutgers.edu>
- ²⁶ University of Southern Maine (2017). *Campus sustainability strategic plan*. Retrieved from <https://usm.maine.edu/sustainability/sustainability-plan>
- ²⁷ Cuyahoga Community College (2014). *Sustainability implementation plan*. Retrieved from <https://www.tri-c.edu/about/sustainability/index.html>
- ²⁸ Dakota County Technical College. (2020). *Sustainability plan*. <https://silo.tips/download/dakota-county-technical-college-sustainability-plan>
- ²⁹ University of Delaware (2022). *The University of Delaware sustainability plan*. Retrieved from <https://sites.udel.edu/sustainability/the-sustainability-plan/>
- ³⁰ Grand Valley State University (n.d.). *Strategic plan for campus sustainability*. Retrieved from <https://www.gvsu.edu/strategicplan-view.htm?entityId=8D1A401D-FDC2-01FC-3EBAID77DCBFD053&entityType=division>
- ³¹ University of Alaska Anchorage (2010). *Draft- Carbon emissions reduction and monitoring plan – Anchorage campus*. Retrieved from https://www.uaa.alaska.edu/about/administrative-services/departments/facilities-campus-services/sustainability/_documents/CERM_Jan10finalpw.pdf
- ³² Evergreen State College. (2009). *Carbon neutrality by 2020: Climate action plan*. <https://www.evergreen.edu/sites/default/files/sustainability/docs/CAP%20Final%20082809.pdf>
- ³³ University of Washington Tacoma. (2008). *Campus master plan update*. <https://www.tacoma.uw.edu/fa/facilities/campus-planning-and-development>
- ³⁴ Middlesex Community College (2015). *Middlesex Community College climate action plan*. Retrieved from <https://mxcc.edu/sustainability/>
- ³⁵ College of New Jersey. (2020). *Greener going forward: The College of New Jersey sustainability plan*. <https://governance.ccnj.edu/wp-content/uploads/sites/147/2020/08/GreenerGoingForward.pdf>
- ³⁶ Montana State University (2011). *Climate action plan*. Retrieved from <https://www.montana.edu/csac/documents/ClimateActionPlan2011.pdf>
- ³⁷ American Council on Education (2022). *Basic classification description*. <https://bit.ly/3KwqjtG>
- ³⁸ National Conference of State Legislators. (2021). *2021 state & legislative partisan composition*. https://www.ncsl.org/documents/elections/Legis_Control_2-2021.pdf
- ³⁹ Idaho Board of Higher Education (2017). *Higher education research strategic plan*. Retrieved from <https://boardofed.idaho.gov/board-facts/board-planning/higher-education-research-strategic-plan/>
- ⁴⁰ Clayton, S., Manning, C.M., Krygsman, K., & Speiser, M. (2017). Mental health and our changing climate: Impacts, implications, and guidance. Washington, D.C.: American Psychological Association and ecoAmerica.
- ⁴¹ UNESCO. (2022). *Youth demands for quality climate change education*. <https://unesdoc.unesco.org/ark:/48223/pf0000383615>
- ⁴² McCowan, T. (2020). The impact of universities on climate change: A theoretical framework. Centre for Global Higher Education working paper series.
- ⁴³ The University of Tennessee-Chattanooga (2011). *2011 climate action plan*. Retrieved from <https://www.utc.edu/finance-and-administration/facilities-planning-and-management/sustainability/commitments/climate-action-plan>.
- ⁴⁴ Middlesex Community College (2014). Educational master plan and facilities master plan. Retrieved from <https://portal.ct.gov/-/media/CEQ/MXCCComplete20142023MasterPlanpdf.pdf>
- ⁴⁵ Roston, E. & Elgin, B. (2022, June 9). Companies' Climate Goals in Jeopardy from Flawed Energy Credits. *Bloomberg*. <https://www.bloomberg.com/news/articles/2022-06-09/flawed-renewable-energy-credits-are-derailing-climate-efforts>
- ⁴⁶ Greenfield, P. (2023, January 18). Revealed: More than 90% of rainforest carbon offsets by biggest certifier are worthless, analysis shows. <https://www.theguardian.com/environment/2023/jan/18/revealed-forest-carbon-offsets-biggest-provider-worthless-verra-aoe>
- ⁴⁷ Barron, A. R., Domeshek, M., Metz, L. E., Draucker, L.C., & Strong, A.L. (2021). Carbon neutrality should not be the end goal: Lessons for institutional climate action from U.S. higher education. *One Earth*, 4, 1248-1258.
- ⁴⁸ Bjørn, A., Lloyd, S.M., Brander, M., & Matthews, H.D. (2022). Renewable energy certificates threaten the integrity of corporate science-based targets. *Nature Climate Change*, 12, 539-546.
- ⁴⁹ Haya B., Cullenward D., Strong A.L., Grubert E., Heilmayr R., Sivas D., & Wara, M. (2019) Managing uncertainty in carbon offsets: Insights from California's standardized approach. Stanford Law School ENRLP Program Working Paper, Stanford, CA.
- ⁵⁰ University of Montana (2010). *Climate action plan*. Retrieved from <https://www.umt.edu/sustainability/documents/CAPFinal.pdf>



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