Middlebury College Environmental Council

Final Report, May 12, 2025

Middlebury College Environmental Council

I. Beyond Energy2028 Committee Final Report

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I. Beyond Energy2028 Committee 2024-25 Final Report

1. Committee Assignment and Process

1.1 Assignment

The Beyond Energy2028 Committee's assignment this year was to generate preliminary ideas from the college and surrounding community about what could be in a next Middlebury climate action plan, as the college approaches 2028, The committee built upon the work of the previous two years by its Environmental Council committee predecessors. This was primarily focused on working with four scenarios of the future generated from interviews of various people from the college and in the greater community about the future and climate change in the region. The purpose of the scenarios was to provide a set of stories about the future that people could respond to and generate ideas to guide the formation of a new climate plan for the College.

The committee was asked to engage members of the college community and from the greater community in focus groups using the scenarios and to provide a summary of the key ideas and comments from those groups. The Beyond Energy2028 Committee was fortunate to have received significant support and assistance from the student-run Middlebury Consulting Group during the second half of the year to do this work.

The results of the previous two years of work on this project can be found in the reports of the Environmental Council for 2022-23 and 2023-24. Also see Appendix 1 for other supporting material used.

1.2 Process

The Beyond Energy2028 Committee reviewed the results and resources generated by last year's efforts and developed a plan for focus group workshops to solicit ideas and suggestions related to the four scenarios of climate change in Addison County. The four scenarios were generated using a scenario planning method developed by the Foundation for Our Future and based on a central question:

How can Middlebury be an effective partner with the greater Middlebury community to address the climate crisis and the inequities of its impacts?

Two key uncertainties were synthesized from a set of over 100 driving forces which were derived from the 15 interviews held previously after categorizing them into major themes. The 2023-24 team defined what they considered to be the two most important

driving forces shaping the future and relevant to our central question as the basis for forming the four scenarios for focus group discussions.

The two key uncertainties were:

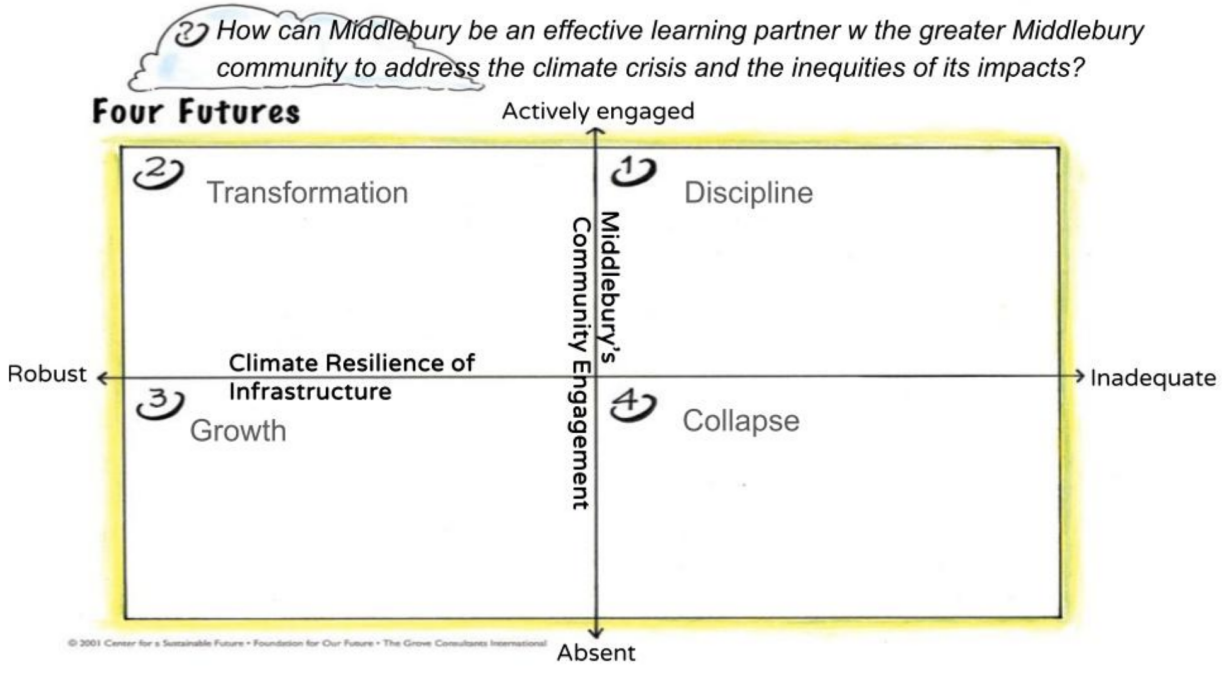
• *the degree to which the region's infrastructure (roads, energy systems, public/municipal buildings, water systems, healthcare facilities, etc.) will be able to handle impacts of climate change.*

• *the degree to which the college is actively engaged in the community to support climate impact resiliency.*

Those two uncertainties and their opposing endpoints were combined to form the four scenarios (see figure 1)

***Figure 1*.**

Final Four Scenarios distilled from original interviews



For each of the scenarios, last year's group generated four stories describing what life would be like for people in the Middlebury-Addison County region. This year's committee members reviewed and edited those stories to serve as catalysts for focus group sessions. They also decided to remove the one-word title for each scenario (Discipline, Transformation, Growth, Collapse) and to refer to them by their number (1, 2, 3, or 4). This was done to minimize any preference or bias focus group members

might develop for a future that seems more desirable than others since the process is intended to solicit ideas for resiliency and positive development regardless of what the future could be. The four scenario stories can be found in Appendix 2.

1.3 Focus Group Sessions

The Beyond Energy2028 Committee and the Middlebury Consulting Group (MCG) developed a format and materials to support the focus group sessions and their implementation. From late March to early May 2025, the Environmental Council led focus groups gathering students from all class years and academic orientations to discuss the scenarios. The student-led MCG played a central role in organizing and facilitating the focus groups, ensuring they ran smoothly and providing feedback to enhance the process.

The team first conducted a trial run on March 12th with a group of 8 participants, split up into two scenarios, mostly comprised of MCG consultants, to introduce them to the process and other members of the Environmental Council. The focus groups ran smoothly, and participants provided valuable insights, therefore, the results of this session were also included in the data.

After spring break, all the parties involved agreed on organizing two additional sessions in mid-April on campus. The MCG team was tasked with advertising the focus groups and implementing feedback from the trial run to smooth out the process, and collaborated with the Environmental Council in facilitating the next focus group sessions on April 11 and 15.

Throughout the April 11 and 15 sessions, discussions were initiated on 3 scenarios. The facilitating team was split into two roles: facilitator and note-taker. While the facilitator prompted the students with the questions asked by the council and ensured the discussion kept flowing, the note-taker was responsible for transcribing the ideas participants brought up during the discussion. Participants were asked to read the previous Environmental Council Report and the Scenario Sheet prior to the focus group to familiarize themselves with the council's past work and the goals of the focus group sessions. However, to mitigate bias, they were not assigned to a particular scenario before the start of the focus group, and they had 5 minutes to read the scenario they were assigned again before starting the discussion which revolved around a series of 4 questions about the scenario, which were used for each of the scenarios:

Question 1: How likely is the future described in your scenario?

Question 2: How preferable is the future described in your scenario? How close is it to your own preferred future?

Question 3: To the extent that the future described in your scenario is preferable, what things need to be done to move toward those desirable aspects?

Question 4: To the extent that the future described in your scenario is undesirable, what things need to be done so that those undesirable aspects do not occur?

