

**NYSERDA Clean Green Campuses
(formerly REV Campus Challenge)
Market Evaluation, 2021-2022 School Year**

Final Report

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Table of Contents

Executive Summary	1
1 Introduction	18
1.1 Summary of Methods	19
2 Market Evaluation Results	21
2.1 Market Progress Indicators	21
2.2 Awareness and Value of Clean Energy	28
2.3 Clean Energy Initiatives and Influence	38
2.4 Student and Community Engagement	47
2.5 Support and Recognition	54
3 Methodology	65
3.1 Member and Nonmember Surveys	65
3.2 In-Depth Interviews	67
3.3 Student Survey	68
3.4 Secondary Data Review	69
Appendix A. Indirect Impacts Estimation Methodology	A-1
Appendix B. Student Survey Demographics	B-1

List of Figures

Figure 1. COVID-19 Impacts on Campus Building Use or Energy Efficiency Projects	26
Figure 2. Members Who Created or Updated a CAP, EMP, or GHG Inventory	31
Figure 3. Members Who Have, or Intend to, Report to a Clean Energy Initiative	32
Figure 4. Nonmembers Who Have, or Intend to, Report to a Clean Energy Initiative	33
Figure 5. Respondents by Member Level Who Have, or Intend to, Report to a Clean Energy Initiative...	34
Figure 6. Member Understanding of Clean Energy Opportunities	35
Figure 7. Nonmember Barriers to Joining Clean Green Campuses	37
Figure 8. Topics of Interest for Information Nonmembers Would Like to Receive from NYSERDA	38
Figure 9. Respondents Reporting Attending a Sustainability Event or Conference	40
Figure 10. Member Specific Event Attendance	41
Figure 11. Member and Nonmember Clean Energy-Related Accomplishments.....	42
Figure 12. Members Reporting Newly Completed Clean Energy Projects	43
Figure 13. Members Completing Initiatives by Knowledge Gained Since Joining Clean Green Campuses	45
Figure 14. Student Awareness of and Engagement with Campus Clean Energy Initiatives.....	49
Figure 15. Student Attitudes Toward Clean Energy Initiatives on Campus	51
Figure 16. Desired Campus Initiatives Among Students	52
Figure 17. Contributing Factors to Establish Community Partnerships.....	53
Figure 18. Participation in Peer Group or Knowledge-Sharing.....	55
Figure 19. Peer Influence on Clean Energy Projects and Initiatives.....	56
Figure 20. Member Likelihood to Engage in NYSERDA Programs in the Next 12 Months	58
Figure 21. Additional Resources to Help Clean Energy Goals.....	59
Figure 22. Level of Administration Support for Clean Energy Projects and Initiatives.....	60
Figure 23. Dedicated Staff for Clean Energy and Sustainability Initiatives	62
Figure 24. 2021-2022 Accomplishments and Clean Energy Recognition	63

List of Tables

Table 1. Primary Research Activities	5
Table 1. Clean Green Campuses Indicators Reported Annually – Cumulative Analysis	23
Table 2. Clean Green Campuses Indicators Reported Annually – Growth Rates.....	24
Table 4. Change in Student Enrollment and Staffing Levels.....	25
Table 3. COVID-19 Impacts to Clean Energy Projects or Energy Efficiency Projects.....	27
Table 5. Awareness and Value of Clean Energy Key Findings.....	28
Table 6. Percentage of Campuses Collecting and Reporting Energy Data, 2021-2022 School Year.....	29
Table 7. Percentage of Member Campuses Collecting and Reporting Energy Data, 2017-2022	30
Table 8. Clean Energy Initiatives and Influence Key Findings	38
Table 9. Influencing Factors to Complete Various Clean Energy Accomplishments (Members).....	44
Table 10. 2021-2022 Qualifications for Indirect Impacts	46
Table 11. Student and Community Engagement Key Findings.....	47
Table 12. Support and Recognition Key Findings.....	54
Table 13. Influence of Opportunity to Earn Recognition	64
Table 14. Completed Interviews	68
Table 15. Student Survey Response Rates.....	69
Table A-1. Indirect Impacts Algorithm Variables and Research Activities	A-2
Table A-2. Nonmember Survey Topics for Adoption of Practices and Influence of the Program	A-3
Table A-3. Nonmember Levels Equivalent to Membership Level Criteria.....	A-4
Table B-1. Student Demographics	B-1

Acronyms and Abbreviations

AASHE	The Association for the Advancement of Sustainability in Higher Education
AASHE STARS	AASHE Sustainability Tracking, Assessment & Rating System
CAP	climate action plan
CUNY	The City University of New York
DPS	New York State Department of Public Service
EMP	energy master plan
EPA	U.S. Environmental Protection Agency
EV	electric vehicle
FlexTech	Flexible Technical Assistance
FTE	full-time equivalent
GHG	greenhouse gas
HVAC	heating, ventilation, and air conditioning
HEERF	Higher Education Emergency Relief Fund
HVAC	heating, ventilation, and air conditioning
MMBtu	million British thermal unit
MTCO ₂ eq	million tons of carbon dioxide equivalent
MW	megawatts
MWh	megawatt hour
NYCSHE	New York Coalition of Sustainability in Higher Education
NY-GEO	New York Geothermal Energy Organization
NYS	New York State
NYSERDA	New York State Energy Research and Development Authority
OsEM	On-site energy manager
REV	Reforming the Energy Vision
SBC	system benefits charge
SIMAP	Sustainability Indicator Management & Analysis Platform
SUNY	The State University of New York
WNY	Western New York

Executive Summary

NYSERDA recognizes that the approximately 250 colleges and universities in New York State have made varying degrees of progress in advancing clean energy and sustainability projects. NYSERDA designed its Clean Green Campuses program (formerly the REV Campus Challenge) to motivate additional progress through a multipronged strategy:

- Support, track, and acknowledge clean energy and sustainability progress at educational institutions across the state
- Increase recognition of institutions' clean energy and sustainability achievements
- Provide a knowledge-sharing platform for peers to assist and motivate one another with the implementation of clean energy and sustainability projects
- Uncover gaps in available resources and fill these gaps by offering technical assistance, how-to guides, competitions, and peer mentorship

NYSERDA competitively selected Cadmus to evaluate the Clean Green Campuses program, with the following four evaluation objectives:

- Characterize and track progress among the state's institutions of higher education
- Track the program's market progress indicators against baseline
- Understand the current levels of institutional and student participation and engagement, along with participation drivers and barriers, and identify opportunities to increase market impact
- Estimate indirect impacts resulting from program activities

This is the third year of this evaluation cycle, covering the 2021-2022 school year. While most schools returned to a fully in-person model amidst the COVID-19 pandemic during this evaluation period, the pandemic had lasting impacts on campuses' clean energy activities, which Cadmus investigated in this work.

Cadmus used a combination of methods to evaluate progress:

- In-depth interviews with Clean Green Campus (formerly REV Campus Challenge) staff at NYSERDA and campus staff at member and nonmember campuses across the state
- Surveys of staff and students at member and nonmember campuses
- Secondary data analysis

Key Findings

In alignment with the evaluation objectives, the interviews and surveys sought insights on the level of awareness and value associated with clean energy and sustainability initiatives, campus participation in clean energy actions and what influences those decisions, the degree of student and community engagement with these initiatives, and the role that support and recognition can play in advancing clean energy and sustainability across New York higher education institutions. Cadmus found evidence that progress on some indicators has been challenging in the wake of COVID-19, with impacts found on staffing, enrollment, budget priorities, and support from institutional leadership.

Awareness and Value of Clean Energy: Interview and survey responses from campuses revealed that it is generally common to collect some level of energy data, although the extent of data collection tends to correlate with a campus's demonstrated commitment to clean energy and sustainability. As was the case in prior reporting years, in the 2021-2022 school year the most engaged members—namely those with Leader or Achiever status¹—were more likely to collect total energy usage (MMBtu) and greenhouse gas (GHG) emissions data compared to those with Participant status or nonmembers. Relatedly, Leaders and Achievers were more likely to report having a strong understanding of clean energy opportunities on their campus than Participants. Interviews with campus contacts in various roles revealed that awareness of energy usage data and clean energy opportunities is higher among sustainability and facilities staff members than among the broader campus community (such as campus administration).

Clean Energy Initiatives and Influence: Campuses across New York State, especially Clean Green Campuses members, indicate Clean Green Campuses influenced clean energy-related activity across several areas. Overall, 75% of members reported at least one of several clean energy accomplishments during the 2021-2022 school year:

- Half of member campuses reported completing new a clean energy project.
- One-third of member respondents participated in clean energy-related peer group or knowledge share, the second most common activity.
- One-quarter of members expanded community partnerships, launched new clean energy initiatives on campus, and incorporated clean energy topics into new or existing courses.

Members stated information from peer institutions were the most influential factors for four of six clean energy accomplishments. Information or incentives from NYSERDA was a highly influential factor on

¹ The Clean Green Campuses program has three membership/status levels—Leaders, Achievers, and Participants—in order from most engaged with clean energy to least. Members are allowed to self-select the level that most closely matches their campus.

the completion of clean energy projects (33%) and the promotion of a clean energy project or campus designation in student-facing resources (21%). Among nonmember respondents, the most commonly mentioned barriers to participation were lack of staff dedicated to sustainability projects (50%) and lack of awareness of available programs (40%).

Student and Community Engagement: Responses collected through the student survey indicated widespread familiarity with clean energy and sustainability initiatives, with more than 60% of surveyed students reporting being familiar. When asked about specific initiatives, students were most likely to be aware of courses related to clean energy and student groups/councils focused on clean energy. Student awareness and participation in clean energy initiatives remained consistent from the 2019-2020 school year to the 2021-2022 school year. Relatedly, 14% of member survey respondents said they had high levels of student engagement with clean energy initiatives on their campus in the 2021-2022 school year. Although stakeholders from most member campuses believed that a campus-wide commitment to clean energy influences student enrollment, less than half (33%) of interviewed students at member campuses said their school's commitment to sustainability was important to their decision to enroll.

One-quarter of members said they established or expanded existing partnerships with communities during the 2021-2022 school year. Members who established or expanded community partnerships noted many factors that had an influence on their decision, but information from NYSERDA was the influencing factor cited most often. As of the 2021-2022 school year, 30% of member campuses (n=143) have reported higher ratings for the level of contribution their clean energy initiatives have had on improving relations with the surrounding community compared to the rating they gave when they joined Clean Green Campuses.

Knowledge Sharing, Leadership Support and Recognition: Clean Green Campuses members are actively engaged in sharing knowledge on clean energy opportunities and finding support within their organization's management. Thirty-two percent of members reported participating in a peer group or sharing clean energy-related knowledge in the past year. The level of sharing was highest among Leaders (43%) and equal among Achievers and Participants (25%). When asked specifically about the program, 40% of members said it provided significant support toward their clean energy goals. Sixteen percent of member campuses reported receiving recognition for clean energy achievements in the 2021-2022 school year, with Leader (23%) and Achievers (19%) most likely to receive recognition. However, the opportunity for recognition was also seen an important motivator for members' outreach to students, peer institutions, and the community regarding clean energy issues. Fifty-six percent of members said campus

management supported clean energy and projects and initiatives, an 11-percentage-point decrease when compared to the 2019-2020 school year.

COVID-19 Impact: Campuses across New York State reported substantial impacts to operations and clean energy projects as a result of the COVID-19 pandemic. Nearly half of the members (46%) reported that campus buildings continue to be used differently compared to how they were functioning prior the pandemic. Forty-three percent of members and 67% of nonmembers said their campuses continue to conduct remote learning in some capacity because of the pandemic, a much lower percentage than the number of schools doing so during the 2019-2020 school year. Half of member respondents (54%) and 88% of nonmembers also experienced lower in-person student enrollment during the 2021-2022 school year compared to the previous school year, while 28% of member institutions and 13% of nonmember institutions reported retaining the same rate as the previous school year.

Testable Hypotheses

Cadmus used findings from its primary research to assess NYSERDA's three hypotheses regarding the influence and efficacy of Clean Green Campuses (formerly the REV Campus Challenge). This section provides an assessment of each testable hypothesis along with its associated research questions and supporting rationale. Several indicators showed declines when compared to the 2019-2020 school year, which can be the result of the ongoing impact of disruptions stemming from the COVID-19 pandemic (see the section on *COVID-19 Impacts*.) Cadmus assessed each research question associated with a testable hypothesis against the following criteria:

- **Strong Evidence:** Findings from research activities provide strong evidence in support of testable hypothesis component.
- **Some Evidence:** Findings from research activities provide evidence that supports some component(s) of the testable hypothesis component.
- **Inconclusive:** Findings from research activities are either counter to the hypothesis or do not provide sufficient evidence to assess hypothesis component.

The primary research activities cited in these findings are summarized below in Table 1. See the *1.1 Summary of Methods* section for more details.

Table 1. Primary Research Activities

Activity	Survey Population	Surveys Completed	Response Rate	Confidence and Precision
Member survey	143	96	67%	±4.8% at 90%
Student survey (Members only)	47,926	257	0.5%	±5.1% at 90%
Sustainability staff interviews (Members only)	143	12	8%	Not applicable
Facility/energy management staff interviews (Members only)	143	18	13%	Not applicable
Nonmember survey	93	8	9%	±27.8% at 90%

Hypothesis #1

Hypothesis: If New York State (NYS) institutions receive recognition of progress toward and achievement of their clean energy goals, then the adoption of clean energy projects and strategies on NYS campuses will increase.

