



Middlebury

# Final Report to President Patton 2023 – 2024

Middlebury Environmental Council

and

Middlebury Institute of International  
Studies Sustainability Council

May 14, 2024

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Tyler Hadar, 2025  
Matthew Hensel, 2025  
Emily Hogan, 2024  
Carina Huang, 2025  
Emily Kuperstein, 2024  
Bella Lucente, 2025  
Changchang Ma, 2026  
Olivia Maloney, 2026  
Lily McGovern, 2025  
Lia Morrison, 2027  
Claire Quigley, 2024.5  
Abram Rau, 2025.5  
Lexa Rivas, 2027  
Ella Roelofs, 2023.5  
Violet Ross, 2025  
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Maxime Warnery, 2025  
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Axis (Zhaozhuo) Zhang, 2027

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Sydnie Miller, *Environmental Policy and Management Representative*  
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Marjorie Rodriguez Bacarreza, *International Policy and Development Representative*  
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Middlebury

## Part 1

# Beyond Energy2028 Committee Report

*Jack Byrne, Emily Hogan, Jess Tseo, Jackson Weeks, Yumna Siddiqui, Lia Morrison, Lily McGovern, Esteban Catano*

Middlebury Environmental Council  
and  
Middlebury Institute of International Studies  
Sustainability Council

Final Report 2023 – 2024

# Beyond Energy2028 Committee Report, Environmental Council

Jack Byrne, Emily Hogan, Jess Tseo, Jackson Weeks,  
Yumna Siddiqui, Lia Morrison, Lily McGovern, Esteban Catano  
May 14, 2024

## 1. Committee Assignment and Summary of Results

### A. Constructing Scenarios of Climate Change in Addison County for Beyond Energy2028

Our work this year built on the work of a committee last year focused on producing a thought piece to serve as a conversation starter with various constituents about what Middlebury could do next to address the climate crisis as it nears the end of its Energy2028 campaign. We had also planned to organize some focus groups to share our scenarios and elicit ideas about what the College could think about including in its future plans to address climate change. However, there wasn't enough time for us to do this part of our task.

We worked with a large set of future driving forces that last year's Environmental Council culled from a series of 15 interviews of various people in Addison County and beyond to learn about their hopes, dreams, fears and concerns about the future and how they see Middlebury's role in working with the community as

climate change progresses over time. Interviewees included students, faculty, staff, faith leaders, state officials, NGO leaders and activists, business leaders, planning officials and others. Our committee was assisted by Middlebury trustee and strategic planner Cathy Lee at a January meeting to develop an approach to sifting through the multitude of data gathered in the interviews to hone into a workable set of driving forces and selection of the two most important and relevant ones from which we could build four future scenarios..

We used a method of [scenario planning](#) developed by the Foundation for Our Future. Last year's committee conducted interviews and analyzed them for driving forces affecting the future. They



**JANE GOLDMAN**

**TEETERING ON THE EDGE**  
(2020, WATERCOLOR MONOTYPE)

**Artist's statement:** "Eco-anxiety" is an ongoing series of watercolor monotypes (2018-2023) that addresses global warming. Dark humor sets the tone, inspired by silent film era comedians. In this context the figures represent Everyman, experiencing ongoing, slow-motion, climate catastrophes. In various iterations in the series, the silent comedian is caught in a situation right before the worst occurs (the present), implying that it's not the fall that hurts, it's the sudden stop (the future). As an apocaloptimist, I hope the future proves less grim.

developed a set of over 100 driving forces across the 15 interviews. They also created a set of scenarios from one interview to illustrate the process and its results. This year, we distilled the driving forces by categorizing them into major themes and then further refined to what we considered to be the two most important driving forces shaping the future and relevant to our central question:

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

We also searched literature about scenario planning to help guide our scenario construction. We used a set of scenario archetypes developed by Jim Dator<sup>1</sup> at the University of Hawaii Manoa based on his analysis of hundreds of sets of scenarios derived from two key uncertainties relevant to the questions of those using them. The four archetypes:

**Growth** represents a continuation of business as usual, with more of the status quo. This view is often held by governments, education systems and organizations

**Collapse** imagines the decline and degradation of our current system or environment, although it should be noted that this model does not (always) represent the worst case scenario.

**Discipline** relates to a future where our societal behaviors adapt to internal or environmental limits, as societies react to the status quo being undesirable or unsustainable.

**Transformation** proposes new technology or societal elements that could completely change our way of life; game changers.

Each of these models pivot around inflection points, transformation points and decline points.

We also found Dator's suggested process for engaging people in using the scenarios to generate 'preferable futures and goals to be relevant to our task as well.

The two key uncertainties we discerned from the interview data to use for our scenarios of four futures are :

- Climate resilience of the region's infrastructure (robust to inadequate)
- Middlebury engagement with the community to address climate change (actively engaged to disconnected/absent)

From these two uncertainties we developed four futures:

Growth: The college is highly engaged in community based action research to support climate change adaptation and resilience and infrastructure resilience is inadequate for climate impacts.

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<sup>1</sup> Dator, Jim. University of Hawaii Manoa. *Alternative Futures at the Manoa School*. Journal of Futures Studies, November 2009, 14(2): 1 - 18.

**Collapse:** The college is disconnected and absent community based action research to support climate change adaptation and resilience and infrastructure resilience is inadequate for climate impacts.

**Discipline:** The college is disconnected and absent from community based action research to support climate change adaptation and resilience and infrastructure resilience is inadequate for climate impacts.

**Transformation:** The college is highly engaged in community based action research to support climate change adaptation and resilience and infrastructure resilience is well-suited for climate impacts.

## **B. Using AI Tools to Generate Scenarios**

We initially wrote four scenarios summarizing what life could be like for residents of Addison County in 2050 as climate changed. In our research we found an interesting methodology<sup>2</sup> for extracting scenarios from literature sources relevant to the topic and decided to give artificial intelligence a shot at generation scenarios from the digest of the 15 interviews conducted by last year’s committee. With advice from Middlebury’s DLINQ director Amy Collier, we used the Claude AI platform to formulate four futures that were representative of “growth,” “collapse,” “discipline,” and “transformation” scenarios. To do this, we created a list of hopes, dreams, fears, and concerns expressed by our interviewees and combined these into one Microsoft Excel file. We downloaded this file as a csv and inputted it into Claude AI, along with a prompt.

Our first prompt was:



**NIKKI WAY**

**SNOWED/ICED IN**  
(2021, WATERCOLOR COLLAGE)

**Artist’s statement:** The Great Lakes region is considered a future refuge area against the extreme heat to come. However, there is much uncertainty about the future of our weather. Climate change may bring more intense lake effect snow and ice storms, even as snow and ice cover decrease overall. Our homes, ecosystems, and economies are at risk and we need to be more prepared. Water levels are already sweeping away houses, mangling infrastructure, and disrupting Indigenous traditions. This piece reflects my fear and uncertainty around climate change in the Great Lakes region.