Notes and insights from these focus groups were all collected and added to the master data sheet that was used to conduct data analysis. The results and conclusions derived from this process have been summarized in a report format. The team planned to conduct several sessions with students, faculty and staff of the Patricia Hannaford Career Center at Middlebury High School but found it difficult to coordinate schedules between groups and had to forego this opportunity. We had also planned to work with other community groups but ran out of time as well for these groups.

2. Summary of Results

2.1 Analyzing the Data

The primary purpose of this project is to set the stage for the development of a new climate action plan as the College approaches 2028 and the completion of its Energy2028 initiative. Our task was not to write a plan but to gather input and insight to

help frame and influence its operating principles and content. To do this we took three approaches:

- Manual review of focus group session notes and identification of key themes, recurring ideas/insights, and notable comments and suggestions.

- Word clouds for the scenarios by cumulative total, individual scenarios, and by each of the three sessions

2.2. Summary of Results

2.2.1 Key themes and recurring suggestions for the next Climate Action Plan

Based on a review of the consolidated notes for each focus group session, there are several key themes and more frequently repeated ideas and suggestions that could help frame the development of a new climate action plan for Middlebury. Here are the key points:

- The best guide to what climate change could look like over the coming decades is the Vermont Climate Assessment. It should be a foundational reference for considering the context for the entire state and local communities and the climate impacts and changes that a plan should account for.

- The College and the Town of Middlebury are in a symbiotic relationship and depend on each other for their collective well-being and development. It would be important for there to be a lot of consultation and coordinated parallel climate planning processes between the Town and College in developing a new Middlebury plan, including alignment with any town climate policies and plans it may have.

- There was a strong recurring sense and emphasis on the notion of community and community-building as an ongoing and essential activity to be able to weather the impacts of climate change. Many participants saw that as a prerequisite to successfully weathering climate change, especially since most climate changes would be out of our control, but how we come together and respond as a community is within our control and provides a powerful way to reckon with those changes.

- It's important to recognize that these scenarios and stories are focused on this region. But we are also dependent on and vulnerable to systems and driving forces that will affect our quality of life and ability to respond to climate change. For example, the availability of resources from federal and state sources will depend on the funding and viability of federal agencies and entities. Climate

migration from other places to Vermont could also play a major role in shaping the future of Vermont's housing and other markets.

- The College has a longstanding and substantial commitment to environmental stewardship and sustainability practices (carbon neutrality, Energy2028, sustainable building design and construction, local food sourcing, resource and land stewardship, environmental studies…). Those are important attributes to nurture and amplify as a means to contributing to community efforts to be sustainable, and as a visible symbol that it practices what it preaches.

- Addressing climate impacts has to take place on two different time scales. One is the "now" and urgent since climate change is accelerating. The other is a "long view" timescale since certain actions will have long term and costly consequences – akin to *chronos* and *kairos*. In Ancient Greek, chronos refers to quantitative time, measured in seconds, minutes, hours, etc., while kairos signifies qualitative or "opportune" time, representing the right moment for action or the critical time for something to happen. Chronos is the clock time, while kairos is about the qualitative experience of time, often described as the "right" time or the "season" for something.

- The success of a good plan, and its implementation, depends on good communication about the issues and the solutions being proposed AND it is essential that the problem of climate change be seen as a personal problem as much as a community problem.

- A climate plan should also address the need for personal change and lifestyle shifts by students and by community members as well. Emphasize the important role of collective impact through individual actions by many.

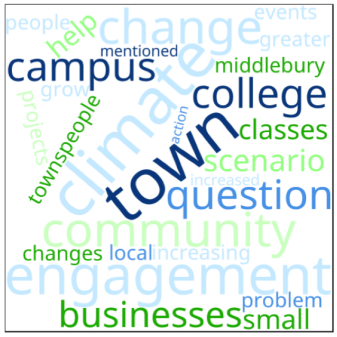
- A question that arose a few times: how can the College make its teaching, learning and research more accessible and relevant to members of the greater community to increase community capacity to address climate change?

2.1.2 World Cloud Interpretation

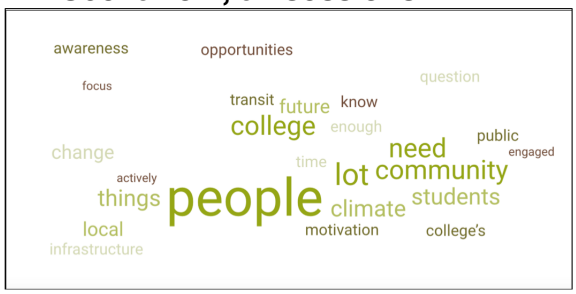
David Dinh, Phi Nguyen, and Gabriel Rochereau de La Sabliere, three students in the Middlebury Consulting team associated with the project, were tasked with generating word clouds from the master data. This technique was used as it was deemed an efficient way to identify and visualize the general trends that could be drawn out of the focus group. They generated 8 different word clouds: one for each scenario and session, and one summing up the 25 most frequently used words across all scenarios and sessions. Those results are shown in Figure 2 below:

Figure 2. Word Clouds - 25 most frequently used words during scenario focus group sessions

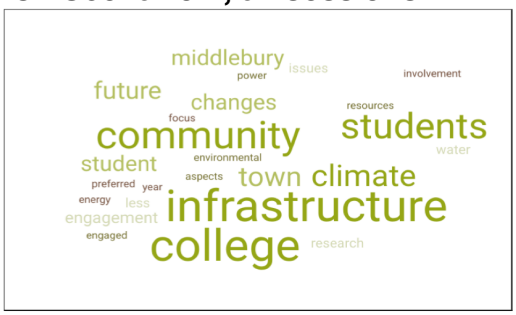
A. All scenarios, all sessions



B. Scenario 1, all sessions



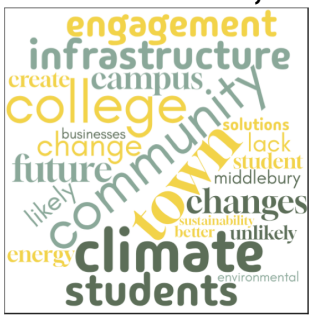
C. Scenario 2, all sessions



D. Scenario 3, all sessions

E. Scenario 4, all sessions

F. All scenarios, March 12 session



G. All scenarios, April 11 session

H. All scenarios, April 15 session

We can conclude these word clouds that there were many common notions in the focus groups, regardless of the scenario. Indeed, most of the frequently used words can be found in all the visualizations we ran. The terms *College*, *Town*, and *Community* were frequently used in contrast with one another—a pattern observed across all focus groups and scenarios. Most students believe that, for a climate policy to be effective, the College must engage meaningfully with both the Town and the broader Community, which many feel are not currently well connected. Infrastructure was also a word that appeared frequently in those word clouds as students were prompted to discuss it. The word *infrastructure* was often linked to terms like *college*, *lack*, and *adequate*, highlighting it as a concern for participants and an area where the college and local community could continue to collaborate.

We noticed a few outlier words, such as *people* in Scenario 1, which participants seemed to use to collectively refer to both community members and college students. Carbon was also disproportionately mentioned in Session 3, however, those results may be biased as Session 3 had a lower number of participants and a shorter discussion time.

We recognize the limitations of our word cloud analysis, as it highlights words without their full context and may not convey complete information to those unfamiliar with the study. Nonetheless, we believe it effectively captures overarching trends and key themes of our project.

3. Summary of Project and Next Steps

The work of this committee has produced several valuable resources for Middlebury's Energy2028 and Beyond 2028 efforts. Over the past three years the Environmental Council's efforts in this area have generated a significant body of work and resources to help frame and provide a launch point for the College's next climate action plan as the Energy2028 initiative concludes. This report provides some valuable stepping stones to guide the development of Middlebury's next big initiative to address the climate crisis. Those represent some of the hopes and dreams and fears and concerns that participating students expressed about how the future could turn out, along with a lot of good thinking about key aspects of a successful long term College effort to tackle climate change as a member of a larger community.