Hypothesis #1 Assessment and Supporting Evidence

Research Question: Have members received recognition of progress towards achievement of their clean energy goals?

Assessment: Some Evidence. While a portion of members received recognition, it was a significantly smaller percentage than in the 2019-2020 school year.

- 16% of members reported receiving recognition in the 2021-2022 school year; two specifically mentioned NYSERDA as the source of recognition, with one receiving the Clean Green Campuses Achiever-level badge and the other describing being featured in a NYSERDA newsletter article. Ten more respondents described the recognition they received, and each was recognized by a different entity. Examples include recognition from U.S. EPA, AASHE, NYC Carbon Challenge, Princeton Review, and National Grid. However, the percentage of members receiving recognition is significantly lower than in the 2019-2020 school year (27%).
- NYSERDA has a “Meet the Members” section on the program website that spotlights the clean energy accomplishments of members.
- No nonmember survey respondents reported receiving recognition for clean energy accomplishments during the 2021-2022 school year (only one nonmember respondent reported completing a clean energy project in the last two years).

Research Question: Have campuses that received recognition increased the number of clean energy projects and strategies?

Assessment: Some Evidence. Members who received recognition completed significantly more clean energy projects than those who did not receive recognition. However, the sample size was small.

- Members who received recognition reported a significantly higher percentage of clean energy projects completed (67%) than members who did not receive recognition (47%, $p < 0.05$, $n = 16$).
- Members who received recognition during the 2021-2022 school year were significantly more likely to report clean energy accomplishments (participating in peer groups; developing curricula; developing community partnerships; student, staff or faculty engagement initiatives; promoting projects in student-facing resources). Additionally, the share of campuses reporting no clean energy accomplishments was significantly lower among those that received recognition (7%) vs. those that did not (26%).

Research Question: Do members receiving recognition indicate/show evidence that recognition motivated increased clean energy projects and strategies?

Assessment: Some evidence. While the opportunity for recognition was somewhat influential on several clean energy initiatives, it was not an important influence on the completion of most projects. Interviewed campus staff noted that recognition that draws greater publicity would be more influential.

- Opportunities for recognition were influential in campuses' decisions to complete two student-focused activities (second only to information from peers):
 - 26% said the opportunity for recognition was influential in their decision to promote a clean energy project or Clean Green Campuses designation in student-facing resources
 - 18% said the opportunity for recognition was influential in their decision to undertake new student/faculty initiatives
- Opportunities for recognition were also influential in campuses' decisions to complete two outreach-focused activities (also second only to information from peers):
 - 23% said the opportunity for recognition was influential in their decision to establish new or existing community partnerships
 - 23% said the opportunity for recognition was influential in their decision to participated in peer group knowledge sharing related to clean energy
- 16% of members who completed new clean energy projects in the 2021-2022 school year said the opportunity for recognition was influential in their investment decision.
- Only two of 12 sustainability staff members interviewed stated that public recognition was a significantly motivating factor in advancing clean energy projects on campus. Sustainability staff noted that the most valuable forms of recognition were those that draw publicity and communicate their campus' progress to the broader community, such as recognition from senior elected officials or national sustainability rankings.

Hypothesis #2

Hypothesis: If NYSERDA drives participation in existing clean energy commitment opportunities, and increases access to resources and peer groups, then clean energy implementation on NYS campuses will accelerate because of improved knowledge sharing and demonstrated value of clean energy projects and strategies.

Hypothesis #2 Assessment and Supporting Evidence

Research Question: Has NYSERDA driven participation in clean energy commitment opportunities and increased access to resources and peer groups?

Assessment: Strong evidence. Members participated in more clean energy events and knowledge-sharing opportunities than nonmembers, with several of those opportunities NYSERDA-derived.

- Clean Green Campuses membership has grown year-over-year to 143 members in the 2021-2022 school year (up from 132 in the 2019-2020 school year).
- A good portion of members were engaged in sustainability events and conferences. 51% attended a conference during the 2021-2022 school year, while no nonmembers attended a sustainability conference or event during the same period.
- 40% of surveyed members reported participating in the program workshop in the 2021-2022 school year, consistent with 41% during the 2019-2020 school year. Program records indicate that organizations representing at least 73 members attended workshops in 2021-2022 (51% of 143 members).
- 32% of members participated in a peer group or knowledge sharing during the 2021-2022 school year, with the highest participation among Leaders (48%). No nonmembers participated in such opportunities.
- Six of 12 sustainability coordinators from member campuses said they collaborated with other New York State institutions on clean energy and sustainability initiatives, with four of these stating it focused on general sharing of best practices.

Research Question: Have campuses that participated in clean energy commitment opportunities increased clean energy implementation?

Assessment: Some evidence. Members indicated that NYSERDA information and incentives were influential on the completion of new clean energy projects, but less so on participation in a peer group or establishment of community partnerships. Sustainability coordinators reported that this knowledge-sharing was primarily focused on learning best practices.

- 33% of members who completed new clean energy projects said information and incentives from NYSERDA had an influence on their completion those projects.
- 27% of members said information from peer campuses was influential on completing new clean energy projects, up from 13% in the 2019-2020 school year. In comparison, information from peer campuses was more influential on new student/faculty initiatives (44%) and establishing new community initiatives (29%).

Hypothesis #3

Hypothesis: If NYSERDA identifies gaps in the availability of needed resources and works with the market to fill the gap, then institutions will have greater confidence in and improved understanding of the value of clean energy projects leading to a greater number of projects being implemented and accelerated progress toward achieving clean energy goals.

Hypothesis #3 Assessment and Supporting Evidence

Research Question: Do Clean Green Campuses program members report utilizing program resources from NYSERDA? What about nonparticipating institutions?

Assessment: Some evidence. As of the 2021-2022 school year, an increasing share of members have taken advantage of program resources; a substantial portion plan to do so in the future.

- As of the 2021-2022 school year, substantially more members have participated in FlexTech (36%) compared to the 2019-2020 school year (18%), and the percentage of schools who have participated in OsEM also increased from 11% to 13%.
- In the next 12 months, 44% of member campuses said they would be likely to participate in FlexTech (consistent with 2019-2020; 40%) while 31% said they would be likely to participate in OsEM (a significant increase from 24% in 2019-2020), and 35% said they would be likely to participate in SEM (not asked in 2019-2020).
- Only one nonmember completed a clean energy project in the past two years; they did not mention using NYSERDA resources.

Research Question: Did these NYSERDA program resources help to increase institutions' confidence in and understanding of the business case for clean energy investments?

Assessment: Strong evidence. A substantial portion of members report an increase in their understanding of clean energy opportunities since joining the program.

- Since joining the Clean Green Campuses (formerly REV Campus Challenge), members reported an increase in their understanding of clean energy opportunities on their campus (71% had a strong understanding in 2021-2022 vs. 49% when first joined the REV Campus Challenge [from late 2016 to 2019]).

Research Question: How influential have NYSERDA program resources been on increasing the number of clean energy projects?

Assessment: Strong evidence. NYSERDA information and incentives were influential for members who completed a clean energy project.

- 33% of members who completed clean energy projects in the 2021-2022 school year said information and incentives from NYSERDA were an influence on their decisions.
- When asked what influenced their decision to pursue various clean energy accomplishments, members cited "information and incentives from NYSERDA" as one of the top factors for four of six accomplishments surveyed.
- Members who reported an increase in their understanding of clean energy opportunities on their campus since joining the program were more likely to complete a new clean energy project (59%, n=44) than members who did not report an increase in their understanding (36%, n=39; p<0.05).
- Members who reported an increase in their understanding of clean energy opportunities were more likely to complete any type of initiative (82%) than those that did not report an increase in their understanding (69%; p<0.05).

Research Question: Do participants utilizing resources report greater progress toward clean energy goals?

Assessment: *Strong evidence.*

- 40% of members gave high ratings for the contribution of resources and programs provided by the Clean Green Campuses program toward furthering their institution's goals in 2021-2022.

Conclusions and Recommendations

This section presents Cadmus' conclusions from the research, supporting findings, and associated recommendations. Conclusions are organized in the same manner as the main body of the report, by overarching topic area. This section also includes the results for each testable hypothesis and any implications that this year's results have on future research efforts.

Awareness and Value of Clean Energy

Conclusion: Lower levels of clean energy understanding and activity in the 2021-2022 school year compared to the 2019-2020 school year may reflect a shift in priorities and resources as a result of the COVID-19 pandemic.

Activity around climate action planning and results reporting declined among members. The percentage of members who reported creating or updating a climate action plan (CAP), energy master plan (EMP), or GHG inventory decreased significantly between the 2019-2020 (55%) and 2021-2022 (45%) school years, and the cumulative rate of members establishing CAP, EMP, or GHG inventories remained steady at 59% in both years. Seven out of 12 (58%) sustainability staff and 10 out of 18 (56%) facilities staff stated that the pandemic affected clean energy and sustainability goals and/or long-term sustainability planning in 2022. Specifically, staff members reported a decrease in momentum and progress of clean energy projects and a decrease in enrollment, which shifted campus priorities away from sustainability and clean energy initiatives. When asked about COVID-19 impacts to clean energy or energy efficiency projects, 44% of member campuses reported that staff reductions affected the ability to plan and complete projects in the 2021-2022 school year, up from 33% in 2019-2020.

The percentage of members who have, or intend to, report to a clean energy initiative also decreased between 2019-2020 and 2021-2022. For example, there was a significant decrease in the percentage of members who have or plan to report to the Association for the Advancement of Sustainability in Higher Education (AASHE) Sustainability Tracking, Assessment & Rating System (STARS), the most common initiative among members, between 2019-2020 (48%) and 2021-2022 (36%). Finally, member understanding of clean energy opportunities on campus decreased slightly from 77% in 2019-2020 to 71% in 2021-2022, with the most significant drop among Leaders (95% in 2019-2020 to 74% in 2021-

2022). Cadmus hypothesizes that this change in understanding may be due to turnover in sustainability staff at member campuses, with Leaders most affected since they were the most likely to have sustainability staff to lose, but did not gather data to conclusively prove this.

Recommendations: Identify member (and nonmember, when appropriate) campuses with recent sustainability staff turnover to provide a roadmap for identifying clean energy opportunities on campus with steps they can take to plan new projects.

- **NYSERDA Response to Recommendation:** Implemented. NYSERDA has shared information with member campuses about NYSERDA programs that assist with identifying clean energy opportunities and is working on a Higher Education Decarbonization Playbook.

Recommendation: Encourage member campuses to engage with organizations such as AASHE or Second Nature, emphasizing the benefits such as knowledge sharing, recognition of sustainability achievements, and connection with other participating campuses.

- **NYSERDA Response to Recommendation:** Implemented. NYSERDA has shared AASHE and Second Nature resources with member campuses and encouraged them to participate.

Conclusion: Opportunities to grow Clean Green Campuses membership remain, particularly if NYSERDA can enhance awareness among nonmembers and demonstrate how the program can help overcome resource barriers.

The most common barriers to joining the Clean Green Campuses cited by nonmembers were a lack of staff to work on clean energy and sustainability (50%, n=8) and lack of program awareness (38%). Most nonmembers said they were somewhat (63%) or very likely (13%) to become a member of the Clean Green Campuses.

To help further their clean energy goals, nonmembers were most interested in hearing from NYSERDA about meeting mandates and regulatory requirements, how campuses leverage NYSERDA and utility programs, and taking a deep dive into NYSERDA programs eligible to higher education (each mentioned by 50%, n=8).

Conclusion: The marginally lower levels of awareness and collection of campus energy usage data among Participant-level members may be impacting their ability to complete clean energy projects or initiatives at the same level as Leaders and Achievers.

Participant-level members were somewhat less engaged with their campus' energy usage. Although most members (89%) reported collecting at least one type of energy usage data, GHG emissions data were twice as likely to be collected by Leaders (62%,) and Achievers (63%) than Participants (29%). Rates of energy data collection in the 2021-2022 school year were all statistically equivalent to the 2018-2019 rates, indicating participation in collecting energy usage data has recovered to the high levels seen before the pandemic. Sixty-two percent of Participants reported a high understanding of their campuses' clean energy opportunities, compared to 74% of Leaders and 78% of Achievers.

Energy-use data collection supports long-term energy planning, benchmarking against state energy goals, and prioritizing and justifying investments in clean energy projects; Leaders and Achievers are taking greater advantage of their data collection. While 45% of member campuses reported creating or updating a climate action plan, energy master plan, or GHG inventory, Leaders were significantly more likely to report doing so than Achievers or Participants. In addition, while the percentage of members who reported creating or updating these plans or inventories stayed relatively constant across the 2017-2018 (53%), 2018-2019 (54%), and 2019-2020 (55%) school years, this rate decreased significantly in the 2021-2022 school year (45%). Cumulatively, 59% of members have reported or updated their plans or inventories since joining Clean Green Campuses, and this rate was stable between 2019-2020 and 2021-2022.