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<sup>2</sup> Fergani, Alex, Jackson, M., *Extracting scenario archetypes: A quantitative text analysis of documents about the future*, Futures and Foresight Science, April 2019.

"Can you use this pdf to make 4 scenarios that revolve around this prompt "Our charge was to generate future scenarios and stories to stimulate ideas for the next phase of Middlebury's leadership in addressing the climate crisis, beyond 2028. The scenarios are intended to evoke conversation about what a preferred future would look like and how to get there, and/or to imagine strategies that could work across multiple futures to be better prepared for what we cannot predict. The key question around which we built these scenarios was: *How can Middlebury be an effective learning partner with the greater Middlebury community to address the climate crisis and the inequities of its impacts?* We used a scenario planning method developed by the Foundation for Our Future which we modified to suit our needs and constraints." But only looking at how Community-Based Climate Action Research and Climate Resilience of Infrastructure can interact"

The results of this prompt were more of a solutions based response to the challenge of climate change which was interesting but not the approach we were looking for in terms of painting four different future scenarios based on our two key uncertainties.

Our second prompt was:

Consider the following scenarios: \*Scenarios 1-4 from first prompt generation listed\*

Please adjust these four scenarios to follow four sets of scenarios where the first scenario is entitled "Transformation" where Middlebury College is deeply engaged with the surrounding community to adapt to climate change AND the region's infrastructure (roads, utilities, energy systems, water supply, wastewater treatment, education, medical care) is well-suited for the impacts of climate change (flooding, drought, very hot summers, warmer winters with less snow, changes in vegetation, more health impacts). The second scenario is entitled "Discipline" scenario where Middlebury College is deeply engaged with the surrounding community to adapt to climate change AND the region's infrastructure (roads, utilities, energy systems, water supply, wastewater treatment, education, medical care) is ill-prepared for the impacts of climate change (flooding, drought, very hot summers, warmer winters with less snow, changes in vegetation, more health impacts). The third scenario is entitled "Collapse" where Middlebury College is not involved in working with the surrounding community to adapt to climate change AND the region's infrastructure (roads, utilities, energy systems, water supply, wastewater treatment, education, medical care) is ill-prepared for the impacts of climate change (flooding, drought, very hot summers, warmer winters with less snow, changes in vegetation, more health impacts). The fourth scenario is entitled "Growth" where Middlebury College is not involved in working with the surrounding community to adapt to climate change AND the region's infrastructure (roads, utilities, energy systems, water supply, wastewater treatment, education, medical care) is well suited for the impacts of climate change (flooding, drought, very hot summers, warmer winters with less snow, changes in vegetation, more health impacts). When adjusting these four scenarios, please also elaborate on what daily life would be like for residents and students in these scenarios.

\*Combined with results from a prompt to adapt a previous four scenarios based on the same questions listed above

We found the results of the second prompt to be a pretty good set of descriptions for use as conversation starters for future outreach and engagement efforts to discuss what goals and strategies could be included in Beyond Energy2028 efforts by the College and surrounding communities. They are described further

below. We also plan to review and edit the AI generated scenarios further to make them more relevant to our specific circumstances and to bring back in the voice, and quotes, of our interviewees where they connect with these scenarios to give them a more human touch as well.

### C. Envisioning climate change impacts in 2050

We also researched the Vermont Climate Assessment 2021 and used its projections to imagine what Addison County and the Lake Champlain basin could look like in 2050 to provide an overall setting for the scenarios regarding the college and it's relation to the surrounding community in the response to climate change.

To provide some visual prompts for imagining what climate change could be like for people and communities over the next 25 years or so, we have interspersed images from the US Global Change Research Program's call for art to move people to greater understanding and action. The call received more than 800 submissions, and the final collection features the work of 92 artists. Their work, which represents all 10 National Climate Assessment regions, offers a powerful depiction of climate change in the United States—its causes and impacts, as well as the strength of our collective response<sup>3</sup>.

## 2. Envisioning Climate Change in 2050 in Addison County

### A. What could Addison County look like in 2050 due to climate change?

Addison County and its towns and population have been through a lot of change since the late 2020's. Shifts in climate have had a profound influence on recreation and tourism, health, water, forests, agriculture and related economic impacts and changes.

From a birds eye view looking over the Champlain Valley and Addison County the landscape is different than it was in 2028.

The fall foliage colors have changed. There are more yellow and orange hues of oaks in the forest landscape and fewer bright reds of the maples. More patches of dead gray tree stands are visible caused by various invasive pests, like spruce bud worm and emerald ash borers that have



**RITIKA S.**  
**YOUTH ENTRY, GRADE 8**

**REDRAWING THE EARTH**  
(2023, COLORED PENCIL)

**Artist's statement:** In my art, I try to convey that we can help reverse the effects of climate change. One hand is erasing the pollution caused by industrialization the world over, and the other is redrawing actions to restore the Earth's beauty. I have always tried to help out the Earth, through stream clean ups and more. I hope people learn from my art that they can help change the world by just doing simple things like driving less, not littering, and maybe even setting up solar panels or wind turbines. The effects of climate change are only in our hands, so we should do whatever we can to help.

<sup>3</sup> <https://nca2023.globalchange.gov/art-climate/>

proliferated with the milder winters and warmer summers. The leaves stay on longer into the Fall and tourist visits are taking place over a longer period of time between late September and mid-November.

There are also more invasive tree and shrub species in the understory and they have changed the appearance of the forest stands as well. From above one might also see more deer and more hunters over longer period of time in the Fall. Deer hunting season starts earlier and goes later than it used to because changes in the landscape have favored them with more food to browse and easier access to it. The understory of the forests have also been heavily grazed by large deer populations.

With the longer growing season and the state's efforts to localize food production, many small operations have sprung up and, from above, there are more open spaces being used for both small scale agriculture, and larger dairy and cattle operations, which have benefitted from a longer growing season to provide hay and other crops to feed their animals. During rainy periods the waterways run more silty and brown where soil erosion measures have not been adequate as these operations have proliferated.

One can also see that there are a few blackened forest areas that show signs of previous fires which have occurred occasionally over the past few decades during period of prolonged drought caused by lightning strikes and occasionally by careless campers' fires. These areas are regenerating not with the more familiar maple/beech/birch/spruce tree types but with oak/hickory/ash/cottonwood tree types.



**JUDITH PECK**

**COASTAL COMMUNITIES**  
(2021, OIL PAINT)

**Artist's statement:** Coastal communities feel the effects of climate change often more drastically than the rest of the county. My painting shows a figure in an inconvenient landscape, on a roof in a flooded town. Global sea level has been accelerating, and the United States has witnessed increasing numbers of intense rainfall events. Ignoring this is no longer an option.

There are also visible gouges in the landscape where erosion channels have opened up on bare ground caused by the more frequent and intense rain events that happen from time to time, with deeper cutting and soil loss after prolonged dry spells.. During long dry spells which have increased as well, the air gets quite dusty and visibility across the landscape to the views of the Adirondacks and Green mountains is decreased significantly from time to time. People tend to stay indoors during these times, especially the very old and very young who are more prone to respiratory complications.