We strongly encourage next year's Environmental Council, or perhaps Sustainability and Environmental Affairs, to continue the focus group process with a broader set of participants both within the College and especially with groups outside of the College. This committee generated a list of groups in its running notes and those are a starting point.

The committee also has developed a well-organized set of tools for conducting these focus groups and kits for carrying them out. Several of this years' committee members,

along with their partner Middlebury Consulting Group, have returning students who have the experience for conducting and documenting the focus groups. They are encouraged to work on this effort next year to broaden the foundation and to expand the diversity of views offered about what's important for Middelbury to go BeyondEnergy2028. This is good timing as Ian Baucom takes the reins as Middlebury's new President on July 1, 2025 and who has expressed strong support for Midd's commitment to sustainability leadership and action. A wider base of work to inform the shape and process of developing a new sustainability and climate plan for Middlebury would serve it well.

One final note. While the central question that guided much of this work included attention to the inequitable impacts of climate change on the more vulnerable groups in the area, we were not able to conduct focus groups with organizations that would be more familiar and representative of people and local communities who are feeling the impacts of climate change more than people with greater resources and circumstances. We recommend that next year's focus groups if they are to be continued include groups like HOPE, United Way of Addison County, Open Door Clinic and many others who work with such groups.

4. Conclusion: Notable quotes from student focus group sessions

We conclude by sharing some of the quotes from the student focus group discussion that stood out to us from the many things said and expressed:

The town and the college are highly connected and the college would not be welcome here if they didn't give back, and the town would not thrive if the college were not here.

Pessimism is hindering us. But we can do good things if we don't let the current political climate get us down.

Students feel very involved with the college. They are more disconnected from the broader community.

Things that are out of the College's control are more probable, but it is hard to imagine a world where Middlebury isn't in the forefront of action.

I would like to be in a place where people are working on preventing and mitigating climate impacts, especially on marginalized communities.

You can't change the past, but you can change the future.

It would be good to have a course specifically about connecting to the town and/or students' understanding of current infrastructure. If the stuff I was doing for class involved the town, I'd be a lot more inclined to get involved with local projects.

People care most about themselves and their loved ones. If they don't see it or feel it – it's not tangible. Motivation comes from a sense of being personally affected.

There's a difference between understanding a problem and actually doing something about it.

The solution to many of our problems is community.

Appendices:

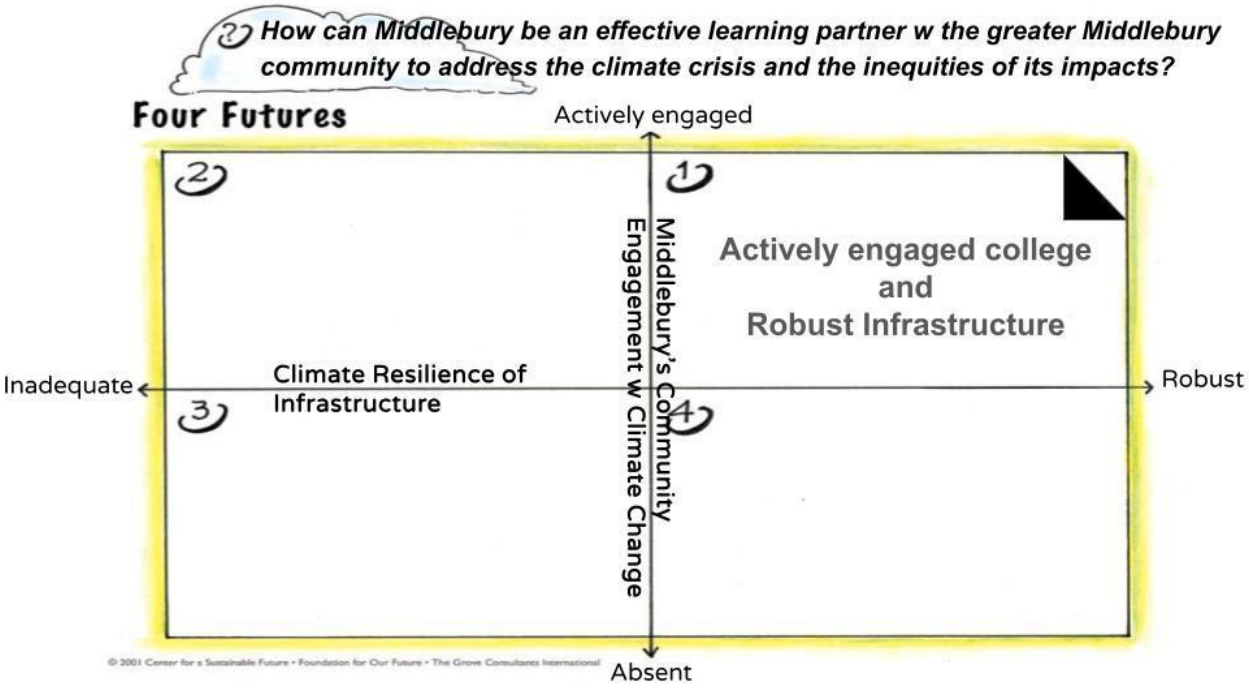
Appendix 1. Prior Work and Relevant documents:

- Original interviews
- Development of driving forces from interviews
- Synthesis of driving forces and selection of two best uncertainties
- Four futures archetypes and scenario development
- Four futures descriptions - EC 2024 report
- Suggested format for engaging people in the futures scenarios – Appendix B of EC 2024 report (reference above)

Appendix 2. Scenario Stories for focus group sessions

Scenario 1

Key Question for all 4 scenarios: How can Middlebury be an effective learning partner with the greater Middlebury community to address the climate crisis and the inequities of its impacts?



Silent Read: Please make believe it is the year 2040 and that you now live in that time and future. Please read the description of that future below while imagining yourself in it. As you read, please keep a few questions in mind. We will discuss them in this session:

Question 1: How probable (likely to actually occur) is the future described in this scenario?

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Scenario 1 describes a future where Middlebury College is deeply engaged with the surrounding community to adapt to climate change, and the region's infrastructure is well-suited for the impacts of climate change, such as flooding, drought, very hot summers, warmer winters with less snow, changes in vegetation, and more health impacts.

Daily life for residents and students is characterized by a strong sense of resilience and sustainability. Residents benefit from climate-resilient infrastructure, such as efficient public transportation systems, renewable energy sources, and robust water management systems. They have access to educational programs and community initiatives focused on climate adaptation, empowering them to adopt sustainable practices in their daily lives. Students at Middlebury College are actively involved in community-based research projects, contributing their academic knowledge and skills to develop innovative solutions for climate resilience. They have opportunities for hands-on learning experiences, such as internships and fieldwork, allowing them to gain practical experience in implementing climate-resilient infrastructure projects.

Overall, daily life in this scenario is centered around a collaborative and proactive approach to addressing climate change, fostering a strong sense of community and environmental stewardship. Here's an elaboration on what daily life might look like in this future:

1. Sustainable Transportation: With climate-resilient infrastructure in place, the transportation system is designed to minimize environmental impact and adapt to climate-related challenges.

Residents and students rely more on public transportation, electric vehicles, or bike-share programs to commute, reducing carbon emissions and traffic congestion.

2. Resilient Energy Systems: The region has a robust and diversified energy grid, utilizing renewable sources such as solar, wind, and geothermal power. Smart grids and energy storage solutions would ensure a reliable and uninterrupted power supply, even during extreme weather events or natural disasters.