Participant-level members also reported lower completion levels of clean energy projects and initiatives during the 2021-2022 school year. Participant-level members were significantly less likely to have completed a new clean energy project on campus over the past year (40%) than Achievers (50%) and Leaders (64%). When asked about resources outside of funding that were most needed to complete energy projects and reduce campus energy usage, sustainability staff responded that industry and peer information sharing, trained staff resources, technical guidance, and access to market intelligence would be most helpful towards advancing energy project completion.

Members who reported an increase in their understanding of clean energy opportunities on their campus since joining the program were more likely to complete a new clean energy project (59%, n=44) than were members who did not report an increase in their understanding (36%, n=39). They were also more likely to have completed all six of the clean energy-related accomplishments surveyed.

- **Recommendation:** Work with campuses that do not have a good understanding of clean energy opportunities on their campus (typically Participant-level members) to identify the specific barriers to longer-term planning, project completion, and tracking of energy data and how they could be addressed. Once specific barriers are identified on a campus, help the campus identify

concrete actions they can take to overcome their barriers to enhance their ability to complete clean energy projects.

- **NYSERDA Response to Recommendation:** Implemented. To enhance the ability of a campus to implement clean energy projects, NYSERDA continues to engage with campuses to identify barriers and actions that can be taken to overcome them.

Recommendation: Facilitate knowledge-sharing between campuses related to GHG accounting and specific tools useful in collecting energy usage data. In this process, emphasize the connection between collecting energy usage data and informing long-term energy goals and justifying investments in clean energy projects.

- **NYSERDA Response to Recommendation:** Implemented. To enhance the ability of a campus to implement clean energy projects, NYSERDA continues to engage with campuses to identify barriers and actions that can be taken to overcome them.

Clean Energy Initiatives and Influence

Conclusion: Clean Green Campuses activities have influenced member clean energy initiatives such as peer collaboration, curriculum enhancements, and expanding partnerships, but members are also benefiting from peer institutions.

A majority of participating campuses (76% of 88 members) reported completing at least one clean energy accomplishment in the past year, most commonly the completion of clean energy projects (52%). This is substantially higher than nonmembers, where only 13% (one of eight survey responses) reported a clean energy accomplishment. When looking beyond projects to engagement with the broader campus community, Clean Green Campuses members were significantly more likely than nonmembers to report participating in a peer group (33%), incorporating clean energy topics into new or existing courses (27%), and establishing or expanding community partnerships (27%) compared to nonmember campuses, none of whom reported doing any of these activities in the past two years. When asked what influenced their decision to pursue various clean energy accomplishments, members cited “information and incentives from NYSERDA” as one of the top factors for four of six accomplishments surveyed.

While “information and incentives from NYSERDA” was a commonly cited influencing factor for the completion of clean energy projects and the promotion of a clean energy project in student-facing resources, members cited other influential factors as well. For example, information from a peer

institution was noted as the most influential factor for four of six clean energy accomplishments, while information from a consultant was listed for two.

Conclusion: Lasting impacts from the COVID-19 pandemic may have impacted campus achievement of clean energy accomplishments and engagement with clean energy.

Compared to the 2019-2020 school year, member and nonmember campuses reported lower rates of clean energy accomplishments (76% of n=88 members in 2021-2022 compared to 90% of n=83 in 2019-2020; 13% of n=8 nonmembers in 2021-2022 compared to 75% of n=20 in 2019-2020). Conferences diminished as a source of information. In the 2021-2022 school year, member attendance at clean energy and sustainability conferences and events was significantly lower than during the 2019-2020 school year, moving from 74% (n=81) to 51% (n=84), while the percentage of nonmember respondents who attended events and conferences declined from 20% (n=20) to zero (n=8).

Members reported several impacts to clean energy projects due to the COVID-19 pandemic, such as staff reductions for clean energy project implementation (44%, n=87) and delays on construction for clean energy projects (36%). There were also substantial operational changes reported by campuses that may indirectly impact clean energy initiatives far into the future, such as changing the way buildings are being used (46%) and implementing remote learning (44%). Additionally, in the 2019-2020 school year, respondents generally noted 2.5 to 3 items that were influential on their clean energy initiatives, an average that fell below 1.5 for the 2021-2022 school year, showing a likely shift in priorities competing for staff attention.

Recommendation: Work with members to understand their administration's priorities and how clean energy projects can fit within the campus's plans. Engage with a variety of members across member levels, school types (i.e., public, private) and geographies to ensure strong coverage among campuses facing different challenges.

- **NYSERDA Response to Recommendation:** Implemented. NYSERDA engages with a variety of campus members across levels, school types (i.e., public, private) to understand the challenges campuses face when planning for clean energy and general capital expenditure projects.

Student and Community Engagement

Conclusion: Responses collected through the student survey indicated widespread familiarity with clean energy and sustainability initiatives, with more than 60% of surveyed students reporting being familiar.

Campus efforts to increase the level of student engagement with clean energy initiatives have not resulted in gains in awareness of or participation in clean energy and sustainability initiatives, creating opportunities for members to more broadly share the ways in which energy-use data is used to set strategy and implement projects.

Member campuses have incorporated more clean energy topics into the curriculum as an effort to boost awareness and engagement in clean energy initiatives on campus. During the 2021-2022 school year, over a quarter of member campuses (26% of member campuses, n=92) reported either incorporating clean energy themes and issues into new courses or integrating new clean energy topics into the existing curricula. One-quarter of member campuses launched new clean energy initiatives to increase student, staff, and faculty engagement, but these efforts have not appeared to increase the level of student engagement with clean energy initiatives. From the perspective of member campus staff, only 14% (n=91) reported a high degree of engagement among the student population during the 2021-2022 school year (4 or 5 on a scale of 1 to 5, with 5 the highest rating). Comparatively, in 2019-2020, a significantly higher percentage of members gave high ratings for student engagement (27%, n=85; p<0.01).

From the student perspective, 61% of respondents from the 2021-2022 school year (n=230 students from member campuses) said they were familiar with campus clean energy and sustainability initiatives in general. The 39% of students surveyed who were not aware of clean energy and sustainability initiatives is consistent with results from the 2019-2020 school year (38% of students at member campuses were unaware; n=117).

Students reported being engaged with various energy and sustainability initiatives on campus, most frequently water refill stations (62%), recycling (61%), and sustainable food and dining options (25%). In the 2021-2022 student survey, participants at member campuses said that, in the future, they would like to see more food waste reduction/ recycling initiatives, renewable energy projects, sustainable buildings, and clean transportation/bike shares. These responses are generally consistent with top responses from the 2019-2020 school year and have persisted through both survey periods.

Recommendation: Engage with member campuses to understand the benefits they have recognized and apply the messaging when communicating clean energy initiatives to the broader campus community.

NYSERDA could consider increasing support for campus marketing efforts related to clean energy and sustainability initiatives on campus.

- **NYSERDA Response to Recommendation:** Implemented. In its regular communications and outreach, NYSERDA encourages cross collaboration with different campuses and has shared resources to support campuses with promoting their clean energy initiatives. NYSERDA will consider highlighting case studies, templates, and best practices from member campuses.

Conclusion: Members continue to view clean energy projects as important for recruiting prospective students in 2021-2022, however students' responses at member campuses reveal other priorities for enrollment decisions outweigh clean energy and sustainability.

Most members (83%, n=92) rated the implementation of clean energy projects as *very important* or *somewhat important* for recruiting prospective students in 2021-2022, which was slightly higher than the rate of 76% (n=84) from the 2019-2020 survey. However, 33% (n=184) of students at member campuses stated that their school's commitment to clean energy and sustainability was important to their decision to enroll.

Recommendation: Develop marketing and outreach materials for use by campuses to recruit students that focus on student's overall satisfaction, including clean energy and sustainability.

- **NYSERDA Response to Recommendation:** Implemented. NYSERDA has shared and campuses have utilized, resources to support campuses with promoting their clean energy initiatives. NYSERDA will consider working with campuses to develop messaging related to clean energy and sustainability for use by campuses when recruiting students.

Conclusion: Member participation in Clean Green Campuses has benefited campuses most by encouraging collaboration and knowledge sharing with other campuses in the state.

When asked about the greatest benefits of being a Clean Green Campuses member, interviewed sustainability staff most commonly reported that the effects achieved from collaboration and knowledge sharing with other campuses in New York State (such as sharing best practices or strategies for sustainability initiatives) had benefitted their campuses the most. Six of 12 sustainability staff from member campuses reported collaborating with the surrounding community on clean energy and sustainability initiatives. These initiatives included partnerships with local and regional coalitions on events and programs (such as rideshare), collaboration on actions to bring energy costs down in

surrounding neighborhoods, and educational offerings to community members (such as workshops on heat pump technologies). As of the 2021-2022 school year, 30% (n=143) of member institutions have given higher ratings for the level of contribution their clean energy initiatives had on improving relations with the surrounding community compared to the rating they gave when they joined Clean Green Campuses.

Recommendation: Consider the pursuit of local/regional collaboration among member (and ideally, also nonmember) campuses with the surrounding communities to increase knowledge sharing with respect to sustainability goals, strategies, and best practices for pursuing clean energy and sustainability initiatives.

- **NYSERDA Response to Recommendation:** Implemented. In its regular communications and outreach, NYSERDA encourages cross collaboration with different campuses and participation in higher education peer groups like NYCSHE (NY Coalition for Sustainability in Higher Education). NYSERDA will consider highlighting case studies, templates, and best practices from member campuses.

Support and Recognition

Conclusion: Clean Green Campuses members are actively engaged in sharing knowledge on clean energy opportunities and finding support within their organization's management. The level of sharing was highest among Leaders (43%) and equal among Achievers and Participants (25%).

Knowledge exchanges among peer campuses holds value to advance clean energy accomplishments. In the 2021-2022 school year, 32% of surveyed member campuses said they had participated in a peer group or shared knowledge related to clean energy during the past school year. By membership level, peer group participation and knowledge-sharing was twice as common among Leaders (48%, n=25) as among Achievers (25%, n=32) and Participants (26%, n=35). Peer institutions had the most influence on launching new student, staff, or faculty engagement initiatives (32%), followed by establishing or expanding community partnerships (27%) and integrating new materials into clean energy courses/curricula (27%). The decrease in the percentage of members participating in knowledge exchanges compared to the 2019-2020 school year was likely influenced by the change in conferences due to the COVID-19 pandemic.

Conclusion: The Clean Green Campuses program was an important resource for members to further their institution's clean energy goals.

Less than half of the member respondents gave a high rating for the resources and programs provided by the Clean Green Campuses program and their contributions to further their institution's goals during the

2021-2022 school year and 40% of members (n=88) rated the Clean Green Campuses resources a 4 or 5 on a scale of 1 to 5 (with 5 the highest rating) for its contribution in 2021-2022. This represented a significant decrease from 55% of members giving these ratings in 2019-2020 (n=85, $p < .0.01$). Member survey respondents suggested more financial support for projects and initiatives (27%). Another 27% of respondents requested more information in the form of case studies, templates, or best practices from projects and initiatives successfully completed by other institutions. Several respondents also suggested improving communications (12%), which generally meant more contact from NYSERDA, or expansion of existing programs (12%).

Recommendation: Consider conducting targeted outreach to campuses that have not utilized available funding to identify ways that these campuses can further their goals and receive financial support from leadership.

- **NYSERDA Response to Recommendation:** Implemented. NYSERDA has conducted targeted outreach to member campuses that have not utilized NYSERDA funding to understand campus priorities and goals and encourage them to participate in programs that align with their institutional needs.

Conclusion: While campus recognition for clean energy accomplishments was lower in 2021-2022 than prior years, campuses still see value in receiving recognition.

Of the surveyed member campuses, 16% (n=92) received recognition from an organization related to their clean energy initiatives in 2021-2022, which was significantly less than in 2019-2020 (27%, n=85). Leaders (23%, n=26) and Achievers (19%, n=31) were about twice as likely to receive recognition as Participant members (9%, n=35). Recognition was also more common among private institutions, with 20% of private institutions (n=50) being recognized versus 12% of public institutions (n=42). The opportunity for receiving recognition was one of the top influences cited by members who promoted clean energy efforts in student-facing materials (26%, n=19), expanded community partnerships (23%, n=22), or did peer group knowledge sharing (23%, n=26).

When asked what types of recognition for achievement in clean energy and sustainability initiatives would be most valuable to their campus, sustainability staff noted the following: press releases; recognition from electives or senior officials; recognition from specific organizations (such as ASHRAE); and any kind of recognition that communicates their campus' progress to the community to show how devoted they are to sustainability initiatives.

1 Introduction

Numerous higher education institutions in New York State have made commitments to campus energy efficiency but face several challenges to hitting their goals. At the same time, other campuses are unsure where to begin. Various clean energy initiatives, challenges, peer groups, conferences, and events are held in New York State to increase and encourage participation in the higher education industry but with only minimal to moderate uptake, according to tracking data available to NYSERDA. For college and universities that have acted, often little public recognition is given for their adoption of clean energy projects and progress. Colleges and universities embarking on their path to clean energy adoption would benefit from lessons learned and transfer of knowledge available from their peers that have already made progress in energy efficiency.