Along the course of the Otter Creek, and other rivers, running into Lake Champlain the extent of the great wetland complex has grown due to efforts to conserve land along the floodplains to hold the greater volumes of water that swell the watershed from time to time. As a result, more frequent flooding has been mitigated and the rise and fall of Lake Champlain's water levels is less extreme than it could have been. River flows are more steady and less prone to flash flooding. Also visible are several mobile home parks that have been relocated from low lying flood prone areas along rivers and streams to higher ground well out of harm's way. A few abandoned flood damaged structures dot the landscape here and there that have not yet been removed by FEMA for those owners who participated in their buyout program and who have moved to new locations away from flood zones.

### 3. Scenarios - Four Futures of Climate Change in Addison County

This section presents our four AI generated scenarios based on data from our interviews and the two key uncertainties we used that are described above and two successive prompts fed to AI platforms. We use the scenarios to explore responses to our key question:

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



**KELLY CURL**

**DEFORESTATION**  
(2023, OIL PAINT)

**Artist's statement:** I record the landscape through paintings, drawings, photography, and mixed media, highlighting landscape form, process, texture, and natural patterns at varying scales. This work illustrates an aerial version of deforestation. Forests are home to wildlife, significant carbon banks, controls for flooding and erosion, and a source of filtration and clean air. Land use is a difficult topic, as farming is critically important to feed our growing population.

## Scenario 1: Transformation

In this scenario, 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.

In this scenario where Middlebury College is deeply engaged with the surrounding community to adapt to climate change, and the region's infrastructure is well-suited to address the impacts of climate change, daily life for residents and students is significantly different from the current state. 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.



**KATHARINE CARTWRIGHT**

**ALTERNATIVES**  
(2022, WATERCOLOR)

**Artist's statement:** "Alternatives" is an aesthetic interpretation of five viable alternatives to petroleum-based energy: biofuel, wind turbines, geothermal plants, hydroelectric dams, and solar panels. The interconnection of the symbols used for each energy source in the design emphasizes a combined approach to a long-term feasible solution. Environmentally friendly materials used in the creation of this painting include cotton paper and water-based pigments.

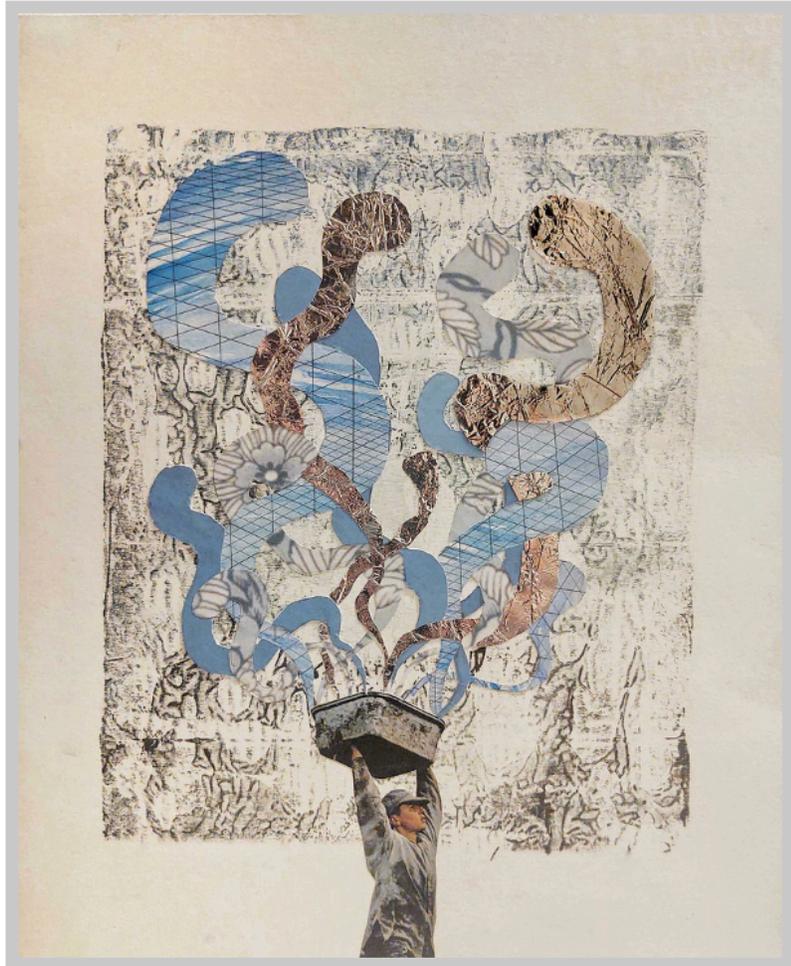
Residents and students rely more on public transportation, electric vehicles, or bike-share programs to commute, reducing carbon emissions and traffic congestion.

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



**SPENCER OWEN**

**CATCH / RELEASE**

(2022, EMERGENCY BLANKET, WATERCOLOR, PRINTER INK, MAGAZINE COLLAGE)

**Artist's statement:** This piece shows a worker catching or releasing water droplets, and I use emergency blankets to represent disaster relief. Climate change has increased the intensity of natural disasters, which destroy water infrastructure (for example Hurricane Maria in Puerto Rico). Clean water has also been prioritized for affluent neighborhoods. The residents of Flint, MI, who are mostly low-income and African American, did not have clean water for years. It is a human necessity to have human water, to catch it, yet people are still being forced to release their right to clean water.

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 ensure 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.

Overall, daily life in this scenario is characterized by a strong commitment to sustainability, resilience, and community engagement. Residents and students/faculty/staff actively participate in climate change adaptation efforts, benefiting from a well-designed infrastructure that prioritizes environmental stewardship, resource efficiency, and preparedness for the impacts of climate change.

## **Scenario 2: Discipline**

In this scenario, 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 where Middlebury College partners with the local community through Resilience Hubs to address climate change adaptation but the region's infrastructure is ill-prepared for climate impacts, daily life for residents and students could be 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 engineering, environmental studies, social sciences, 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.

Despite the challenges posed by ill-prepared infrastructure, the Resilience Hubs serve as a catalyst for collective action, knowledge sharing, and capacity-building. By fostering collaboration between residents, students, researchers, and experts, the community develops innovative solutions tailored to their specific needs and priorities, while also addressing inequities and promoting resilience in the face of climate change impacts.

### Scenario 3: Collapse

In this scenario, 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



**MIKAELA R.**  
**YOUTH ENTRY, GRADE 9**

**SUNDAY IN THE PARK WITH CLIMATE CHANGE**  
(2023, WATERCOLOR)

**Artist's statement:** My painting is a take on the famous 'A Sunday on La Grande Jatte' painting by Georges Seurat. In the original painting, people are enjoying a nice day in the park. My reimagined painting includes a fiery sky, polluted water, and suffering people. These are all effects of climate change that have begun to occur. My painting also shows a wealthy person, who has the luxury of ignoring the problems. I believe this will all worsen if something isn't done to reverse this tragedy.