3. Water Management: Water infrastructure is designed to handle fluctuations in supply due to droughts or flooding. Efficient water conservation measures, such as rainwater harvesting and greywater recycling systems, are integrated into buildings and homes. Wastewater treatment facilities are equipped with advanced technologies to minimize water pollution and maximize water reuse.

4. Climate-Adapted Buildings: Homes, offices, and educational institutions are constructed or retrofitted to be energy-efficient and climate-resilient. Features like green roofs, passive cooling systems, and insulation optimized for extreme temperatures provide comfortable indoor environments while reducing energy consumption.

5. Community Engagement and Education: Residents and students/faculty/staff are actively involved in community-driven initiatives and educational programs focused on climate change adaptation and resilience. Workshops, seminars, and hands-on training empower them to understand and implement sustainable practices in their daily lives.

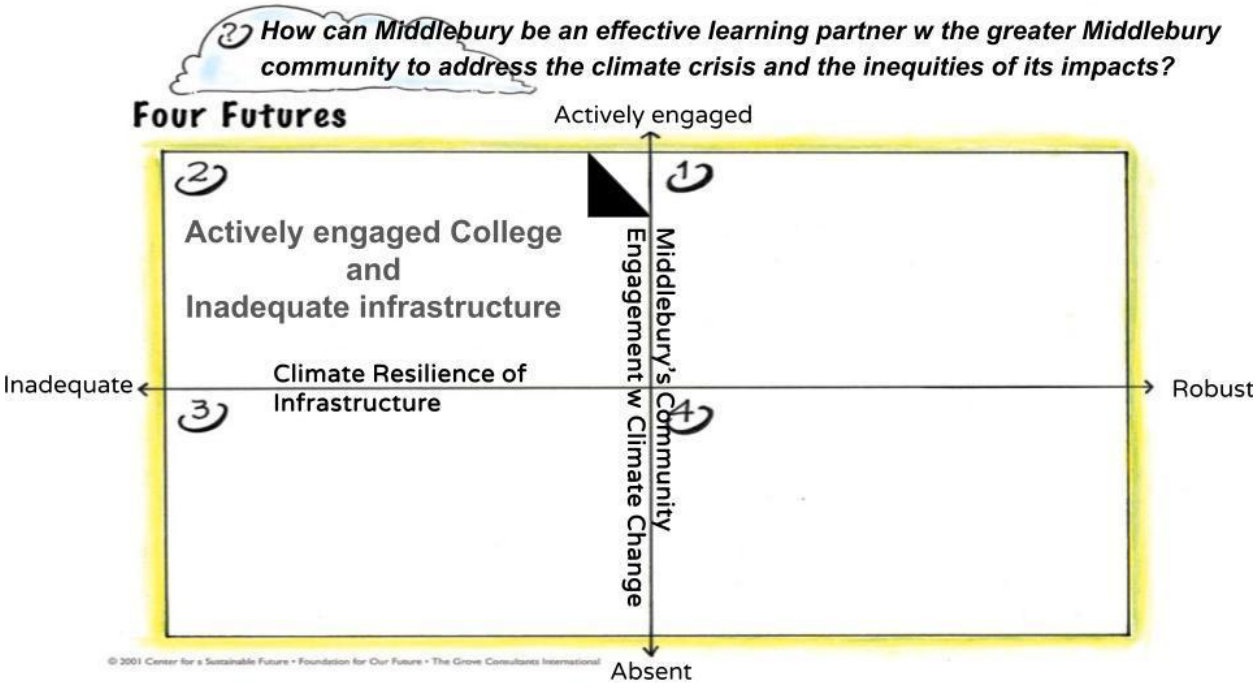
6. Local Food Systems: The region prioritizes the development of sustainable and resilient local food systems, with a focus on urban agriculture, community gardens, and support for local farmers. This not only reduces the carbon footprint of food transportation but also ensures food security in the face of climate-related disruptions.

7. Ecosystem Conservation: Efforts are made to protect and restore local ecosystems, such as wetlands, forests, and coastal areas, which play a crucial role in mitigating the impacts of climate change and enhancing community resilience.

8. Healthcare and Emergency Preparedness: Healthcare facilities and emergency response systems are equipped to handle the potential health impacts of climate change, such as heat-related illnesses, vector-borne diseases, and natural disasters. Preventive measures and early warning systems are in place to protect vulnerable populations.

Scenario 2

Key Question for all 4 scenarios: How can Middlebury be an effective learning partner with the greater Middlebury community to address the climate crisis and the inequities of its impacts?



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Question 4: To the extent the future described in this scenario is judged undesirable, what things need to be done now to see that those undesirable aspects do not occur?

Scenario 2 – describes a future where Middlebury College is deeply engaged with the surrounding community to adapt to climate change, but the region's infrastructure is ill-prepared for the impacts of climate change, such as flooding, drought, very hot summers, warmer winters with less snow, changes in vegetation, and more health impacts.

Daily life for residents and students is marked by ongoing challenges and disruptions due to the inadequate infrastructure. Residents face frequent power outages, water shortages, and disruptions to transportation systems due to extreme weather events. Access to essential services, such as healthcare and education, are compromised.

Despite Middlebury College's engagement, the lack of climate-resilient infrastructure puts significant strain on the community's ability to adapt effectively. However, the college's involvement provides valuable resources and expertise to mitigate the impacts of climate change.

Students/faculty/staff at Middlebury College have opportunities to contribute to research and problem-solving efforts, working alongside community members to develop adaptive strategies and explore sustainable infrastructure solutions. However, the implementation of these solutions is hindered by the existing infrastructure limitations.

Daily life in this scenario is characterized by a constant struggle to overcome the challenges posed by climate change and inadequate infrastructure, requiring resilience, innovation, and a strong commitment to community collaboration. In the scenario Middlebury College partners with the local community through Resilience Hubs to address climate change adaptation while daily life for residents and students is challenging but also filled with opportunities for collaboration and resilience-building.

For residents:

1. Disruptions to daily routines: Climate-related events like flooding, drought, or extreme heat lead to disruptions in essential services such as water supply, energy, transportation, and healthcare.

Residents face intermittent power outages, road closures, or limited access to medical facilities, complicating their daily routines.

2. Increased vulnerability: Marginalized communities and vulnerable populations, such as low-income households or elderly individuals, are disproportionately affected by infrastructure failures, exacerbating existing inequities and creating additional challenges in accessing basic necessities.

3. Engagement in community-based solutions: Through the Resilience Hubs, residents have opportunities to actively participate in research and capacity-building programs, contributing their local knowledge and experiences to develop context-specific solutions. This fosters a sense of ownership and empowerment in addressing climate resilience challenges.

4. Lifestyle adaptations: Residents need to adapt their lifestyles to cope with climate impacts, such as implementing water conservation measures during droughts, seeking alternative transportation options during flooding events, or modifying their homes to improve energy efficiency and resilience.

For students/faculty/staff:
1. Hands-on learning experiences: Students/faculty/staff have the opportunity to engage in real-world, community-based research projects at the Resilience Hubs, gaining practical experience in addressing climate resilience challenges and working directly with community members.

2. Interdisciplinary collaboration: Students/faculty/staff from various disciplines, such as computer science, environmental studies, social sciences, arts, and public health, collaborate on interdisciplinary projects, fostering a holistic understanding of climate resilience and infrastructure adaptation.