In 2015, NYSERDA launched the REV Campus Challenge to drive the recognition and implementation of clean energy projects and strategies at institutions of higher education and their surrounding communities in New York State. In 2022 approximately 57% of the state's higher education institutions had signed up for the REV Campus Challenge. Members have access to financial support through NYSERDA's Flexible Technical Assistance (FlexTech) program, which provides cost-shared funding up to \$500,000 for REV Campus Challenge members to work with energy consultants to better understand and pursue clean energy opportunities on their campuses and develop action plans for the future. In fall 2022, the REV Campus Challenge was renamed to Clean Green Campuses; the program design remained the same.

The Clean Green Campuses program includes several other benefits:

- Recognition for clean energy accomplishments
- Access to a diverse network of peer institutions to share best practices and challenges
- Access to helpful resources selected by the program team for their relevance to clean energy and sustainability at New York State colleges and universities

To evaluate the Clean Green Campuses program, NYSERDA competitively selected Cadmus to conduct a five-year assessment of market progress toward the program's stated goals. Cadmus built on data collection activities the program team previously completed (the annual member survey) and expanded activities to also include a review of secondary data, in-depth interviews with campus staff, and online surveys of students and nonmember campus representatives. The following research objectives guided this research:

- Characterize and track progress among the state's institutions of higher education

- Track the program’s market progress indicators against baseline
- Understand the current levels of institutional and student participation and engagement, along with participation drivers and barriers, and identify opportunities to increase market impact
- Estimate indirect impacts resulting from program activities

Cadmus also tested three hypotheses through this research:

- If NYS institutions receive recognition of progress toward and achievement of their clean energy goals, then the adoption of clean energy projects and strategies on NYS campuses will increase.
- If NYSERDA drives participation in existing clean energy commitment opportunities, and increases access to resources and peer groups, then clean energy implementation on NYS campuses will accelerate because of improved knowledge sharing and demonstrated value of clean energy projects and strategies.
- If NYSERDA identifies gaps in the availability of needed resources and works with the market to fill the gap, then institutions will have greater confidence in and better understanding of the value of clean energy projects. This will lead to a greater number of projects being implemented and accelerated progress toward achieving clean energy goals.

This report represents the third year of the five-year evaluation period. The research period included in this study was impacted by the COVID-19 pandemic, which caused many campuses to modify operations and impacted budgets. The pandemic likely had an impact on both response rates and the responses themselves, creating a challenge when comparing results to prior years and identifying influencing factors on campus decisions and actions. While the early pandemic restrictions were no longer in place during the evaluation period for this study, the pandemic had long-lasting impacts on New York State campuses, which are noted in several places throughout this report.

1.1 Summary of Methods

This section briefly describes the methodology for each data collection activity. A comprehensive discussion of each data collection activity is in the *Methodology* section.

1.1.1 Member and Nonmember Surveys

Cadmus fielded surveys with representatives from New York State colleges and universities that have enrolled in the Clean Green Campuses program (the 2021-2022 member survey) and representatives from campuses not enrolled in the program (the 2021-2022 nonmember survey). Cadmus attempted outreach via phone and email from July through October 2022 for the member survey and October 2022 through February 2023 for the nonmember survey, offering a \$50 gift card incentive for nonmembers to encourage participation. Of 143 member campuses enrolled in the program for the 2021-2022 school

year, 97 (68%) completed a survey. For nonmembers, eight of 93 campuses (9%) completed a survey. Cadmus used the nonmember survey to estimate indirect impacts.

1.1.2 In-Depth Interviews

Cadmus reached out to sustainability managers and facility and energy management staff at member and nonmember campuses and completed in-depth phone interviews with 12 sustainability directors and coordinator staff and 18 facility and energy management staff. Cadmus attempted outreach up to three times to each contact through a combination of email and phone calls from October through December 2022.

1.1.3 Student Survey

Cadmus enlisted member New York State campuses to help distribute an online survey to students, offering a chance to win one of five \$100 gift cards to encourage participation. While Cadmus attempted to enlist nonmember campuses as well, none of the nonmember contacts were willing to distribute the survey. Staff members who agreed to administer the survey to students did so via an anonymous link emailed to the entire student body. The student survey yielded 257 responses from four New York State campuses (n=9,257 students across four campuses). Survey fielding took place during March and April 2023.

1.1.4 Secondary Data Review

Cadmus reviewed program data provided by NYSERDA to track member campus activities and support the measurement of two program indicators. Cadmus also conducted a thorough review of all nonmembers to identify which would be most likely to join the Clean Green Campuses program. This work helped to give NYSERDA and Cadmus a more accurate picture of the nonmember campus population and set expectations for research activities with nonmembers.

2 Market Evaluation Results

This section contains detailed results from each data collection activity completed by Cadmus. Given the high degree of overlap in research topics covered in these activities, this section is organized as follows.

The first subsection covers **market progress indicators** from evaluation of the 2021-2022 school year that NYSERDA reported to the New York State Department of Public Service (DPS) in February 2023 and the residual **impacts of the COVID-19 pandemic** on the results of this school year.

The next subsections present detailed results from each of the **core evaluation areas**, with insights synthesized across member,² nonmember, and student surveys and in-depth interviews with sustainability coordinators, facilities managers, and admissions office staff:

- Awareness and value of clean energy
- Clean energy initiatives and influence
- Student and community engagement
- Support and recognition

2.1 Market Progress Indicators

Table 1 and Table 2 list the indicators for measuring the progress of Clean Green Campuses as reported annually along with results reported by NYSERDA on the 2019-2020 school year and results for the current year (“2021-2022 school year”). The Cadmus team did not provide results from the 2020-2021 school year due to the outsized influence of the COVID-19 pandemic on campus activities and investments in clean energy programs, skewing results. The tables present the following results:

- **Met Criteria At Least Once:** the cumulative number of institutions who have met the criteria for the indicator at least once according to member surveys or program records. The number of schools meeting an indicator may increase for two reasons: veteran members meeting criteria for the first time in the current year and new schools joining Clean Green Campuses in the current year. Once a campus meets the criteria for a given indicator, it is counted in future program years. These counts appear in both tables.
- **Percentage of Current Members:** the number of Clean Green Campus members that met a criterion as a percentage of the entire population of members at the time of the survey. However, using current members as a base of comparison rather than the constant population of schools in the state obscures some of the growth because the base of members also grows over time (i.e., if a few schools meet a criterion for the first time in the current year, but the number of new members joining is much greater, the indicator will decline as a percentage of members even though the cumulative number of

² Clean Green Campuses has three membership/status levels—Leaders, Achievers, and Participants—in order from most engaged with clean energy to least. Members are allowed to self-select the level that most closely matches their campus.

members actually increased.) The percentage of current members meeting reporting criteria are presented in Table 1.

- **Growth Rate 2020 to 2022:** the percentage growth in the cumulative number of institutions who met the criteria by 2022, calculated from the base of the cumulative number of institutions who had met the criteria by 2020. The growth rates are presented in Table 2.

Compared to 2020, the number of members meeting every indicator increased in 2022, though increases were very small for the number of campuses participating in Clean Green Campuses initiatives or competitions (two members), reporting new clean energy projects (three members), and receiving recognition (one member).

As a percentage of current members, most indicators were flat or down slightly from 2020 to 2022, which indicates membership generally grew faster than the rate of members meeting reporting criteria during this period. The exception was the last four indicators in Table 1 and Table 2 (I8, I17, I18, and I25), which increased at a greater rate than others. The reason for this increase is that the methodology changed: as part of the first year of the evaluation in 2020, Cadmus instituted a new method of calculating these indicators that does not directly compare to the method used for these indicators in years prior to 2020.³

These 2022 results are the first time that Cadmus is reporting a direct comparison for the last four indicators in Table 1 (I8, I17, I18, and I25). A new method of calculating these indicators was instituted in 2020, which is not directly comparable to the method used for these indicators in years prior to 2020. These four indicators were the only indicators that showed statistically significant differences between the 2021-2022 and 2019-2020 school years, with all four indicators increasing significantly ($p < 0.05$ or better).

³ Prior to 2020, these indicators were based only on agreement ratings for the statement “*Compared to [the start of the year], I now have a greater understanding of clean energy opportunities on our campus.*” The revised method since 2020 compares ratings given for current understanding of clean energy opportunities in the most recent member survey to an equivalent baseline rating representing their level of understanding when they joined the program. The baseline question was asked once during their first survey completed by the institution in 2020 or later, which includes initial surveys completed by schools that joined the program after 2020. The current year rating is updated every time a participant completes a new survey.

Table 2. Clean Green Campuses Indicators Reported Annually – Cumulative Analysis

ID ¹	Indicator	Source	Met Criteria At Least Once			Percentage of Current Members		
			2020 (count)	2022 (count)	Difference	2020 (n=132)	2022 (n=143)	Difference
I3	Number of Clean Green Campuses Members	Program records	132 ²	143 ²	+11	-	-	-
I2	Number of NYS institutions participating in AASHE STARS	AASHE	76	81	+5	58%	57%	-1%
I6	Number of NYS institutions attending existing clean energy events/conferences	Member survey	90	98	+8	68%	69%	-. ³
I1	Number of NYS institutions participating in Clean Green Campuses initiatives/competitions	Program records	98	100	+2	74%	70%	-4%
I7	Number of Clean Green Campuses Members collecting and reporting energy usage	Member survey	112	119	+7	85%	83%	-2%
I11	Number of Clean Green Campuses Members reporting new clean energy projects on campus	Member survey	108	111	+3	82%	78%	-4%
I9	Number of Clean Green Campuses Members reporting new clean energy curricula or curriculum integration	Member survey	61	66	+5	46%	46%	-
I24	Number of Clean Green Campuses Members reporting new or improved community partnerships to expand clean energy goals	Member survey	67	73	+6	51%	51%	-
I14	Number of Clean Green Campuses Members receiving recognition	Member survey	59	60	+1	45%	42%	-3%
I12	Number of Clean Green Campuses Members with new or updated climate action plans, energy master plans, or GHG inventories	Member survey	78	85	+7	59%	59%	-
I10	Number of Clean Green Campuses Members with staff assigned to manage sustainability/clean energy goals	Member survey	93	98	+5	70%	69%	-2% ³
I8	Number of Clean Green Campuses Members reporting a greater understanding of clean energy opportunities on their campus	Member survey	42 ⁴	60 ⁴	+18	32%	42%	+10%
I17	Number of Clean Green Campuses Members reporting greater student engagement with clean energy initiatives	Member survey	23 ⁴	43 ⁴	+20	17%	30%	+13%
I18	Number of Clean Green Campuses Members reporting greater buy-in and support from management for clean energy projects and initiatives	Member survey	31 ⁴	46 ⁴	+15	23%	32%	+9%
I25	Number of Clean Green Campuses Members reporting improved community relations as a result of clean energy strategies	Member survey	26 ⁴	43 ⁴	+17	20%	30%	+10%

¹The indicators are ordered in the same way as the output from the NYSERDA Annual CEF reporting system.

²In 2022, NYSERDA retroactively added two members who joined in 2016 but were previously counted as part of other campuses—SUNY College of Technology at Alfred Wellsville Campus and SUNY New York State College of Ceramics at Alfred University. These two schools are not included in the table as no data have been collected on them as of 2022 (i.e., were not included in survey sample).

³These differences do not add to the values shown due to rounding.

⁴In 2020, Cadmus and NYSERDA changed the way these indicators were calculated and how the survey questions were asked; therefore, survey data prior to 2020 are not comparable and no prior years are included in the analysis for these indicators. Thus, the baseline for cumulative reporting for these indicators begins with 2020 results and the rapid increase in this indicator after 2020 is partly an effect of increasing survey coverage as more schools respond.

Table 3. Clean Green Campuses Indicators Reported Annually – Growth Rates

ID ¹	Indicator	Source	Met Criteria At Least Once			
			2020	2022	Difference	Growth Rate 2020 to 2022
I3	Number of Clean Green Campuses Members	Program records	132	143	+11	+8%
I2	Number of NYS institutions participating in AASHE STARS	AASHE	76	81	+5	+7%
I6	Number of NYS institutions attending existing clean energy events/conferences	Member survey	90	98	+8	+9%
I1	Number of NYS institutions participating in Clean Green Campuses initiatives/competitions	Program records	98	100	+2	+2%
I7	Number of Clean Green Campuses Members collecting and reporting energy usage	Member survey	112	119	+7	+6%
I11	Number of Clean Green Campuses Members reporting new clean energy projects on campus	Member survey	108	111	+3	+3%
I9	Number of Clean Green Campuses Members reporting new clean energy curricula or curriculum integration	Member survey	61	66	+5	+8%
I24	Number of Clean Green Campuses Members reporting new or improved community partnerships to expand clean energy goals	Member survey	67	73	+6	+9%
I14	Number of Clean Green Campuses Members receiving recognition	Member survey	59	60	+1	+2%
I12	Number of Clean Green Campuses Members with new or updated climate action plans, energy master plans, or GHG inventories	Member survey	78	85	+7	+9%
I10	Number of Clean Green Campuses Members with staff assigned to manage sustainability/clean energy goals	Member survey	93	98	+5	+5%
I8	Number of Clean Green Campuses Members reporting a greater understanding of clean energy opportunities on their campus	Member survey	42	60	+18	+43%
I17	Number of Clean Green Campuses Members reporting greater student engagement with clean energy initiatives	Member survey	23	43	+20	+87%
I18	Number of Clean Green Campuses Members reporting greater buy-in and support from management for clean energy projects and initiatives	Member survey	31	46	+15	+48%
I25	Number of Clean Green Campuses Members reporting improved community relations as a result of clean energy strategies	Member survey	26	43	+17	+65%

2.1.1 COVID-19 Impacts

The COVID-19 pandemic affected campuses in a variety of ways and severely altered campus building use and occupancy. Cadmus asked several questions to learn which campus areas were most heavily impacted. Half of member respondents (54%) and 88% of nonmember respondents experienced lower in-person student enrollment during the 2021-2022 school year compared to the previous school year, while a substantial portion of institutions have seen an increase in online student enrollment (38% for members and nonmembers; Table 4). There was an even broader decline in staffing levels, with 63% of members reporting a decline and only 1% reporting an increase compared to the previous year (50% of nonmembers also saw a decline in staff levels and none reported an increase).