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 would be 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 become 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.

Overall, daily life without Middlebury College's involvement and climate-resilient infrastructure is characterized by frequent disruptions, resource scarcity, health risks, and economic instability. Residents and students/faculty/staff face significant challenges in meeting their basic needs and maintaining their quality of life, with the most vulnerable populations being the most severely affected.

#### Scenario 4: Growth

In this scenario, 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.

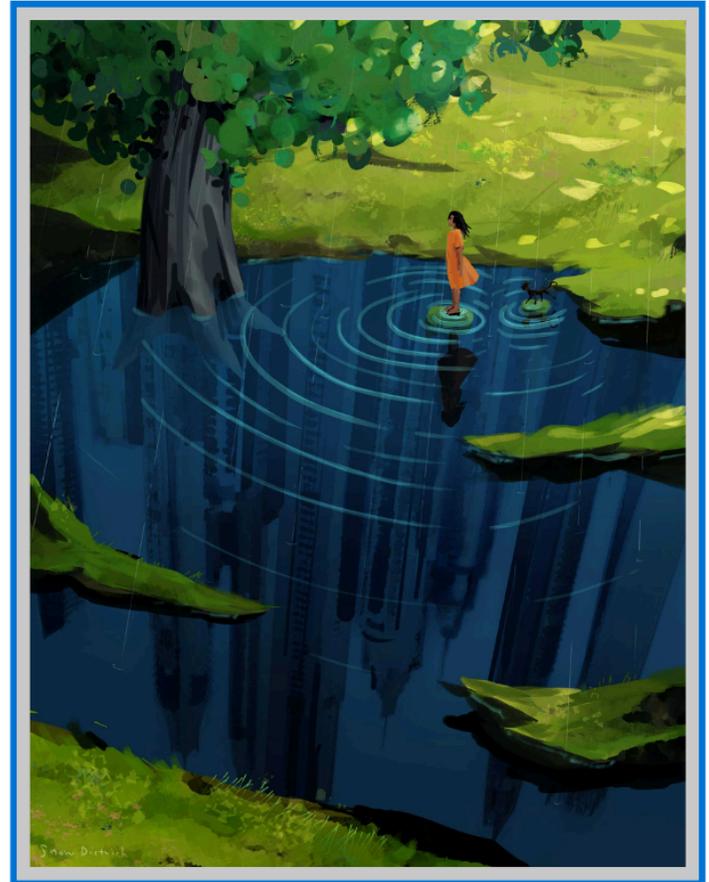
Daily life for residents is relatively stable and resilient, thanks to the region's climate-adapted infrastructure. However, there is a missed opportunity for collaboration and knowledge-sharing between the college and the community.

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, despite the region's infrastructure being well-suited for the impacts of climate change, daily life



**SNOW DIETRICH**

**REFLECTING ON WHAT COULD BE**  
(2023, DIGITAL ART)

**Artist's statement:** As natural areas are replaced with human development, we are stealing from future generations the right and joy of feeling a connection to the natural world. This piece shows a girl yearning for the experience of exploring a waterway, but the cityscape reflected in the water suggests the reality in her environment is different. I hoped to not only convey a solemn feeling, but also the optimism of youth to imagine what could be.

for residents and students/faculty/staff would likely still face 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 receive the same level of 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.

#### 4. Next Steps for Use of Scenarios

We had intended to define and develop these scenarios sooner than we anticipated and did not have time to organize different groups of people to share them and engage in a process of ideating about what they could mean for climate goals and strategies the College could pursue in partnership with other organizations, officials and active citizens to be better prepared for climate change. The next steps we would recommend for the next phase of this project are:

1. Review and edit scenarios for use in efforts to engage and solicit feedback from various groups, including use of any relevant quotes and comments from the analysis of hopes, dreams, fears and concerns of the original 15 interviewees. Check to see if IRB approval is needed to use quotes.
2. Prepare a powerpoint presentation of the scenarios to share with key groups.
3. Identify a group of key stakeholders to share the scenarios with and an agenda for a one hour meeting to solicit feedback.
4. For an agenda and process, consider using this approach from the Manoa Hawaii Research Center for Futures Studies program referenced earlier in this report - See Appendix B



**JILLIAN PELTO**

**REPLANTING RESILIENCE (DIPTYCH)**  
*(2022, WATERCOLOR AND COLORED PENCIL)*

**Artist's statement:** This work addresses the ways humans and natural habitats are responding to climate adversity in the Gulf of Maine. Three line graphs are incorporated into the painting. They depict, from bottom to top: historic sea level rise from 1950-2021 and projections for future rise to 2050; the increase in National Wildlife Refuge acreage in Massachusetts, Maine, and New Hampshire from 2001-2020; the increase in the percentage of US adults who supported policies to protect the environment from 2008-2019. Together, these data show how public efforts are rising to meet the tide.

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**Appendices below**

## **APPENDICES**

### **Appendix A - First prompt AI results**

The prompt for this AI generated set of scenarios did not include the two axes of uncertainty that we were using to create our four scenarios, nor did it include any prompting regarding the four future scenario archetypes we were also using to frame each of the scenarios (Growth, Collapse, Discipline and Transformation).

#### **Scenario 1: Collaborative Resilience Hubs**

In this scenario, Middlebury College partners with the local community to establish a network of "Resilience Hubs" across the region. These hubs serve as physical spaces where community members, researchers, and experts can come together to collaborate on climate action research and infrastructure resilience projects.

The hubs are equipped with state-of-the-art facilities, including laboratories, workshops, and community spaces, enabling hands-on research and experimentation. Community members can actively participate in research initiatives, contributing their local knowledge and experiences, while researchers leverage their expertise to develop innovative solutions for climate-resilient infrastructure.

Through these collaborative efforts, community-based research projects are undertaken, focusing on identifying vulnerabilities in existing infrastructure and developing sustainable, climate-adapted alternatives. The hubs also serve as educational centers, providing training and capacity-building programs for community members to understand and implement resilient infrastructure practices.

#### **Scenario 2: Virtual Collaboration Platform**

In this scenario, Middlebury College develops a cutting-edge virtual platform to facilitate remote collaboration between researchers, community members, and infrastructure experts. The platform leverages advanced technologies, such as virtual reality, augmented reality, and real-time data visualization, to create immersive and interactive environments for collaborative research and infrastructure planning.

Community members can virtually contribute their local knowledge and experiences, while researchers and experts can simulate and test various climate resilience strategies for infrastructure. The platform enables real-time data sharing, allowing for seamless collaboration and decision-making across different stakeholders and locations.

Additionally, the platform includes educational modules and training resources, empowering community members to understand and engage with climate-resilient infrastructure concepts. Virtual workshops and seminars are conducted, fostering knowledge exchange and capacity-building within the broader community.