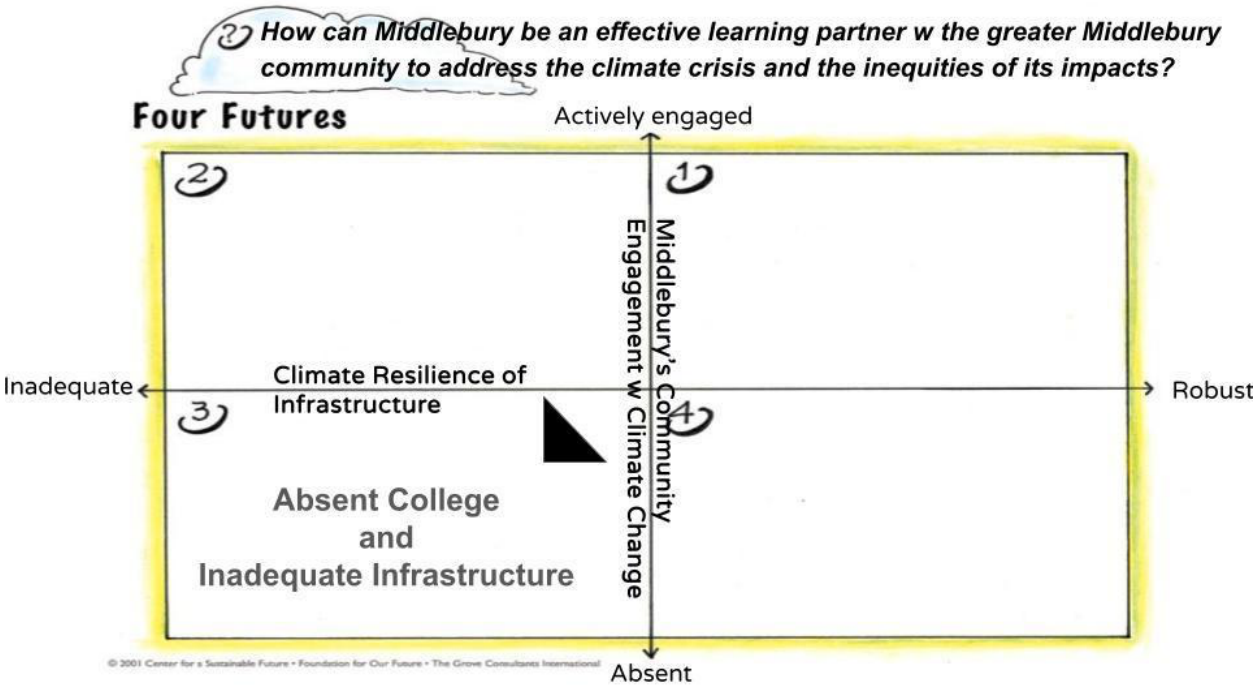
3. Disruptions to campus life: Similar to residents, students/faculty/staff experience disruptions to campus life due to infrastructure failures or climate-related events, such as power outages, water shortages, or transportation challenges, requiring adaptations and resilience planning within the
college community.

4. Community engagement and service-learning: The partnership between Middlebury College and the local community provides opportunities for students/faculty/staff to participate in community service projects, educational outreach programs, or

internships focused on climate resilience and infrastructure adaptation, fostering a sense of civic responsibility and community
engagement.

Scenario 3

Key Question for all 4 scenarios: How can Middlebury be an effective learning partner with the greater Middlebury community to address the climate crisis and the inequities of its impacts?



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Question 4: To the extent the future described in this scenario is judged undesirable, what things need to be done now to see that those undesirable aspects do not occur?

Scenario 3 - Middlebury College is not involved in working with the surrounding community to adapt to climate change, and the region's infrastructure is ill-prepared for the impacts of climate change, such as flooding, drought, very hot summers, warmer winters with less snow, changes in vegetation, and more health impacts. Daily life for residents and students/faculty/staff is significantly disrupted and challenging. Residents face frequent infrastructure failures, such as power outages, water shortages, and transportation disruptions, exacerbated by extreme weather events. Access to essential services, such as healthcare and education, is severely compromised.

Without Middlebury College's involvement, the community lacks access to valuable resources, expertise, and collaborative opportunities to address climate change challenges. Residents struggle to adapt and develop resilient strategies on their own, further increasing their vulnerability.

Students/faculty/staff at Middlebury College have limited opportunities to engage in practical learning experiences related to climate resilience and infrastructure adaptation. They miss out on valuable knowledge-sharing and community-based research opportunities, hindering their ability to develop the necessary skills and understanding to tackle these challenges.

Daily life in this scenario is characterized by a constant state of crisis management, with limited resources and support to address the compounding impacts of climate change and infrastructure failures. Resilience and adaptation are extremely challenging without external support and collaboration.

With Middlebury College not involved in working with the surrounding community to adapt to climate change, and the region's infrastructure was ill-prepared for the impacts of climate change, daily life for residents and students/faculty/staff is significantly disrupted and challenging. Here's an elaboration on what it might look like:

1. Disrupted Transportation: Roads and transportation systems are frequently impacted by extreme weather events, such as flooding, landslides, or heat waves, leading to frequent road closures, traffic jams, and transportation delays. This makes commuting and travel within the region difficult and unreliable.

2. Power Outages: With an aging and outdated energy infrastructure, power outages are more frequent during extreme weather conditions, such as heatwaves, storms, or wildfires. Residents and students/faculty/staff experience prolonged periods without electricity, affecting their ability to work, study, and carry out daily activities.

3. Water Scarcity and Contamination: Droughts and fluctuations in water supply lead to water shortages, while aging water infrastructure might result in water contamination issues. Residents and students/faculty/staff face restrictions on water usage, and access to clean, safe drinking water could become a challenge.

4. Inadequate Housing and Building Conditions: Without climate-resilient building standards and retrofitting, homes, offices, and educational institutions become uncomfortable or even uninhabitable during extreme temperature fluctuations or severe weather events. Residents and students/faculty/staff struggle to find adequate shelter or suitable living and learning environments.

5. Health Risks: Increased exposure to extreme weather conditions, such as heatwaves, poor air quality, and the potential spread of vector-borne diseases, pose significant health risks for residents and students. Medical facilities struggle to cope with the increased demand for healthcare services.

6. Food Insecurity: With climate-related disruptions to agricultural systems and supply chains, access to fresh, locally sourced food becomes limited, leading to potential food insecurity and dependence on imported food products.

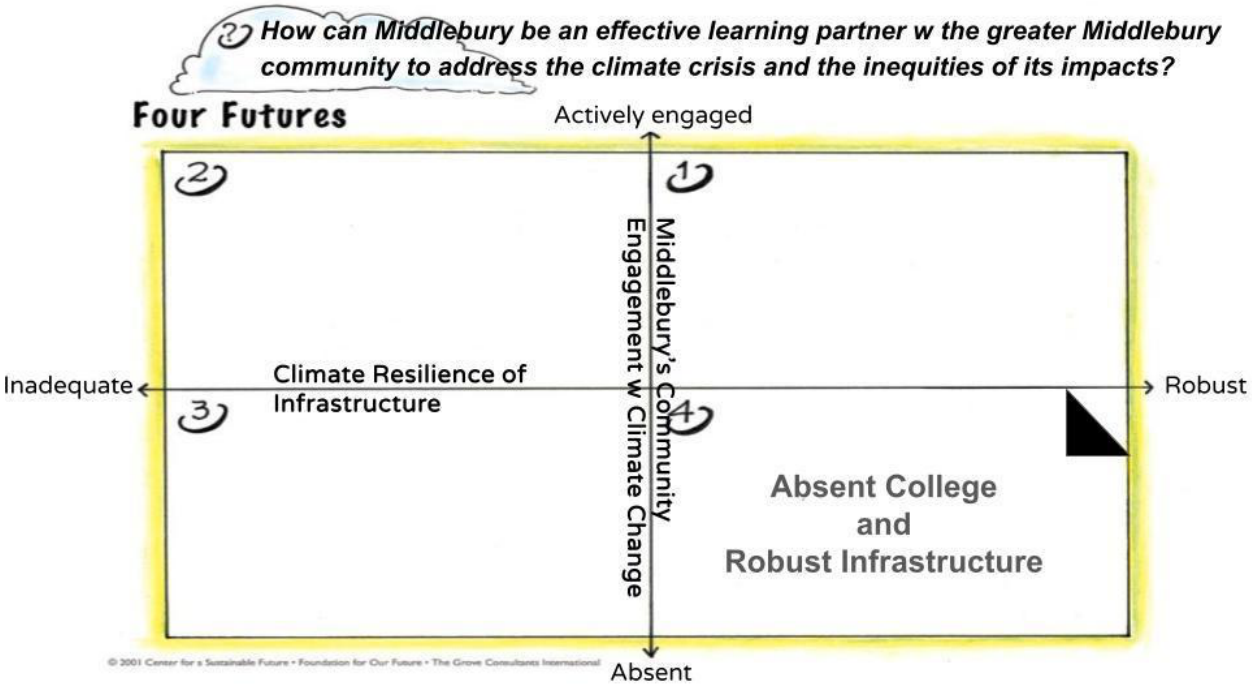
7. Ecosystem Degradation: Without proper environmental management and conservation efforts, local ecosystems deteriorate, leading to biodiversity loss, soil erosion, and reduced natural buffers against climate-related hazards, such as floods or landslides.