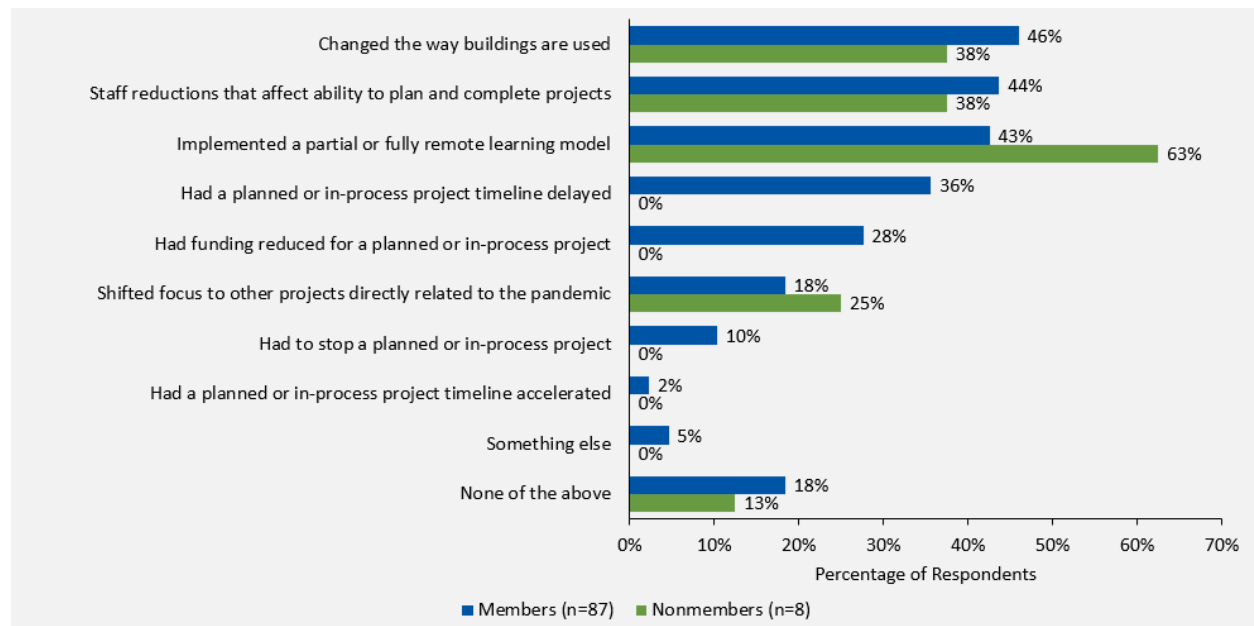
Table 4. Change in Student Enrollment and Staffing Levels

Impact	Members			Nonmembers		
	In-person Student Enrollment (n=81)	Online Student Enrollment (n=63)	Staffing Levels (n=81)	In-person Student Enrollment (n=8)	Online Student Enrollment (n=8)	Staffing Levels (n=8)
Increased during 2021-2022 school year	17%	38%	1%	0%	38%	0%
Was about the same	28%	41%	36%	13%	38%	50%
Decreased during 2021-2022 school year	54%	21%	63%	88%	13%	50%
Not applicable	0%	0%	0%	0%	13%	0%

Source: 2021-2022 Member Survey and Nonmember Survey question F2/D2 “How did student enrollment and staffing levels at your institution change during the 2021-2022 school year compared to the previous year?” (Member: n=63-81, Nonmember: n=9).

The COVID-19 pandemic affected campuses in a variety of ways and severely altered campus building use and occupancy. Cadmus asked several questions to learn which campus areas were most heavily impacted. Nearly half of the members (46%) also reported that campus buildings continue to be used differently compared to how they were functioning prior the pandemic (Figure 1). Forty-three percent of members and 63% of nonmembers said their campuses shifted to and continue to conduct remote learning in some capacity because of the pandemic, a much lower percentage than the number of schools doing so during the 2019-2020 school year. For members, the decrease from 92% (n=84) to 43% (n=87) was statistically significant ($p < 0.01$). For nonmembers, the difference was not statistically significant (from 85%, n=20, to 63%, n=8).

Figure 1. COVID-19 Impacts on Campus Building Use or Energy Efficiency Projects



Source: 2021-2022 Member Survey question F1 “Has your institution experienced any of the following impacts as a result of the pandemic?” Multiple responses allowed (n=87). 2021-2022 Nonmember Survey question D1 ““Has your institution experienced any of the following impacts as a result of the pandemic?” Multiple responses allowed (n=8).

As shown in Table 3, members reported several ongoing impacts to their clean energy projects due to the COVID-19 pandemic. Although the percentages of members shifting focus to pandemic-related projects (18% in the 2021-2022 school year) and stopping work on energy efficiency projects (10%) were much lower than they were in the 2019-2020 school year (72% and 25%, respectively), similar percentages of members were still facing funding reductions (28% in 2021-2022, compared to 34% in 2019-2020) and the percentage of members mentioning staffing shortages increased (44% in 2021-2022, compared to 33% in 2019-2020). Member campuses (n=16) that shifted focus away from clean energy initiatives to pandemic-related projects most frequently reported giving greater attention and resources toward improving ventilation and indoor air quality (44%) and preventing the spread of COVID-19 (38%).

Table 5. COVID-19 Impacts to Clean Energy Projects or Energy Efficiency Projects

Impact	2019-2020 Percentage (n=82-84)	2021-2022 Percentage (n=87)
Changed the way buildings are used	82%	46%
Staff reductions that affect ability to plan and complete projects	33%	44%
Implemented a partial or fully remote learning model	92%	43%
Had a planned or in-process project timeline delayed	N/A	36%
Had funding reduced for a planned or in-process project	35%	28%
Shifted focus to other projects directly related to the pandemic	74%	18%
Had to stop a planned or in-process project	26%	10%
Had a planned or in-process project timeline accelerated	N/A	0%
Changed operating hours	54%	N/A
Changed fuel mix	15%	N/A

Source: 2021-2022 Member Survey question F1 “Has your institution experienced any of the following impacts as a result of the pandemic?” Multiple responses allowed (n=87).

The percentage of members attending conferences fell by nearly half in the first year of the pandemic (2020-2021 school year) and has recovered somewhat in the 2021-2022 school year (to 52%) but remains significantly below the 2019-2020 rate (74%, $p < 0.01$). Though the initial decline during the 2020-2021 school year was certainly due to the society-wide quarantine precautions and travel restrictions in place at that time, the slow pace of recovery to pre-pandemic levels may be affected by ongoing staffing and budget limitations.

Almost half of member campuses (46%, $n=81$) described having access to resources related to COVID-19 that helped in adjusting to or recovering from the pandemic. Of these member institutions, 68% ($n=37$) received some type of funding from the government, either at the federal (e.g., Higher Education Emergency Relief Fund [HEERF] program) or state level.

Of the 30 sustainability and facilities staff members interviewed, 17 (57%) reported that the COVID-19 pandemic affected clean energy and sustainability goals in 2022 and/or long-term sustainability planning on campus. The most common affects reported by staff were as follows:

- A decrease in momentum and progress of clean energy projects (9 responses)
- An increase in emissions, specifically the generation of waste from plastics, disposable wipes used for sanitation, and electronics due to the shift to online learning (4 responses)
- A decrease in student enrollment, which shifts campus priorities away from sustainability and clean energy initiatives (3 responses)

2.2 Awareness and Value of Clean Energy

To assess how campuses across New York State understand and value clean energy, Cadmus examined their clean energy data collection practices and perspectives. This section includes insights gathered from campuses across New York State and provides details on awareness of campus energy usage, energy usage collection and reporting, and understanding of clean energy opportunities. Table 5 summarizes key findings included in this section.

Table 6. Awareness and Value of Clean Energy Key Findings

Evaluation Questions	Key Findings
<p>How are NYS campuses collecting energy data? How has energy data collection changed/improved?</p>	<ul style="list-style-type: none"> • Nearly every member campus reported collecting at least some energy data, with electricity usage the most common type. Leaders and Achievers were more likely to collect total energy usage (MMBtu) and GHG emissions data than Participants. • Overall, energy data collection rates by type of data have remained relatively consistent across reporting years. • Campuses use energy usage data to inform decisions in clean energy projects. • See <i>Awareness and Collection of Energy Data</i> and <i>Application of Energy Data</i> sections for more details.
<p>What level of awareness and understanding do NYS campuses have of campus energy use and clean energy opportunities on campus?</p>	<ul style="list-style-type: none"> • Most members believe they hold a strong understanding of clean energy opportunities on their campus, with the level of understanding higher among Leaders and Achievers than Participants. • The percentage of members updating their energy master plans, climate action plans, or GHG inventories in the most recent year fell from the 2019-2020 school year but was still roughly half of all members. • See <i>Awareness and Collection of Energy Data</i> and <i>Understanding of Clean Energy Opportunities</i> sections for more details.
<p>What barriers exist for nonmembers to join the program?</p>	<ul style="list-style-type: none"> • Nonmember respondents' most mentioned barriers to participation were lack of staff dedicated to sustainability projects (50%) and lack of awareness of the program (38%). • See <i>Nonmember Participation and Barriers</i> section for more details.

2.2.1 Awareness and Collection of Energy Data

Across New York State, many campuses are collecting some type of energy usage information, as shown in Table 6. Nearly all member (89%, n=93) campuses reported collecting at least one type of energy usage data, with electricity usage (MWh) data (86%) the most recorded type of data. During the 2021-2022 school year, 78% of member respondents said that they also tracked total energy usage (MMBtu) on campus, while only 49% reported collecting data on their campuses' greenhouse gas emissions (MTCO₂eq). Among Clean Green Campuses members,⁴ Leaders reported the highest rate of collection of

⁴ The Clean Green Campuses program has three levels (Leaders, Achievers, and Participants) that members self-select when they join the program. Leaders are the most engaged/advanced with clean energy while Participants are the least.

at least one type of energy data; however, Achievers were more likely than Leaders to record total energy usage and greenhouse gas emissions (MTCO₂eq) on their campuses. Participants were also slightly more likely than Leaders to collect electricity usage data.

Table 7. Percentage of Campuses Collecting and Reporting Energy Data, 2021-2022 School Year

Type of Data	Members				Nonmembers (n=8)
	All (n=93)	Leaders (n=26)	Achievers (n=32)	Participants (n=35)	
Electricity usage (MWh)	86%	88%	84%	86%	75%
Total energy usage (MMBtu)	78%	85%	81%	71%	38%
GHG emissions (MTCO ₂ eq)	49%	62%	63%	29%	0%
At least one type	89%	92%	91%	86%	75%
Source: 2021-2022 Member and Nonmember Survey questions B3/C6 “Did your campus collect any of the following types of data?” Multiple responses allowed (Member: n=93, Nonmember: n=8).					

Thirteen of 18 facilities staff, when asked about their energy data collection process, reported collecting data on energy usage and emissions. Three said that a third party (such as a consulting firm) helped them aggregate campus energy data and develop energy usage and emissions reports. Only four reported changes in their data tracking process in recent years, noting the following modifications:

- Expansion of types of data collected, such as the emissions of purchased goods and materials
- Advancement in the efficacy of tools used for emissions and energy usage data collection (e.g., U.S. Environmental Protection Agency [EPA] Greenhouse Gas Inventory tools and Sustainability Indicator Management & Analysis Platform [SIMAP])
- Addition of resources used for data collection, such as a higher number of staff members involved
- Movement toward more granular and actionable data (e.g., submetering)

Interview responses from sustainability staff and facilities managers corroborated the member and nonmember survey findings presented in Table 6. Generally, facilities managers put a greater emphasis on collecting energy consumption data, such as electricity and natural gas usage pulled from monthly utility bill data, than on collecting emissions data.

As shown in Table 7, the percentage of member campuses collecting each type of energy usage data during the 2021-2022 school was in line with prior reporting years. The percentage of members reporting electricity usage (86%) and total energy usage (78%) were up significantly from 2019-2020 (78% and 64% respectively, $p < 0.05$), and the percentage reporting any of these three data types increased from 80% to 89% ($p < 0.01$). However, these rates in 2021-2022 were all statistically equivalent to the 2018-2019

member survey, indicating participation in this activity has recovered to the high levels seen before the pandemic disruption in 2020.