### **Scenario 3: Community-Driven Infrastructure Innovation Labs**

In this scenario, Middlebury College establishes a network of community-driven innovation labs focused on developing climate-resilient infrastructure solutions. These labs are strategically located within various communities, ensuring accessibility and direct involvement of local residents.

The labs are equipped with tools, equipment, and resources necessary for prototyping, testing, and iterating on innovative infrastructure solutions. Community members take the lead in identifying local infrastructure challenges and proposing potential solutions based on their lived experiences and traditional knowledge.

Researchers from Middlebury College collaborate with community members, providing technical expertise, guidance, and access to cutting-edge research and technologies. Together, they co-create and validate climate-resilient infrastructure solutions that are tailored to the specific needs and contexts of each community.

These community-driven labs also serve as educational hubs, offering workshops, training programs, and hands-on learning experiences for community members to develop skills and knowledge in climate-resilient infrastructure practices.

### **Scenario 4: Integrated Climate Resilience Curriculum**

In this scenario, Middlebury College integrates a comprehensive Climate Resilience Curriculum into its academic programs, with a strong emphasis on community-based research and infrastructure resilience. The curriculum is designed to equip students with the knowledge, skills, and practical experiences necessary to tackle climate-related challenges effectively.

The curriculum includes interdisciplinary courses that combine theoretical concepts from various fields, such as environmental science, engineering, urban planning, and social sciences, with hands-on experiential learning opportunities. Students work closely with local communities, conducting research projects focused on assessing infrastructure vulnerabilities and co-developing climate-resilient solutions.

Community members actively participate in the learning process, sharing their local knowledge, experiences, and perspectives. They collaborate with students and faculty, providing valuable insights and feedback throughout the research and solution development processes.

Additionally, the curriculum incorporates community-based internships and field work, allowing students to gain practical experience in implementing climate-resilient infrastructure projects within real-world settings. This hands-on approach fosters a deeper understanding of the complexities involved and nurtures a collaborative mindset among students and community members.

These scenarios aim to illustrate various ways in which Middlebury College can effectively engage with the broader community, fostering collaborative research, knowledge sharing, and capacity-building efforts focused on climate-resilient infrastructure development. Each scenario presents a unique approach, ranging from physical collaboration spaces to virtual platforms, community-driven innovation labs, and integrated academic curricula.

## **Appendix B - University of Hawaii Manoa Process: How to run the "Four Futures Exercise"**

The goals of the four futures exercise are:

1. To have people "experience" at least one future substantially different from the present in order to enable them to question the default assumption that "the future is simply the present extended and amplified."
  2. To honor and have people experience images of the future actually held by some people today, and to determine how they might successfully thrive in such a future.
  3. After having spent some time dealing with a specific future, to decide in what ways it is preferable and in what ways it is undesirable.
  4. To the extent that future is desirable, to consider what needs to be done now to move towards such a future.
  5. To the extent that future is undesirable, to consider what needs to be done now to prevent such a future from happening.
  6. To encourage people to move beyond any of the presented alternative futures and to develop a collectively-preferred future of their own (or else to adopt as their preference, and to begin moving towards, one of the alternative futures).
- Instructions for engaging the alternative futures

Here is an example of the instructions that might be given to people before they "experience" an alternative future.

Futures for XXX

Welcome to your future!

Whatever you may initially feel about the future into which you have been so suddenly placed, please suspend your disbelief! You have no more control over your being in this future than you had over when and where you were born. This is your life. Love it, because you can't leave it.

For the next few minutes, make the best of the future you find yourself in, just as you obviously do in the present. Don't argue over whether you think it will happen as described or not, or whether you like it or not. Please just accept it, and try to respond positively (according to whatever you think is "the best you can do") to the world in which you find yourself. Don't dwell on the "negative" aspects except to understand them, and to develop a "positive" response to them. It just doesn't get any better than this!

Your task is to determine as a group what life in XXX might be like if the future were to be as described in your scenario.

*A. General discussion of your future*

What will most people be doing in such a world?

What economic problems that worry people now will be gone, or relatively minor?

What environmental problems that worry people now will be gone, or relatively minor?

What other problems that worry people now will be gone, or relatively minor?

What new (economic, environmental, social, health, energy or other) problems will people have to worry about that are absent or unimportant now?

B. How probable (likely to actually occur) is the future described in your scenario?

C. How preferable is the future described in your scenario? That is, how close is it to your own preferred future?

D. To the extent the future described in your scenario is judged preferable by your group, what five things need to be done now to move towards those desirable aspects of that future?

E. To the extent the future described in your scenario is judged undesirable by your group, what five things need to be done now to see that those undesirable aspects not occur?



Middlebury

## Part 2

# Energy Dashboard and Game Committee Report

*Tyler Hadar, Matthew Hensel,  
Emily Kuperstein, Olivia Maloney,  
Claire Quigley, Violet Ross*

Middlebury Environmental Council  
and  
Middlebury Institute of International Studies  
Sustainability Council

Final Report 2023 – 2024

# **Energy Dashboard Committee 2023-24 Report**

**Committee Members:** Tyler Hadar, Matthew Hensel, Emily Kuperstein, Olivia Maloney, Claire Quigley, Violet Ross

## **Description of Committee Assignment**

Our committee assignment is to create a functioning dashboard that displays energy usage of various buildings on campus. With the Energy2028 initiative, the dashboard would be an extremely useful tool and addition for energy conservation and usage monitoring. We hope to publish this dashboard on Middlebury website for increased accessibility and awareness. After the dashboard is functioning, we thought it would be beneficial to develop a competition amongst dorms to promote a decrease in energy consumption. This would further increase student awareness and buy-in for these initiatives. If successful, we hope to scale-up competition to include other schools within the NESCAC!

We hope to properly scale the data and aggregate it into a simple visualization for the general public to be able to read and digest. While we have not scaled out our dashboard fully, we hope to continue this project in future semesters. We think this project is extremely beneficial to get Middlebury students to take individual action that aids the environmental movement. This is a tangible way for students to see their impact on the environment through energy consumption and enable them to be a part of a broader middlebury movement to commit to greater sustainability goals.

## **Executive Summary**

Our key findings were as follows:

- Analyzing Middlebury's current energy dashboard as well as conducting a survey of dashboards at other institutions allowed us to identify accessibility to the general student body as a priority for our dashboard.
- After conducting discussions with a variety of faculty and staff, in departments ranging from utilities to computer science, we gained access to Middlebury's entire live energy database. We then identified a platform (R's "tidydashboard" library) that could be linked to the live data in order to build a dashboard.
- We built a dashboard prototype to display trends in energy usage for select buildings on campus. The codebase for this dashboard will provide a crucial framework for the final dashboard.
- We presented our prototype and findings to peers at the Environmental Council Open House and gathered feedback.