8. Economic Disruptions: Businesses and industries within the region face operational challenges, supply chain disruptions, and financial losses due to the impacts of climate change on infrastructure, leading to potential job losses and economic instability.

9. Increased Inequities: The impacts of climate change and infrastructure failures disproportionately affect vulnerable and marginalized communities, exacerbating existing inequities in access to resources, healthcare, and educational opportunities.

Scenario 4

Key Question for all 4 scenarios: How can Middlebury be an effective learning partner with the greater Middlebury community to address the climate crisis and the inequities of its impacts?



Silent Read: Please make believe it is the year 2040 and that you now live in that time and future. Please read the description of that future below while imagining yourself in it. As you read, please keep a few questions in mind. We will discuss them in this session:

Question 1: How probable (likely to actually occur) is the future described in this scenario?

Question 2: How preferable is the future described in this scenario? How close is it to your own preferred future?

Question 3: To the extent the future described in this scenario is judged preferable, what things need to be done now to move towards those desirable aspects of that future?

Question 4: To the extent the future described in this scenario is judged undesirable, what things need to be done now to see that those undesirable aspects do not occur?

Scenario 4 - Middlebury College is not involved in working with the surrounding community to adapt to climate change, and the region's infrastructure is well-suited for the impacts of climate change, such as flooding, drought, very hot summers, warmer winters with less snow, changes in vegetation, and more health impacts.

Daily life for residents is relatively stable and resilient, thanks to the region's climate-adapted infrastructure. However, there is a missed opportunity for collaboration and knowledge-sharing between the college and the community.

Residents don't have access to the educational resources, training programs, and research initiatives that could have been facilitated by Middlebury College's involvement. They lack opportunities to contribute their local knowledge and experiences to the development of climate resilience strategies.

Students/faculty/staff at Middlebury College miss out on valuable experiential learning opportunities, such as community-based research projects and hands-on implementation of climate-resilient infrastructure solutions. They have a more theoretical understanding of climate change challenges, but limited practical experience in addressing them within a real-world context.

While daily life in this scenario is less disrupted by climate change impacts due to the well-suited infrastructure, there is a disconnect between the college and the community. Residents and students do not fully benefit from the potential synergies and knowledge-sharing opportunities that could have emerged from a collaborative approach to climate resilience. With Middlebury College not involved in working with the surrounding community to adapt to climate change, , daily life for residents and students/faculty/staff still faces some challenges and missed opportunities.

Here's an elaboration on what daily life might look like:
1. Lack of Community Engagement: Without Middlebury College's involvement, there is a disconnect between the college community and the broader local community. Residents feel detached from the climate resilience efforts and miss out on opportunities to contribute their local knowledge and experiences.

2. Limited Access to Educational Resources: Residents have limited access to the educational resources and expertise offered by Middlebury College. They do not have access to training, workshops, or hands-on learning experiences related to climate resilience and infrastructure adaptations.

3. Missed Opportunities for Collaborative Research: Residents and local communities do not benefit from the collaborative research opportunities provided by Middlebury College. They miss out on potential solutions or innovations that could have been developed through joint efforts with students and faculty.

4. Reduced Knowledge Sharing: Without the integration of community-based research and learning opportunities, the exchange of knowledge between residents and students/faculty/staff is limited. Residents do not gain insights from the latest research and academic perspectives on climate resilience.

5. Lack of Workforce Development: Students/faculty/staff miss out on practical experiences and opportunities to develop skills directly applicable to climate-resilient infrastructure projects within the local context. This limits the availability of a skilled and knowledgeable workforce prepared to address climate challenges in the region.

6. Limited Community Capacity Building: Residents do not have access to the same level of capacity-building initiatives and resources that could have been provided through Middlebury College's involvement. This hinders their ability to effectively adapt to and mitigate the impacts of climate change.

7. Potential Inequities: Without Middlebury College's active involvement and community-based programs, there is a perpetuation of existing inequities. Certain communities or groups do not have equal access to resources, education, or opportunities related to climate resilience.

Despite the region's infrastructure being well-suited for the impacts of climate change, the lack of Middlebury College's involvement results in missed opportunities for community empowerment, knowledge sharing, and capacity building. Residents do not fully benefit from the college's resources and expertise, potentially hindering their ability to effectively adapt to and mitigate the impacts of climate change in the long run.

Appendix 3. Links to focus group session resources

"Workflow" for conducting focus group sessions

Scenario readings 1 to 4 for each focus group in a session

Workbook/spreadsheet cumulative notes from focus groups sessions

Middlebury College Environmental Council

II. Climate Action Pledge Committee

Final Report, May 2025

Committee Members:

Will Amidon (Faculty)
Matthew Schrader (Faculty)
Laila Almefty-Hernandez ‘26
Erik Budo Uerkwitz ‘26
Lily Larsen ‘28
Quinna McCarty ‘28
Sara Murphy ‘25
Christina Ritter ‘26
Annika Stookey ‘28
Finley Torrens-Martin ‘28
Ella Wilshire ‘26.5

II. Report of the Climate Action Pledge Committee, AY24-25

1. Overview

The Climate Action Pledge subcommittee was tasked with designing open-ended initiatives to incentivize students and faculty members to take environmentally beneficial actions. A budget of approximately $15,000 was presented and it was suggested that the committee might model its approach after the successful 2017 Climate Action Pledge, which provided financial incentives for Middlebury employees to take actions such as carpooling or purchasing energy-efficient appliances.

The committee met repeatedly over the fall term and developed a number of ideas and began to vet them. By the end of the fall semester the committee settled on three ideas and broke into groups to facilitate efficient implementation of the ideas: student , dining, and energy navigator, each of which are summarized below. The sub-groups worked independently over the winter and spring terms to accomplish the actions described below

2. Actions and outcomes

2.1 Student Engagement (Fun) Subcommittee

Committee goals: Find fun ways to engage students with sustainability programming on campus.

Action: Earth Week Trivia! We ran a trivia night during Earth Week to test students' knowledge on sustainability! Trivia categories included environmental history, recyclable or not, campus resources, sustainability myths, current events, and Energy2028. We had 30 students attend and it was a super fun event! People learned things they didn't know, particularly related to recycling and campus resources, and were very engaged with the event.