Table 8. Percentage of Member Campuses Collecting and Reporting Energy Data, 2017-2022

	2017-2018 School Year (n=91)	2018-2019 School Year (n=83)	2019-2020 School Year (n=79)	2021-2022 School Year (n=93)
Electricity usage (MWh)	79%	84%	78%	86%
Total energy usage (MMBtu)	74%	75%	64%	78%
GHG emissions (MTCO ₂ eq)	55%	53%	53%	49%
At least one type	79%	86%	80%	89%

Source: 2021-2022, 2019-2020, 2018-2019, 2017-2018 Member Survey questions “Please provide your institution’s most recent information on the following.” B3 “Campus electricity usage (in MWh)”, B4 “Campus total energy usage (in MMBtu)”, B5 “Campus greenhouse gas (GHG) emissions.”

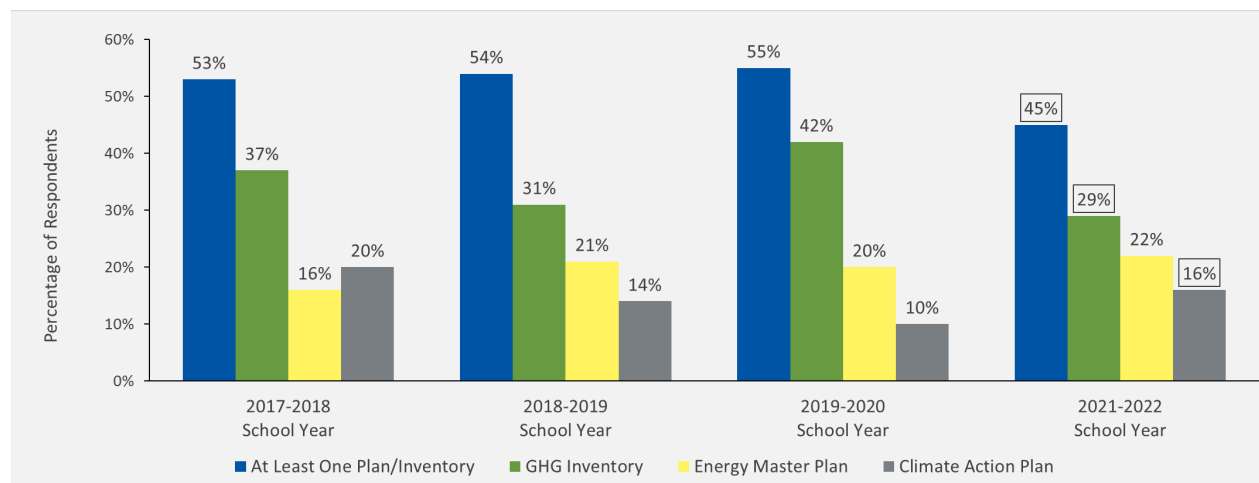
2.2.2 Energy Planning and Reporting

Many Clean Green Campus members engage in energy planning. During the 2021-2022 school year, 45% of member respondents (n=94) reported either creating or updating a climate action plan, energy master plan, or GHG inventory. Member respondents most frequently reported updating or creating a GHG inventory (29%), an energy master plan (22%), and a climate action plan (16%). Nearly one-third of surveyed Clean Green Campuses Leaders updated or created either a climate action plan or an energy master plan (30% and 33%, respectively, n=27) during the 2021-2022 school year, but only 9% of Achievers (n=32) and 11% of Participants (n=35) updated or created climate action plans, and just 16% of Achievers (n=32) and 20% of Participants (n=35) updated or created an energy master plan.

During the 2021-2022 school year, significantly higher percentages of private institution members (n=50) reported updating or creating either a climate action plan (22%) or a GHG inventory (32%) compared to their public institution member counterparts (7% and 23%, respectively, n=43, p<0.10). However, public institution member respondents reported creating or updating an energy master plan (28%) significantly more often than private institution member respondents (18%, p<0.10). Sixty percent of public institution member respondents and 52% of private institution member respondents reported that they did not create or update a climate action plan, energy master plan, or GHG inventory during the school year. It is important to note, however, that state university (that is, The State University of New York [SUNY]) campus members (32%, n=37) were responsible for the difference in energy master plan completion and not city university (that is, The University of New York [CUNY]) campus members (0%, n=6).

Over half of Clean Green Campuses members have consistently created or updated at least one of these plans or inventories between the 2017-2018 and 2019-2020 school years; however, the percentage dropped significantly during the 2021-2022 school year (45%, $p < 0.05$) (Figure 2). At the plan type level, the number of members who reported creating or updating a climate action plan during the 2021-2022 school year rose significantly (16%) than in 2019-2020 (10%, $p < 0.05$). On the contrary, a significantly lower number of members (29%) reported creating or updating a GHG inventory during the 2021-2022 school year compared to 2019-2020 (42%, $p < 0.01$).

Figure 2. Members Who Created or Updated a CAP, EMP, or GHG Inventory



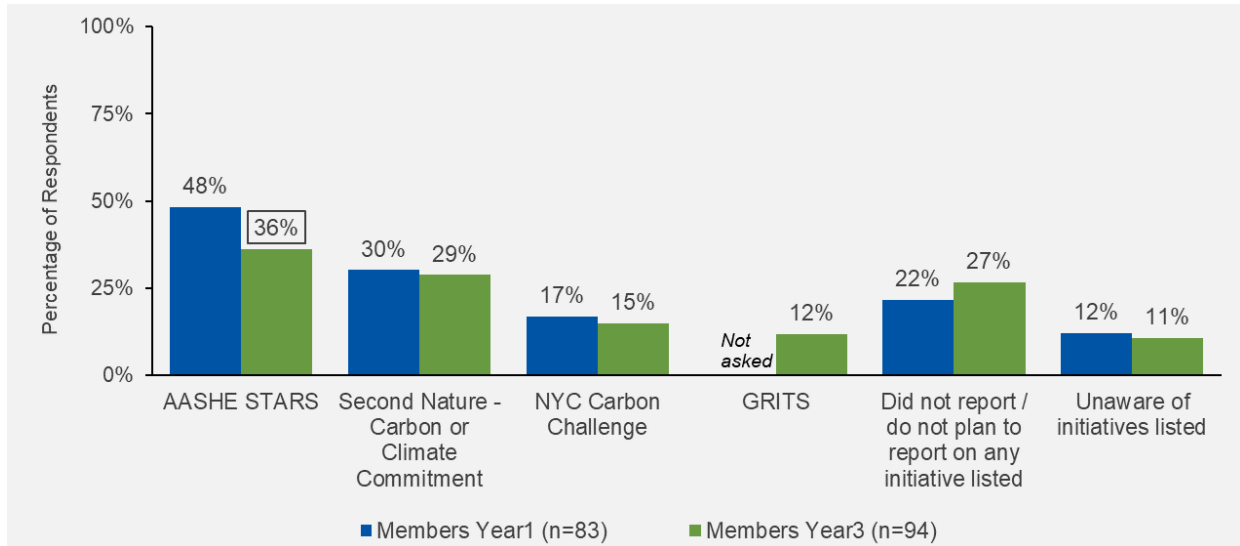
Boxes around 2021-2022 results indicate a statistically significant difference from 2019-2020 survey results at $p < 0.05$ or better using two-tailed t-tests. Source: 2021-2022 Member Survey question B2 “Did your campus create a new or updated climate action plan, energy master plan, or greenhouse gas (GHG) inventory in 2021-2022?” Multiple responses allowed ($n=94$). 2019-2020 Member Survey question B2 “Did your campus create a new or updated climate action plan, energy master plan, or greenhouse gas (GHG) inventory in 2019?” Multiple responses allowed ($n=91$). 2018-2019 Member Survey question Q3 “Did your campus create a new or updated climate action plan, energy master plan, or GHG inventory in 2018?” Multiple responses allowed ($n=97$). 2017-2018 Member Survey question Q3 “Did your campus create a new or updated climate action plan, energy master plan, or GHG inventory in 2017?” Multiple responses allowed ($n=91$).

Cadmus asked survey respondents whether they had submitted or updated a report during the 2021-2022 school year for The Association for the Advancement of Sustainability in Higher Education (AASHE) Sustainability Tracking, Assessment & Rating System (STARS), Second Nature – Carbon or Climate Commitment, NYC Carbon Challenge, or Sustainable Endowments Institutes’ Green Revolving Investment Tracking System (GRITS) carbon project tracking and planning platform.

The AASHE STARS report was the most common initiative among members, with 36% of campuses stating they have, or intended to, submit or update a report in 2021-2022, which was significantly less than the 48% of members reporting to AASHE during 2019-2020 ($p < 0.01$). Reporting to Second Nature

(29%) and NYC Carbon Challenge (15%) for the 2021-2022 school year was consistent with the 2019-2020 school year (Figure 3).

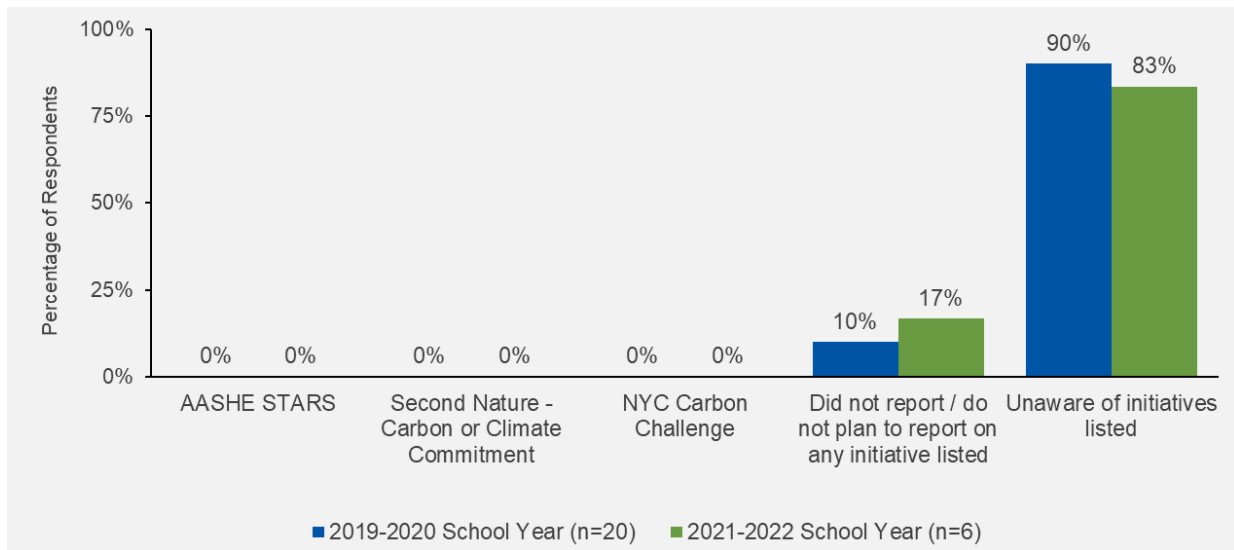
Figure 3. Members Who Have, or Intend to, Report to a Clean Energy Initiative



Boxes around results indicate a statistically significant difference between years at $p < 0.05$ or better using two-tailed t-tests. Source: 2021-2022 Member Survey question B1 “Please indicate which clean energy initiatives you submitted a report or update to for 2021-2022” and equivalent question in 2019-2020 Member survey.

As shown in Figure 4, most nonmembers were unaware of any of these initiatives (83%, or five out of six, in 2021-2022, comparable to 90%, or 18 out of 20, in 2019-2020). None of the nonmember respondents reported to the three clean energy initiatives during the 2021-2022 or 2019-2020 school years.

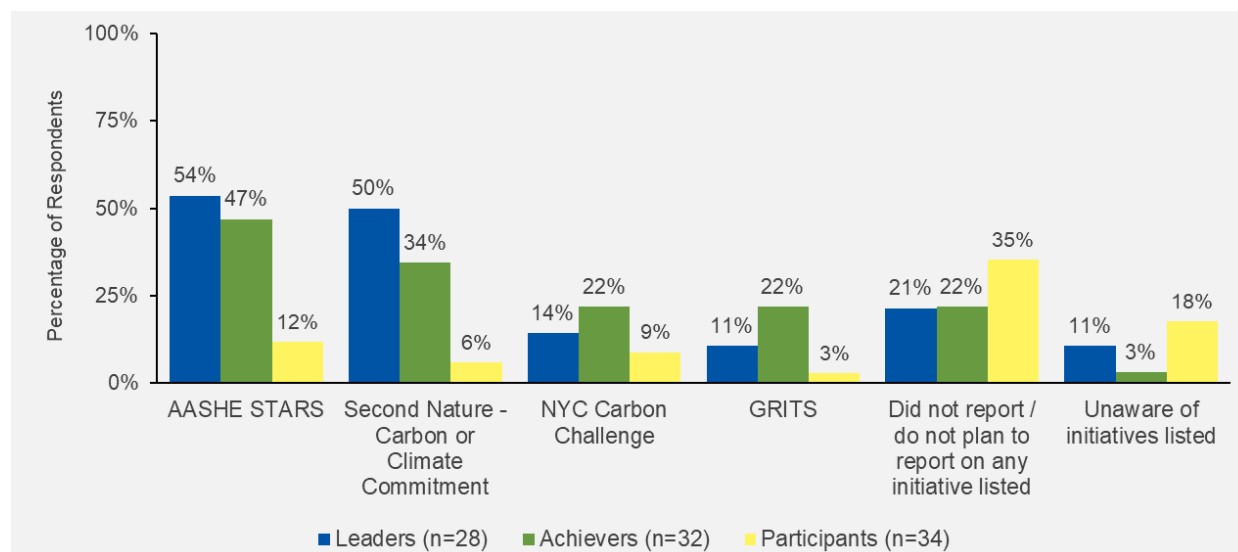
Figure 4. Nonmembers Who Have, or Intend to, Report to a Clean Energy Initiative



Source: 2021-2022 Nonmember Survey question D2 “Which, if any, of the following clean energy initiatives have you submitted a report or update to for 2021-2022?” and equivalent question in 2019-2020 Nonmember survey.