### **Next Steps:**

The biggest priority for next year's committee should be expanding upon our current dashboard design and R code. We currently have a limited selection of buildings that we are measuring data on, thus it would be beneficial for the committee to add more information to the dataframe once this is available. Additionally, the committee should continue to work on visualization of the data and creating an appealing, user-friendly website for student, faculty, staff, and prospective student use. After increased data visualization and productivity, the committee should work on getting this program published as a website for public use.

Moving forward, we are hoping that the Game and Dashboard subcommittee in the following semesters will build upon the dashboard that we've developed. Notably, we are hoping that the committee uses our dashboard and our R code to create an interactive game to incentivize students to decrease their energy consumption as much as possible. This game would facilitate healthy competition with attainable goals by having buildings within the same classification (i.e. Residential, mixed-use, dining) competing against each other. Eventually, we hope that this energy game will spread across colleges and create a competition between the NESCAC colleges, as we believe that we can use pre-existing relations and rivalries to generate incentive for the game.

In addition to facilitating healthy competition with school spirit, we hope to involve ResLife in these efforts. We want to implement Resident adv representatives who encourage students each month to decrease their energy consumption within their hall or building. These representatives could add incentives to the game, such as hall/building events that celebrate a decrease in energy consumption to make students want to continue participating in the game.

## **Committee Progress Report Summary**

Our committee has figured out what a feasible dashboard would look like and the necessary elements to accompany it such as drop down menus, categorization by building type and specific buildings, and see a potential to also display a map to add a greater visual component. This will be displayed in the section that follows.

Due to the dashboard not being a fully functioning website yet, we have not promoted or started the game aspect. That being said, we have fully flushed out the way we see the game

would work best promoting fair competition while promoting a decrease in energy consumption. The specific details for this game will be outlined in the next section.

## **Committee Progress Report**

### **Expanding Upon Prior Committee Work**

A prior committee surveyed 11 other institutions of higher learning which have implemented similar dashboards and/or competitions on campus. They provided links to the dashboards and screenshots of the dashboards, which was helpful when we were considering aspects that we would be interested in including in our dashboard, or would hope to avoid when creating a dashboard. Upon review of the prior committee's inventory, we found aspects of the Bowdoin College, Yale University, and Boston University dashboards most appealing for our mock dashboard. The inventory led us to conclude that simple graphs with intuitive visualizations allow for ease of usability, and cluttering the dashboard with too much information often confuses the viewer. The three aforementioned dashboards include some or all of these findings, and thus should be used to inform decisions in tandem with our mock dashboard when creating one for Middlebury College.

### **Data Aggregation**

We identified Middlebury's SQL energy usage database as our source of data for the dashboard. This database provides minute-by-minute updates of energy usage in almost every building on campus. The robustness of this data allows the dashboard to display a variety of energy usage information.

Because of restrictions on access to the database, we were unable to use many of the most popular, user-friendly dashboard creation softwares. Therefore, we decided to build the dashboard from scratch using R. Although this approach required more complex programming, it

allowed us to create a dashboard that was more closely tailored to our goals. We now also have a codebase that future iterations of the committee can build on and ultimately host on one of Middlebury's servers as a public website.

## **Dashboard Design**

Over the course of the academic year, we have developed a mock dashboard. We therefore recommend implementing a similar dashboard with the following considerations and intentions in mind:

- 1. Maximize usability:** ensure that the average student, faculty, staff, or community member can easily navigate through the dashboard and understand the information that is being presented
- 2. Encouraging Energy Use Reduction Over Time:** In order to best encourage reductions in energy usage, we sought to employ graphics focusing on energy use over time. Thus, instead of simply showing total energy usage, we suggest employing graphics that show energy use over time by category (residential, mixed-use, dining, and athletic). As the focus of this project is reducing energy consumption from the prior benchmark, our mock dashboard emphasizes percent change, using green to denote significant reductions, and red to signify an increase in usage.
- 3. Game Design and Fair Competition Plan:** While we have not yet implemented our game, we have developed a framework for which this could work. In creating a campus-wide competition, we sought to maximize both fairness of the game, as well as fairness of representing the data on our dashboard. Given the previously mentioned accessibility and usability focuses of the new dashboard, the game would allow students across campus to easily access their building's data and compare current energy

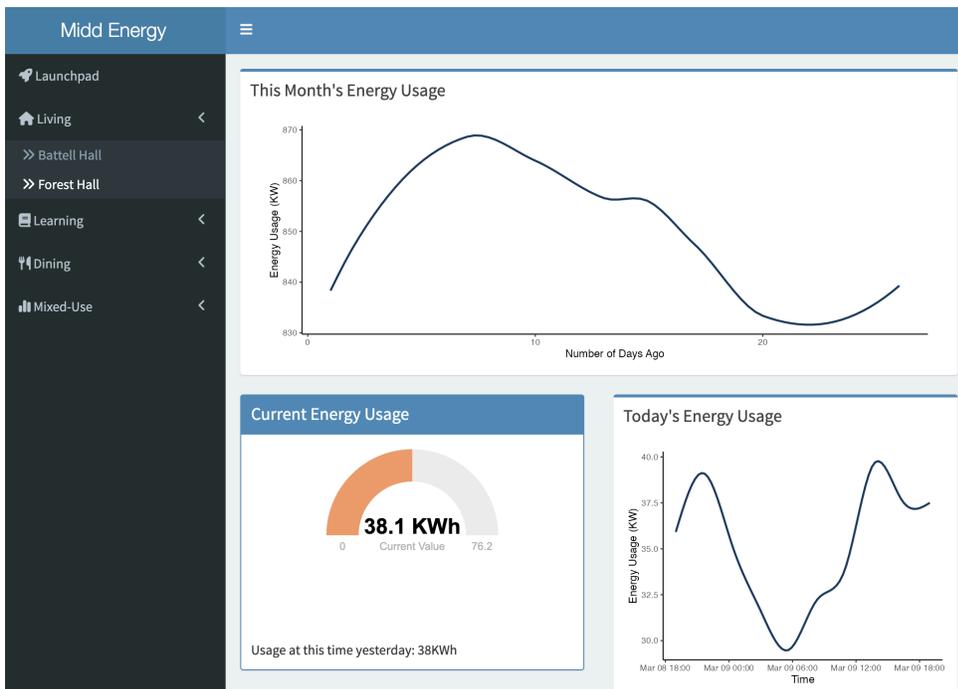
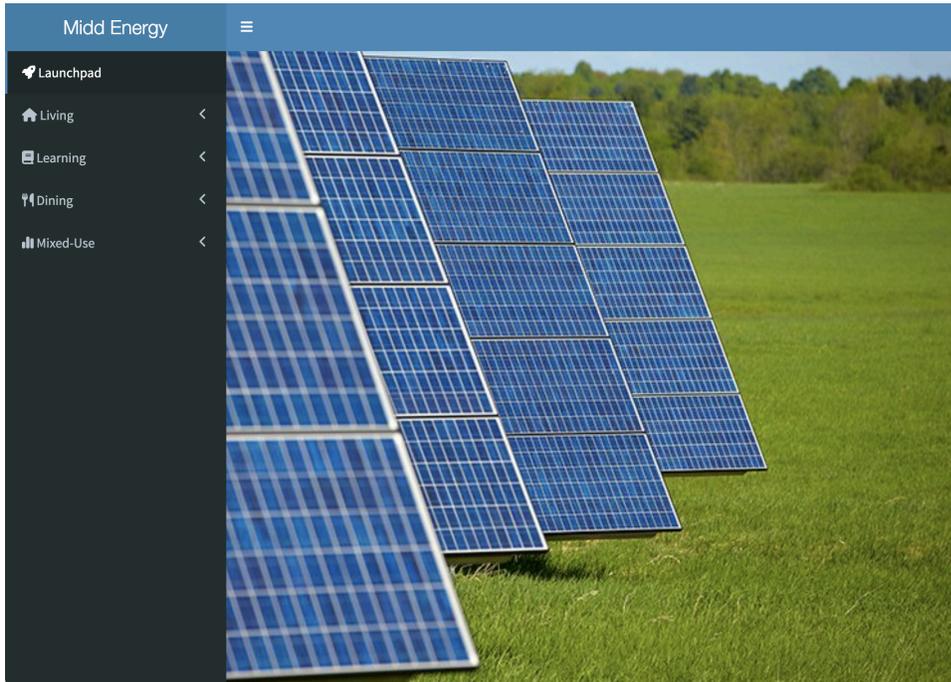
consumption data with previous levels. We aim to incentivize buildings to decrease their energy consumption every week/month/year – the “winner” of each iteration of the game can claim victory when they have the largest percentage decrease in energy consumption from the prior week/month/year in their building category (residential, mixed-use, etc.). As a result, there may be multiple winners if multiple buildings experience the same percentage decrease in energy consumption. Rather than pit buildings and students against each other, the game aims to encourage collective action and the communal reduction of energy usage across campus. Our goal is to implement this campus-wide game following the successful creation of the dashboard that all students can access.