2.2 Dining Subcommittee
Committee Goals:

The Dining Subcommittee is dedicated to promoting environmentally responsible dining habits and improving sustainability practices within campus dining facilities. Our

primary aim is to collaborate with relevant stakeholders to reduce the environmental impact of food systems and raise awareness about sustainable food choices. Aims of minimizing food waste alongside the hope to increase the quality & plant-based nature of dining hall food surround all discussions.

Actions:

In partnership with Dining Services and the SGA Sustainability Committee, we initiated several projects to make sustainability more visible and actionable in dining spaces. One of our key contributions was the development of an educational pamphlet for the Meatless Dinner event held at Atwater Dining Hall. This pamphlet explained the environmental benefits of plant-based eating and aimed to encourage thoughtful participation from students. 300+ students attended the dinner event and tried a plant-based meal. We also supported the implementation of carbon footprint tracking charts placed outside dining halls to inform diners about the relative environmental impact of their food choices. Additionally, we helped advocate for and expand the visibility of "Made with Local Ingredients" and "Low Carbon Footprint" signage, highlighting locally sourced ingredients and promoting regional food systems as a more sustainable alternative. In the future, we hope to reimplement a large graphic in dining halls detailing where the local produce/dairy products/meat come from. This would be an expanded version of a previously in-use poster.

Future work includes the potential commitment of one meal a week, at all dining halls, to be meatless (there would still exist meat in the sandwich station, etc). Additionally, advocacy for sourcing Vermont-made ingredients and advertisement of how students can get engaged with Middlebury's local agriculture will serve as an important chart forward. This subcommittee would do well to continue collaborations with SGA's Sustainability Committee and Dining Services in the future. Food waste is a large hurdle to tackle, but a necessary one.

2.3 Energy Navigator Program

The idea to support the Energy Navigator Program came from a meeting with Michael Roy who introduced us to the program, which is run by the Climate Economy Action Center of Addison County (CEAC). The program seeks to help homeowners improve the energy efficiency of their homes by connecting them with an energy coach who can provide expert and advice and connect them with existing state and federal programs. However, a major challenge is getting homeowners engaged with the program given the daunting time and expense of making home improvements.

The CAP committee chose to support the existing Energy Navigator program by providing a $50 incentive for Middlebury Employees to meet with a navigator and an additional $250 incentive if they take a subsequent qualifying action. The program was announced in May, 2025 in collaboration with Human Resources (HR). When employees contact CEAC they will be noted as a Middlebury employee and their email address will be collected. These emails will be forwarded to Will Amidon who will keep an ongoing list of participants here, and periodically update a contact in HR (currently Phil Stapleton) to process incentives. Incentives will appear as taxable additional income on employee paychecks within roughly 4 weeks of the name being passed to HR.

Following the initial meeting, an additional $250 will be earmarked ro pay the second incentive should the employee follow through with it and provide the required documentation. Once the full budget has been earmarked, the program will be discontinued and incentives will no longer be offered for the initial meeting. To wrap up the program in a timely manner, we ask that employees complete their qualifying action within one year of taking their initial meeting with a navigator. A list of qualifying actions and frequently asked questions can be found here. We anticipate that roughly 40-45 employees will be able to participate in this program.

See Appendix 1 for more details regarding this program.

3. Directions for future action

We recognize that there are many environmental groups on campus, all running their own programming. While planning our event, we tossed a lot of ideas, because we realized other groups were already planning something similar. It would be great if there were more opportunities for the different groups on campus to meet so that energy was not wasted planning overlapping events. Also, a group on campus dedicated solely to student engagement could be useful.

Another idea is to create a more centralized and comprehensive event calendar for sustainability events on campus. The Franklin Environmental Center at Hillcrest newsletter is a great resource, but there are plenty of other events (lectures, events hosted by student orgs.) that aren't included in it. And there's a lot of other information in it too.

Regarding the Energy Navigator program, we look forward to administering this program over the coming year and hope that it will foster additional actions beyond those being directly subsidized by the program.

Appendix 1. Climate Action Pledge Incentive for Employees

Did the cold winter have you plugging drafts and lamenting your heating bills?
Are you considering home energy efficiency projects?
Would you like to earn $50 for a 60-90 minute meeting?

If you answer 'yes' to any of these questions we invite you to participate in the Energy Navigator program. You will be paired with a home energy coach who will visit your home for an initial meeting to discuss your needs and goals. The energy coach will help you think through associated costs, and connect you to financial incentives and rebates

Middlebury staff and faculty are eligible to receive a $50 incentive to hold an initial meeting with an Energy Navigator. You can then receive up to a $250 reimbursement for taking a qualifying action. Act soon because limited funding is available!

Please visit: www.energynavigators.org for more information and to schedule a meeting!
Please contact energynavigator.ceac@gmail.com with questions

Fine print: *Funds provided by the Sustainability and Environmental Affairs Office in support of the Energy2028 Initiative. The Energy Navigator program only has capacity to work within Vermont. If you live outside of Vermont but are still interested in this program, please let us know and we can connect you with equivalent resources. Incentives will appear on your paycheck as taxable income.*

WHAT IS ENERGY NAVIGATORS?

An initiative that connects residents with energy coaching to make homes more efficient and comfortable and lower utility bills, while also reducing greenhouse gas emissions in our county.

Here is how we can assist you:

- Meet with you to discuss your energy priorities for your home.
- Work with you to create do-able plans to meet your goals, including prioritizing projects, finding available rebates, tax credits and financing options, and learning how to make improvements that fit your budget (even if your budget is $0!).
- Check in with you throughout the process to help you navigate barriers and sort through all of the available technical and financial resources.

WHO IS IT FOR?

Homeowners and Renters
in Addison County, Vermont!

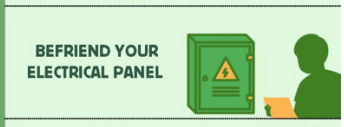
WHY?

Save money on utility bills
Improve home comfort
Reduce energy needs

HOW MUCH DOES WORKING WITH A NAVIGATOR COST?

Nothing! Consulting with us is free.
We are the Climate Economy Action Center, a non-profit organization funded by grants and donations.

Graphic from Rewiring America



Middlebury College Environmental Council

III. Thermal Comfort Policy Committee

Final Report, May 2025

Committee Members:

Mike Moser
Megyn Pitner
Gabrielle Anchondo ‘27
Josette Chun ‘26
Fabi Frenz ‘27.5
Aidan Kirby ‘25.5
Sarah Li ‘28
Isabel Picazo ‘28
Cate Tracy ‘27
Gabriela Valencia-Rubio ‘28
Kathaline Villavicencio ‘28

I. Introduction

The Committee was charged with reviewing and updating the College's Thermal Comfort Policy. The following is our report and recommendations for how to modify the College's approach to thermal comfort in light of its Energy2028 initiative and the many efforts underway to improve energy conservation and efficiency that also affect the thermal comfort of building occupants.

Middlebury College recognizes that thermal comfort is important for the health and productivity of its students, faculty, and staff. During sustained periods of high heat and humidity, certain measures may have to be taken to protect the health of students, faculty, and staff. The college abides by Vermont state law and regulations during periods of extreme heat, enabling the campus community to work effectively. The Facilities Department, Disabilities Resource Center, and Residential Life work together to ensure thermal comfort policies are upheld and students receive proper thermal comfort. With increasing environmental costs of heating and cooling buildings, the Thermal Comfort Committee hopes to underscore the current measures taken to reduce costs and increase energy efficiency through this report.

This report outlines current standards for thermal comfort across campus buildings while offering suggestions for student engagement and future outlooks. Emphasis on energy consumption and efficiency is crucial for up-to-date projects and installations, as it ensures sustainability, reduces operational costs, and alignment with the Beyond 2028 goals.