Figure 5 shows campus reporting by member level. Most Leaders reported or planned to report to AASHE STARS (54%) and Second Nature (50%), and Achievers were almost as likely to report to these initiatives (47% and 34%, respectively). Participants were far less likely to report to these initiatives (12% and 6%, respectively), and more than half of Participants were either unaware of these four initiatives (18%) or were aware of some of them but did not report to any of them (35%).

Figure 5. Respondents by Member Level Who Have, or Intend to, Report to a Clean Energy Initiative



Source: 2021-2022 Member Survey question B1 “Please indicate which clean energy initiatives you submitted a report or update to for 2021-2022.”

2.2.3 Application of Energy Data

Interviews with facilities and sustainability staff revealed that campuses commonly rely on energy usage data to inform long-term energy planning, benchmark against state energy goals, and prioritize and justify investments in clean energy projects. Across both interview groups, the most common reported use of data was to plan and prioritize clean energy projects to work toward long-term energy goals. Specifically, respondents mentioned these data use cases:

- Prioritize capital improvements that will increase efficiency and reduce operational costs (40% of responses)
- Benchmark progress over time toward long-term energy plans and New York State energy goals (30% of responses)
- Calculate emissions data and contribute to annual reports (25% of responses)
- Financially justify proposed energy projects (5% of responses)

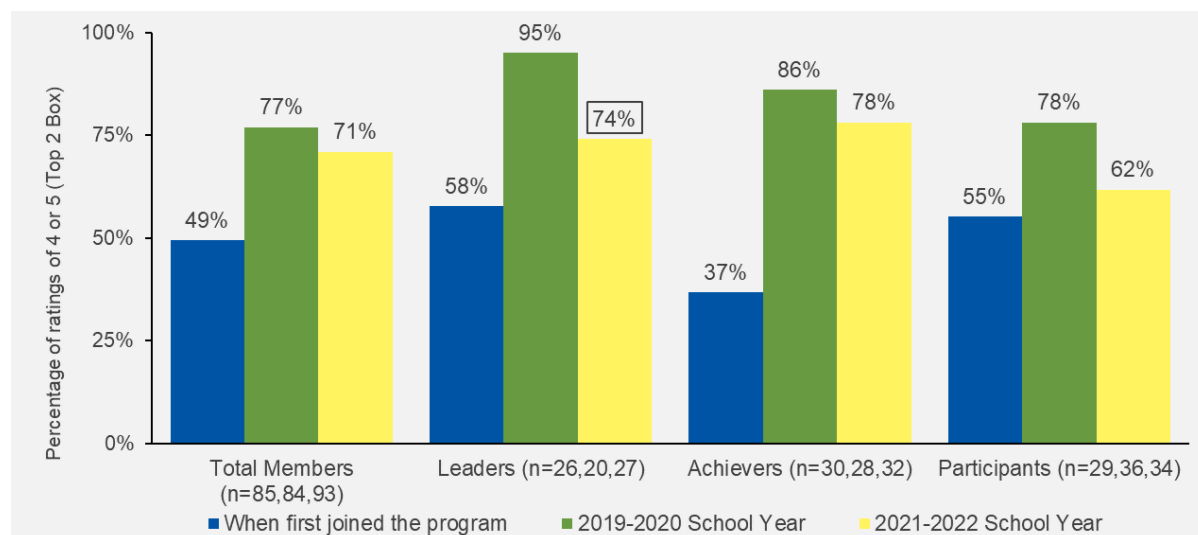
2.2.4 Understanding of Clean Energy Opportunities

Cadmus asked respondents about their knowledge of clean energy opportunities in the most recent school year to determine how well campus stakeholders across New York State understand these opportunities. When asked to rate their current level of understanding of clean energy opportunities on campus in 2021-2022, 71% of members gave a rating of 4 out of 5 or higher, which was statistically equivalent to 77% of members giving these ratings in the 2019-2020 school year (Figure 6). Leaders (74%) and Achievers

(78%) continued to express the highest understanding of their campuses' clean energy opportunities in the most recent school year, though the percentage of high ratings from Leaders declined significantly from the 2019-2020 survey (from 95%, $p < 0.01$). More than half of Leaders (52%, $n=27$) gave their institution the highest rating (5) for their current level of understanding of clean energy opportunities while just 28% of Achievers rated themselves this highly. Sixty-two percent of Participants reported a high understanding of their campuses' clean energy opportunities, the same rate as the 2019-2020 school year (61%).

As energy data collection can better inform campuses of their clean energy opportunities, the lower inclination among Participants to record such data may help explain the lower rating given by members at the Participant level.

Figure 6. Member Understanding of Clean Energy Opportunities



Boxes around results indicate a statistically significant difference between years at $p < 0.05$ or better using two-tailed t-tests. Source: 2021-2022 Member Survey questions D1 “For each of the following items, please rate the level/amount of each in 2019. - My level of understanding of clean energy opportunities on our campus.” and equivalent question D2 from 2019-2020 Member Survey. The baseline rating, “For each of the following items, please rate the level/amount of each when you first joined the REV Campus Challenge. - My level of understanding of clean energy opportunities on our campus.”, was asked to each respondent once, the first time they took a survey in 2019-2020 or after. Since not all members respond to the survey every year, and new members joined the program, the average rating presented for “when first joined the program” is a combination of responses from the last three years of the member survey.

Six out of 18 facilities staff interviewed rated their level of understanding of clean energy opportunities on campus as being 4 or 5 out of 5, where 5 is the highest rating. Facilities staff reported having a better understanding of measures to reduce emissions and energy savings relative to their understanding of clean energy opportunities on campus, with an average response of 4.4 out of 5. The average rating facilities staff gave with regard to their campus administration's understanding of emissions reductions and energy

savings opportunities was significantly lower, at 2.5 out of five, with five of 18 staff giving a rating of 2 or 3 out of 5. The primary reason given for these ratings was that campus administration staff priorities often focus more on education, enrollment, and budgetary matters rather than emissions reductions and energy savings opportunities.

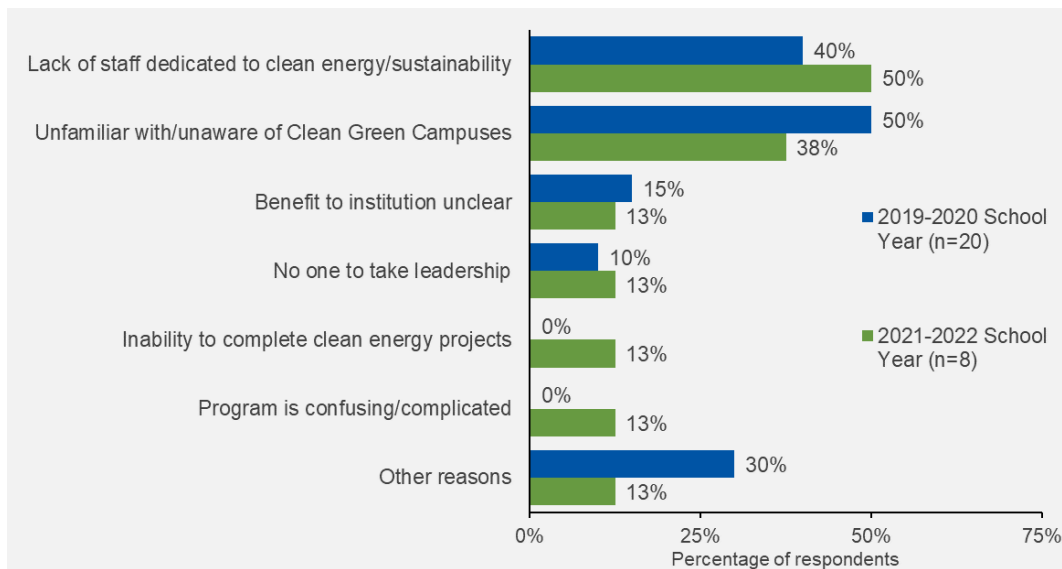
Five of 12 sustainability staff interviewed rated their level of understanding of clean energy opportunities on campus as 4 or 5 out of 5. One staff member who reported their level of understanding as a 4 stated that while they are very involved in clean energy projects on campus, they lack the operational knowledge and financial pieces to be able to rate their understanding as a 5. A staff member who rated their understanding as a 5 did so because their role on campus involves teaching several classes related to renewable energy.

In general, sustainability staff rated their campus administration's understanding of clean energy opportunities on campus as poorer than their own understanding, with only three of 12 staff members reporting administration's understanding as 4 or 5 out of 5. A rating of 3 was given from a staff member who noted that while they believed that leadership wanted to understand clean energy opportunities on campus, there had been an overhaul within the campus leadership team, which had created a disconnect between the leadership and operations team. A staff member who rated campus administration's understanding as a 4 reported that administration was often more concerned with things like occupancy comfort than emissions reductions. A rating of 5 was given by a staff member who reported working directly with the president of the university, and the president showed their dedication to embracing renewable energy.

2.2.5 Nonmember Participation and Barriers

Five of eight surveyed nonmembers (63%) said they were *somewhat likely* to join Clean Green Campuses, while one said *very likely*, one said *not too likely*, and one said *not at all likely* (all 13%). Nonmember respondents' most mentioned barriers to participation were lack of staff dedicated to sustainability projects (50%) and lack of awareness of the program (40%), which were also the most common barriers mentioned in the 2019-2020 nonmember survey (Figure 7).

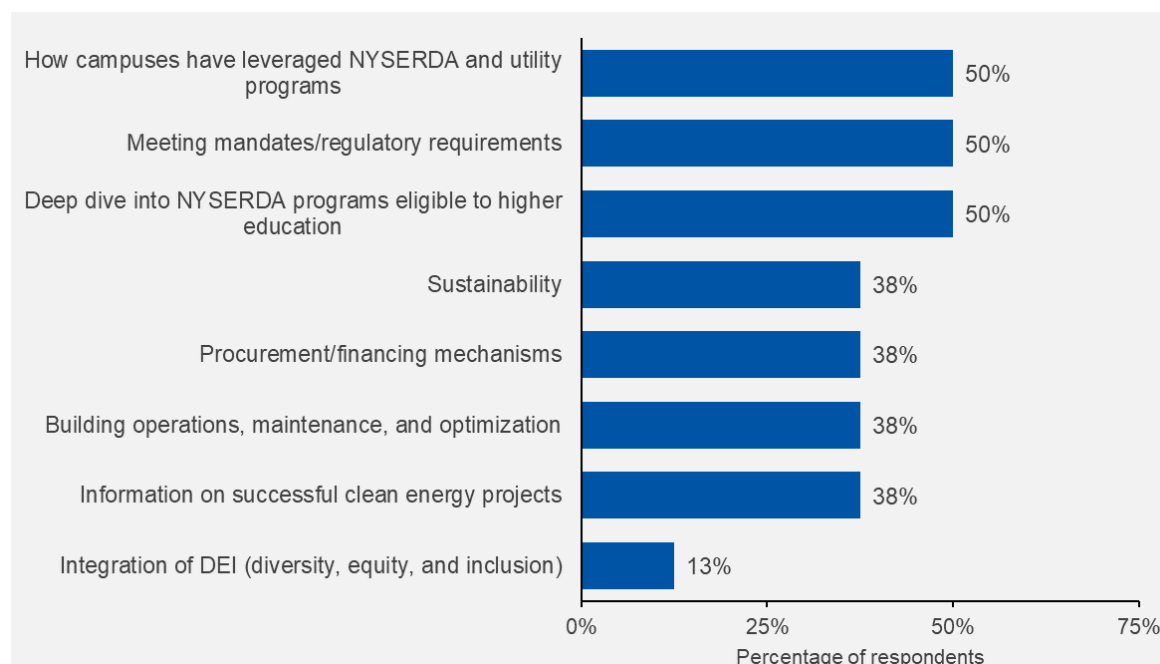
Figure 7. Nonmember Barriers to Joining Clean Green Campuses



Source: 2021-2022 Nonmember Survey question B6 “What are the top reasons why your campus has not joined the REV Campus Challenge?” and equivalent question C8 from 2019-2020 Nonmember Survey. Multiple responses accepted.

The topics nonmembers were most interested in for potential training and communications from NYSERDA included meeting mandates and regulatory requirements, how campuses leverage NYSERDA and utility programs, and a deep dive into NYSERDA programs eligible to higher education (all mentioned by 50%; Figure 8). Several other topics were of interest to several nonmember respondents (38% each): sustainability, procurement and financing, building optimization, case studies of successful projects.