## Graphics:

### Initial Dashboard Design Brainstorm:



# Current Dashboard Prototype:





Middlebury

## **Part 3**

# **State of Sustainability and STARS Committee Report**

*Josette Chun, Ella Wilshire, Graham Gordon*

Middlebury Environmental Council  
and  
Middlebury Institute of International Studies  
Sustainability Council

Final Report 2023 – 2024

# **THE STATE OF SUSTAINABILITY COMMITTEE REPORT**

## **2023-2024**

**Josette Chun '26**

**Ella Wilshire '26.5**

**Graham Gordon '26.5**

### **I. Description of committee assignment**

The State of Sustainability committee was tasked to spread awareness and information surrounding the Middlebury STAR's report rating as well as mediating conversations between faculty and staff about the report. The committee met with different college departments to share the information and gaps throughout the first semester. The committee organized the STARS report into digestible segments and compared Middlebury's results with other universities. Moreover, the committee worked to publish the STARS website on the college website.

### **II. Committee progress (timeline, who we've worked with/talked to, challenges)**

September-October: Meeting regularly to review and understand the STARS report including: how Middlebury gathered data, why certain departments/sections were unanswered or labeled as "not pursuing", and finding ways we could improve on the overall score.

October-December: We then scheduled interviews/discussions with facilities head Mike Moser and dining services head Dan Detorra to determine what information or support they need to fill in the gaps in the STARS report. Moreover, we brainstormed ways to make our facilities and dining services more sustainable for the future STARS report.

January-March: After taking a break from the STARS report in January, we pivoted the scope of the committee to focus on tangible changes within dining services and campus sustainability. Using the data and statistics in the 2022 STARS report, we created brochures and graphics to advertise sustainability at Middlebury for students to learn about. Information on current campus

composting/food waste management, sustainable dining options, and methods of decreasing food waste are aspects we highlighted in the graphics.

March-April: The last goal of this committee was to create a [website](#) for STARS in the sustainability section for FECH. With the help of Tara Federoff, the committee created a platform where anyone interested in the STARS data can access the report, learn what it could be used for, and view any updates made to the report.

### **III. Committee progress summary and next steps**

Our highlights of the year include productive conversations fostered with dining/facilities staff surrounding the implementation and findings of the STARS report. We focused on tangible actionable items Middlebury students could employ to raise sustainable practices around campus. Specifically, we created educational posters hung in the dining halls raising awareness about food waste with QR codes linked to the data within the STARS report.

The next steps for the STARS website could be adding the new 2023/2024 STARS report, highlighting any new sustainability initiatives made in 2024, and adding the informational brochures made by this committee. The literacy assessment was another project idea workshopped earlier in Fall 2023. Unfortunately, we did not get to the project due to time constraints and the assigned responsibility of our committee. We strongly suggest the committee pursue creating a Sustainability Literacy Assessment (SLA) that meets the AASHE's. The SLA could be administered during orientation week for first-year students using the Vector platform. The follow-up assessment would be administered two years after their first test. The paired testing would allow the committee to track the changes in knowledge. Not only would this improve Middlebury's score on the STARS report, but more importantly, the SLA would serve the broader Middlebury community of students, faculty, and staff, to understand how the student body sees, understands, and knows sustainability. It would serve as data to measure the change in sustainability education before and after Middlebury. Moreover, the assessment would serve as a holistic tool to bridge gaps between student engagement with sustainability events or programs at the college. As another next step, we recommend the committee continue to research missing data, out-of-date information, and low performance on the STARS report. This could be

accomplished by continuing to meet with various faculty and staff members to either audit incorrect or outdated data. We urge the committee to continue to first and foremost, obtain a holistic understanding of the STARS report and then find ways such as posters, brochures, graphics, and more, to be able to make the STARS report digestible and widely accessible to the Middlebury community. Currently, the STARS report is a vastly underutilized tool for promoting and comprehending sustainability. Many individuals across the Middlebury College community work hard to collect data and voluntarily submit this report, and to honor the hard work, the STARS report should be used to advance sustainability education.



# REDUCE FOOD WASTE

## BE MINDFUL FIGHT FOOD WASTE AT MEALTIMES!

UNITED STATES DISCARDS NEARLY  
120 BILLION POUNDS OF FOOD  
WASTE PER YEAR.

ACCORDING TO THE WORLD WILDLIFE  
FEDERATION, THE PRODUCTION OF  
WASTED FOOD IN THE UNITED STATES  
IS EQUIVALENT TO THE GREENHOUSE  
EMISSIONS OF 37 MILLION CARS.



CHECK OUT THE STARS REPORT  
TO LEARN ABOUT HOW  
MIDDLEBURY RANKS IN  
SUSTAINABILITY  
PRACTICES,  
INCLUDING FOOD  
WASTE! YOU CAN  
HELP MIDDLEBURY  
SCORE EVEN  
HIGHER IN RELATION  
TO FOOD PRODUCTION!