II. Systems Overview and Current Energy Efficiency

A. HVAC Systems: the Energy 2028 initiative has significantly influenced the design, operation, and end-user experience for building heating ventilation, and air conditioning (HVAC) systems. All recent major building renovations and new infrastructure construction (since 2020) include full air conditioning - specifically Munroe Hall, Warner Hall, Johnson Memorial Building, new Residence Hall, and soon Stewart Hall. Advances in electrical energy-based heat pump technology have set the course for these building HVAC system designs. Essentially, both heating and cooling are available with the installation of a single system. Heat pump systems combined with significant building envelope improvements result in less energy consumption for occupant thermal comfort. Advances in control system technology allow for an improved user experience to both manually and automatically control thermal comfort. Details of these

systems for each building can be referenced through the Building's HVAC Instructions created by Facilities Services. The standard heating base temperature is 68 degrees for residential halls and 72 degrees for offices and classrooms. This allows for reduced hot water circulation when outdoor temperatures are higher. Specific buildings, like Forest Hall, LaForce Hall, and the new Residential Hall, feature additional control systems. Classrooms and office spaces include a push-button control system with some locations already equipped with AC units.

B. Energy Efficiency for Buildings: Middlebury College intends to reduce its energy consumption on its core campus by 25% by 2028.[1] The reduction will come as a result of changes to campus infrastructure that increase energy efficiency through energy assessments, renovations, and energy-use monitoring. The college has conducted energy assessments of 51 buildings on campus and has installed energy-saving upgrades in McCardell Bicentennial Hall, Munroe Hall, and Warner Hall. These upgrades include new metering and point-of-use smart controls, detection, and repairs to the steam distribution lines on campus, and LED lighting installation. Central to this effort is the point-of-use concept, whereby people need to "engage" their space for comfort control.

   For example, in Munroe Hall and Warner Hall, occupants will push a button when entering their space to raise or lower the heating/cooling setpoint from an "unoccupied" setting that reduces energy use when the space is vacant. In some new residence halls such as Forest Hall, occupants must push the occupancy button on their thermostat every twelve hours to put the room into an occupied state. These strategies have reduced overall energy consumption by 10% between 2018 and fiscal year 2021, which represents a significant step towards meeting the college's 2028 energy goals.[2]

III. Thermal Comfort Policy: Extreme Heat Condition Protocols

According to a Vermont Health Department analysis, hot weather can be harmful to people living in Vermont when heat index values reach the 80s. Health risks further increase by two to four times when the heat index exceeds 90°F[3]. In the case of a state-wide excessive heat warning (issued when the heat index is expected to reach at least 105°F within 24 hours), should the temperature in a

[1] https://www.middlebury.edu/energy2028/news-and-highlights/energy2028-updates#new-metering-and-point-of-use-smart-controls

[2] https://www.middlebury.edu/energy2028/news-and-highlights/energy2028-updates#new-metering-and-point-of-use-smart-controls

[3] https://vem.vermont.gov/news/hot-weather-planning-towns-and-residents#:~:text=According%20to%20a%20Health%20Department,index%20exceeds%2090%C2%B0F.

working space rise to a point where productivity is no longer possible, we suggest the following[4]:

A. Moving impacted employee(s) to cooler work areas where supervisors can then dismiss affected employee(s) after midday under continuous extreme conditions and report this occurrence to Human Resources. Human Resources will then bring this situation to the attention of Facilities Services. The departments will follow the NIOSH's Recommended Heat Standards and OSHA standards to assess the working conditions.

B. During times of extreme heat, the college advises students to remain indoors as much as possible where there is ample air conditioning and shade. For faculty, flexible work schedules should be implemented, allowing employees to avoid peak high heat hours and locations of high exposure. We encourage supervisors to allow employees to take additional breaks in a “cooling area” (indoor spaces or shaded outdoor spaces) and allow employees to report to early morning shifts (instead of midday or afternoon shifts to avoid heat) if flexibility allows.

IV. Thermal Comfort Policy: Accommodations

A. Residential Accommodations and the Disability Resource Center
In case of a thermal comfort concern, students should access the facilities services Asset Management platform to input their request. Requests for student accommodations based on a qualifying disability should be submitted to the ADA Coordinator and should be per the ADA Policy at Middlebury College. All requests of this nature will be reviewed by the ADA Committee who shall then determine the student's eligibility for accommodations under the ADA.

Permission to operate a window air conditioning unit based on a qualifying disability will require the support of the ADA Committee, which may need a medical consultation between the student's health care professional and the college physician. If both requirements are met, the ADA coordinator, in consultation with the Facilities Services, will determine and facilitate the appropriate residential accommodation. Requests for accommodation from students based on a medical need that does not fall under the ADA guidelines should be requested through Residential Life and the Disabilities Resource Center. These requests must be accompanied by a letter from a qualified physician documenting: 1) the special medical condition requiring constant air conditioning in a climate like Vermont's

[4] https://vem.vermont.gov/sites/demhs/files/documents/2018SHMP-HazardAssessmentExtremeHeat.pdf

(with a typical maximum of no more than 5 consecutive days of extreme heat each summer) 2) an explanation of the medical condition that links to the need for constant air conditioning along with an description of the medical dangers incurred if air conditioning is not provided 3) the expected duration of the medical condition, and 4) plans for reassessment of the medical condition at a future date (if the student is returning to campus for more than one summer).

B. Accommodation Requests from Faculty and Staff
Thermal comfort accommodation requests from faculty and staff should be submitted to the Facilities Service Department Customer Service Center as a service request. This form can be accessed via the facilities services website. All requests for air conditioning based on these or any other contingencies not covered in this report will be adjudicated on a case-by-case basis, possibly in consultation with facilities services, the College physician (as needed), the Dean of Environmental Affairs, and the Director of the Budget Office.

V. Proposals for Thermal Comfort Education

To reduce our energy use, we must also focus on behavioral changes in the Middlebury community. Proper instruction and education on energy consumption should be provided for students, staff, and faculty, ensuring all community members understand how their building's heating and cooling systems operate. Existing strategies like HVAC education, which are QR codes informing thermal heating systems across campus are underused. Proper education measures will include thorough explanations on how to manage one's building heating to maximize energy efficiency, sending out community-wide informational emails, and updating educational websites on thermal comfort. A recommendation from the Thermal Comfort Committee to ensure community engagement includes adding an orientation module for new students and faculty that teaches the community about energy usage on campus and best practices for reducing energy consumption. This awareness will encourage engagement with campus energy usage and promote responsible practices in classrooms, offices, and dormitories.

VI. Future Outlook: Energy2028 and Thermal Comfort Policy Review

As Middlebury College's building infrastructure expands, so will the types of energy systems put in place for new buildings. Middlebury intends to reduce energy consumption on its core campus by 25 percent by 2028. Much of this energy reduction will come from updating and renovating buildings on campus and improved energy-use monitoring across campus. Middlebury produces a large portion of its energy through its biomass plant, established in 2008, which

utilizes 275,000 tons of local wood chips and contributes $18 million, cumulatively, to the Middlebury economy. The plant co-generates over 3.5 million kWh of electricity per year, while the college also incorporates local renewable natural gas derived from cow manure and food waste, along with 40% of its electrical energy sourced from South Street solar. As new technologies advance and are adopted by Middlebury College to further decrease our energy use, we must also adapt the “Current State” report on thermal comfort. The future outlook of the Environmental Council Thermal Comfort Committee will include re-visiting and updating the Thermal Comfort Policy every four years, and monitoring how changes in technology and infrastructure have affected our energy consumption.