Middlebury

## Part 4

# Middlebury Institute of International Studies Sustainability Council Report

*Hannah Ditty, Lily Edelman-Gold,  
Andrew Hernandez, Sydnie Miller, Jack  
Anderson*

Middlebury Environmental Council  
and  
Middlebury Institute of International Studies  
Sustainability Council

Final Report 2023 – 2024



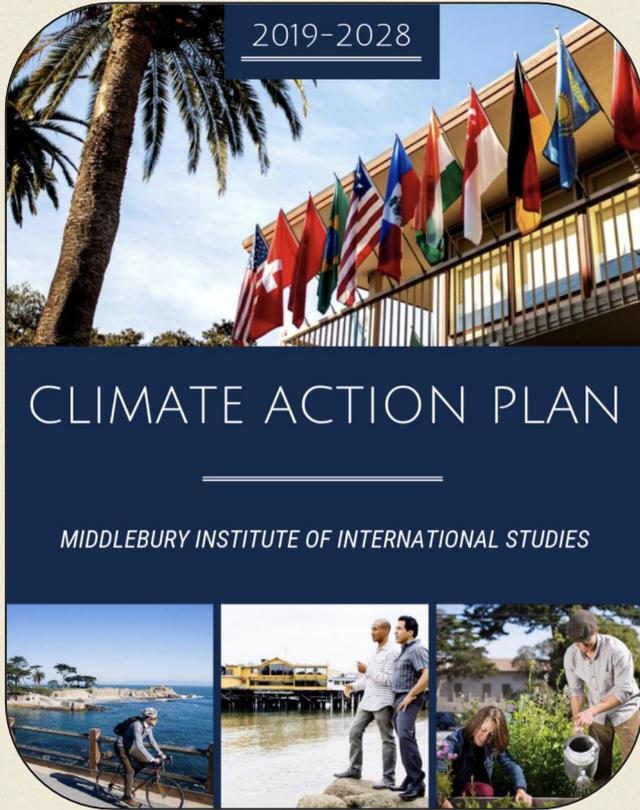
# Sustainability Council

## Climate Action Plan – Progress to Date

# Agenda

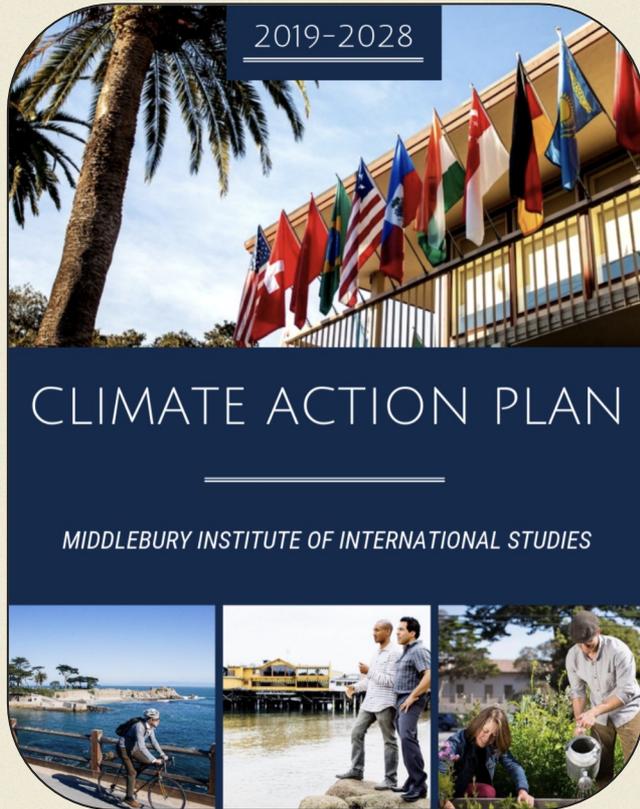
- 01 CAP Overview**
  - Introduction to our Climate Action Plan (CAP)
  - High Priority Goals
- 02 Addendum**
  - 2023 Addendum Overview
- 03 Progress to Date**
  - Current Progress
  - Other Council Projects
- 04 Conclusion**
  - Looking forward
  - Final thoughts





# Climate Action Plan

- Written in 2018; edited and final draft completed in 2023; needs to be officially approved and published
- “Final Draft” is currently on the MIIS website under the [Sustainability Initiatives page](#).



# CAP High-Priority Goals

- Operational carbon neutrality by 2028
  - reducing scope 1 and 2 carbon emissions by 80 percent
  - offsetting the residual emissions
- Update Climate Action Plan every two years
- Hire a Sustainability Coordinator

# Addendum 1 (2023)



## 1st Addendum since CAP

- Established standardized processes
- Status tracker for goals
- Template for future versions



## Published bi-yearly

2019: CAP

2021: Mission

2023: Drafted

2025: Start next fall

# Progress to Date

## On track (2)

- Increase sustainability prominence on website
- Reduce water consumption

## Ongoing (3)

- Market MIIS as a sustainable campus
- Monitor waste output
- Enforce 50/50 Vegan Food requirement

## Completed (4)

- Solar panels
- EV charger
- Addendum
- Communication of sustainability as a priority

## Not on track (2)

- Waste diversion
- Operational neutrality by 2028

## Discontinued (3)

- Opt-in to 100% zero emission power by 2019
- Conduct facilities staff energy efficiency training
- Hire sustainability coordinator

## Not started (8)

## Under revision (1)

- See Addendum for more details



# Other Council Projects

## 9 Lives Swap

- Free clothing swap
- Hosted monthly

## GHG Audits

- Organized 10 years of data
- Reformatted and published audits
- Standardized process

## Earth Week

- Weeklong series of events
- Organized by Hannah Ditty with help from Council members
- Events:
  - Trivia & game nights
  - Birdwatching and Kayaking at Elkhorn Slough Natural Reserve
  - Upcycling events
  - Film screenings
  - And more!



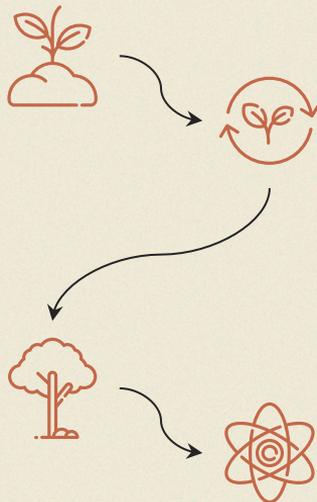
# Conclusion: Looking forward

## Incoming GAs

- Sydney and Jack onboarding now
- 3rd GA TBA
- SSL Intern: Remi

## Short Term

- Hire a sustainability coordinator



## Addendum 2 (2025)

- Start writing in Fall 2024
- Goal: published by Fall 2025

## Long Term

- Develop Monterey/VT relationship
- Standardize processes (audits, addendums, information sharing)
- Achieve carbon neutrality by 2028

# Final thoughts



Make  
Sustainability  
Mainstream



Increase  
support and  
resources



More successes,  
fewer missed  
goals

# Thanks!

Questions?

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