Figure 8. Topics of Interest for Information Nonmembers Would Like to Receive from NYSERDA



Source: 2021-2022 Nonmember survey Question B4 “Which of the following training, webinar, or newsletter topics would be of interest to your institution?” Multiple responses accepted. (n=8)

2.3 Clean Energy Initiatives and Influence

To understand clean energy progress on campuses, Cadmus assessed their clean energy initiatives and what influenced their decisions. This section presents insights gathered from campuses across New York State and provides details on event participation, implementation of clean energy projects and initiatives, and factors that influenced decisions. Table 8 summarizes key findings discussed in this section.

Table 9. Clean Energy Initiatives and Influence Key Findings

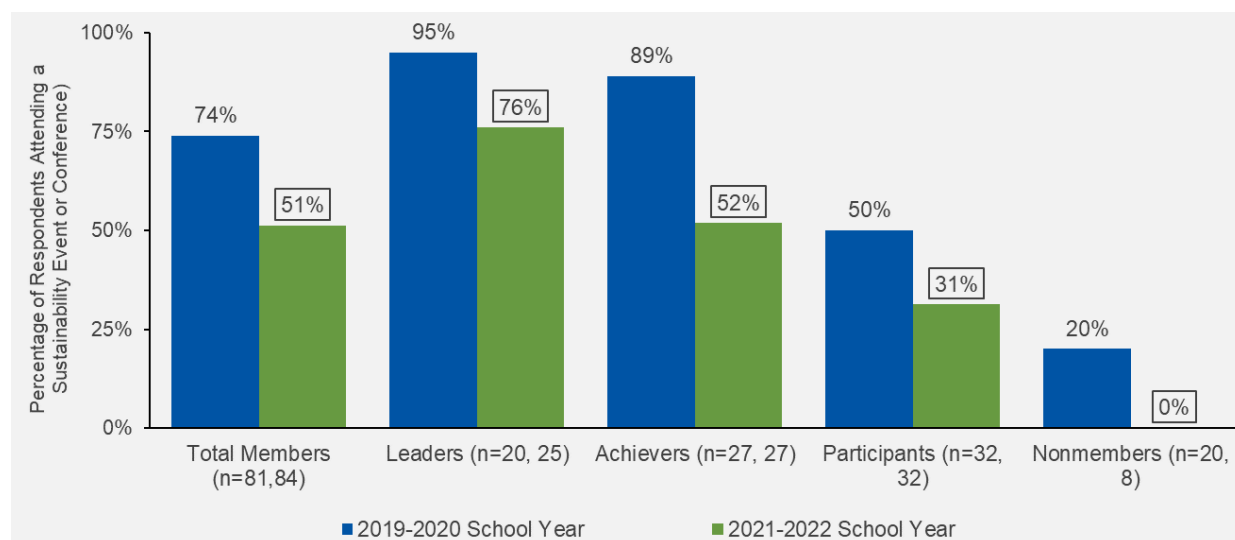
Evaluation Questions	Key Findings
What actions have NYS campuses taken as a response to emissions reduction and energy savings information?	<ul style="list-style-type: none"> • Half of member campuses reported completing at least one clean energy-related project during the 2021-2022 school year. One-third of member respondents participated in clean energy-related peer group or knowledge share, the second most common activity. • One-quarter of members expanded community partnerships, launched new clean energy initiatives on campus, and incorporated clean energy topics into new or existing courses. • See <i>Campus Clean Energy Projects and Initiatives</i> section for more details.
What factors are influential on members’ clean energy initiatives?	<ul style="list-style-type: none"> • Members stated information from peer institutions were the most influential factors for four of six clean energy accomplishments. Information or incentives from NYSERA was a highly influential factor on the completion of clean energy projects (33%) and the promotion of a clean energy project or campus designation in student-facing resources (21%). • See <i>Influential Factors</i> section for more details.

2.3.1 Event Participation

To gauge each campus's level of involvement in sustainability events, Cadmus asked respondents whether someone from their institution had attended a clean energy or sustainability event during the 2021-2022 school year. Half of member respondents reported being engaged in sustainability events and conferences, with 51% of members (n=84) attending at least one conference during the 2021-2022 school year, which was significantly less than 74% (n=81) in the 2019-2020 school year ($p < 0.0001$). Among members, the New York Coalition for Sustainability in Higher Education (NYCSHE) Annual Meeting was the most attended event during the 2021-2022 school year, attended by 16 surveyed member schools (19%). Eight of 12 sustainability staff members interviewed indicated that they were aware of the workshops offered through the Clean Green Campuses program, with three staff members having participated in a Clean Green Campuses workshop.

As shown in Figure 9, all member groups reported significant decreases in attendance at sustainability events during the 2021-2022 school year compared to 2019-2020 ($p < 0.05$ for total members and all three member groups). None of the 2021-2022 nonmember respondents reported attending events and conferences (0%), which was also statistically lower than their attendance in 2019-2020 (20%). Cadmus postulates that this difference resulted from conferences returning to in-person attendance from the virtual format during the COVID-19 pandemic, resulting in a higher barrier to entry for participants (i.e., longer travel time and/or higher cost).

Figure 9. Respondents Reporting Attending a Sustainability Event or Conference



Boxes around results indicate a statistically significant difference between years at $p < 0.05$ or better using two-tailed t-tests. Source: 2021-2022 Member Survey question B4 “Did you (or someone from your institution) attend any of the following clean energy/sustainability events during the 2021-2022 school year?” and equivalent question B6 from 2019-2020 Member Survey.

2021-2022 Nonmember Survey question C7 “Did you (or someone from your institution) attend any of the following clean energy/sustainability events during the 2021-2022 school year?” and equivalent question D11 from 2019-2020 Nonmember Survey

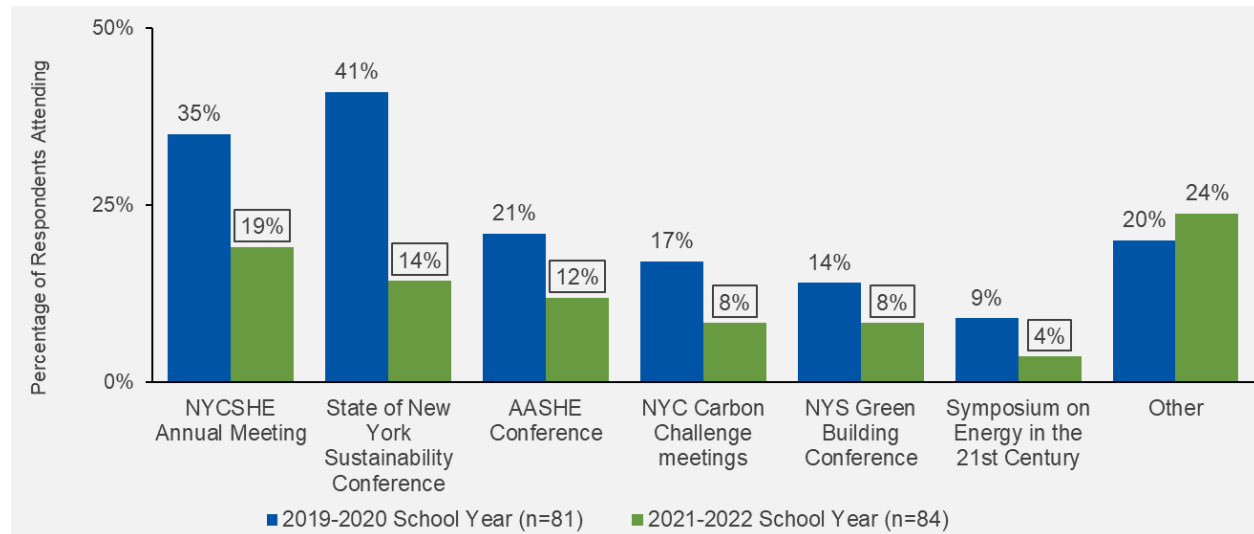
Figure 10 shows members’ attendance at specific clean energy and sustainability events over the same time period (2019-2020 school year and 2021-2022 school year). Attendance was significantly lower for every specific event listed (all $p < 0.05$ or better), with the largest decline in attendance reported for State of New York Sustainability Conference (down from 41% to 14%). The number of schools mentioning “other” events that were not listed (24%) was the only category that increased. Among these “other” responses, no events or institutions dominated, indicating a proliferation of emerging event opportunities. Some examples included events involving New York Geothermal Energy Organization (NY-GEO), ASHRAE, U.S. Department of Energy, Second Nature, International Campus Sustainability Network, and localized efforts such as Drive Electric Long Island EV Workshop and Western New York (WNY) Sustainable Business Roundtable.

Forty percent of members (n=93) reported attending the annual workshop offered by Clean Green Campuses during the 2021-2022 school year, which was consistent with the attendance reported from the 2019-2020 school year (41%, n=84). Using program attendance records, Cadmus counted 73 member or member-related organizations⁵ attending the workshop in 2021-2022 (representing 51% of 143 members).

⁵ Some workshop attendees may have represented multiple institutions, such as SUNY Construction Fund and the Archdiocese of New York.

Eight of 12 sustainability staff members interviewed indicated that they were aware of the workshops offered through the Clean Green Campuses program.

Figure 10. Member Specific Event Attendance



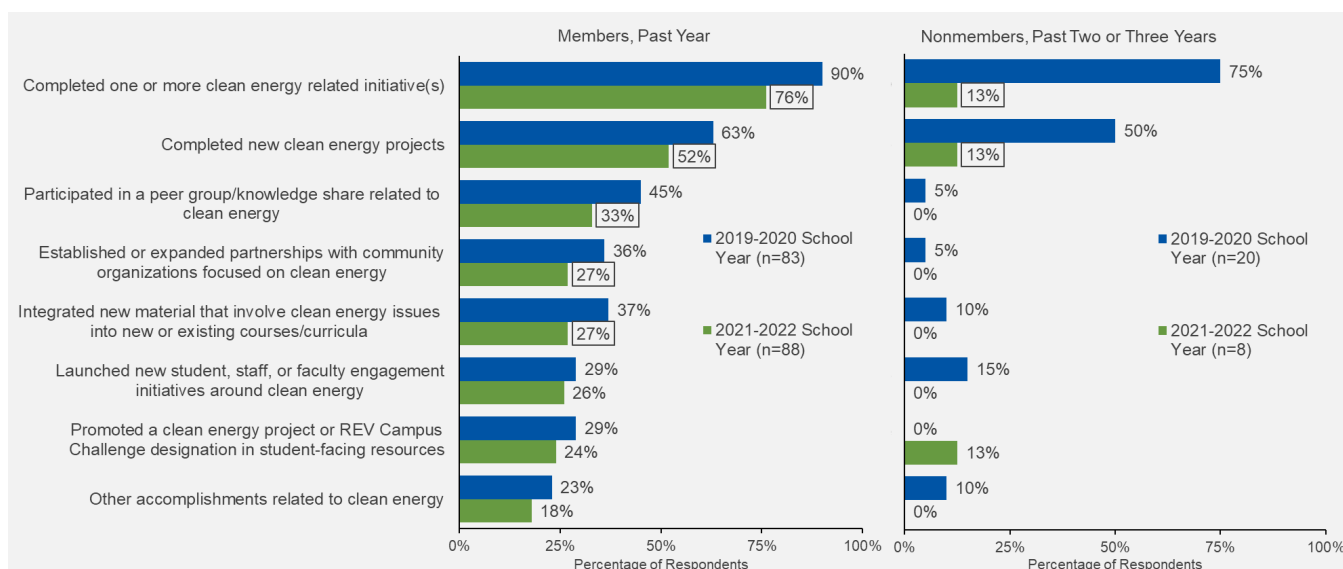
Boxes around results indicate a statistically significant difference between years at $p < 0.05$ or better using two-tailed t-tests. Source: 2021-2022 Member Survey question B4 “Did you (or someone from your institution) attend any of the following clean energy/sustainability events during the 2021-2022 school year?” and equivalent question B6 from 2019-2020 Member Survey.

2.3.2 Campus Clean Energy Projects and Initiatives

As shown in Figure 11, half of member campuses (52%) completed a new clean energy project during the 2021-2022 school year, and 76% completed at least one of the clean energy-related initiatives listed in the figure. The relative frequency at which members engaged in these initiatives was unchanged from the 2019-2020 school year, with the same activities being the most common ones in both years, though the absolute percentage of members declined across the board (the top five accomplishments shown had statistically significant declines of $p < 0.05$ or better between years). The decrease in engagement with these activities among respondents from nonmember institutions was even greater, however, with the percentage having completed any of the listed initiatives down from 75% in 2019-2020 to 13% in 2021-2022. Only 13% (one school) reported completing a new clean energy project in the past two years in the 2021-2022 survey, a significant decline from 50% in 2019-2020.

At the member level, the percentage who completed a clean energy project was higher among Leaders (64%, $n=25$) and Achievers (50%, $n=32$) than Participants (40%, $n=35$). Participant-level members were also more likely to report none of these clean energy accomplishments in the 2021-2022 school year, with 31% reporting “none of the above” compared to 16% of Leaders and 19% of Achievers.

Figure 11. Member and Nonmember Clean Energy-Related Accomplishments

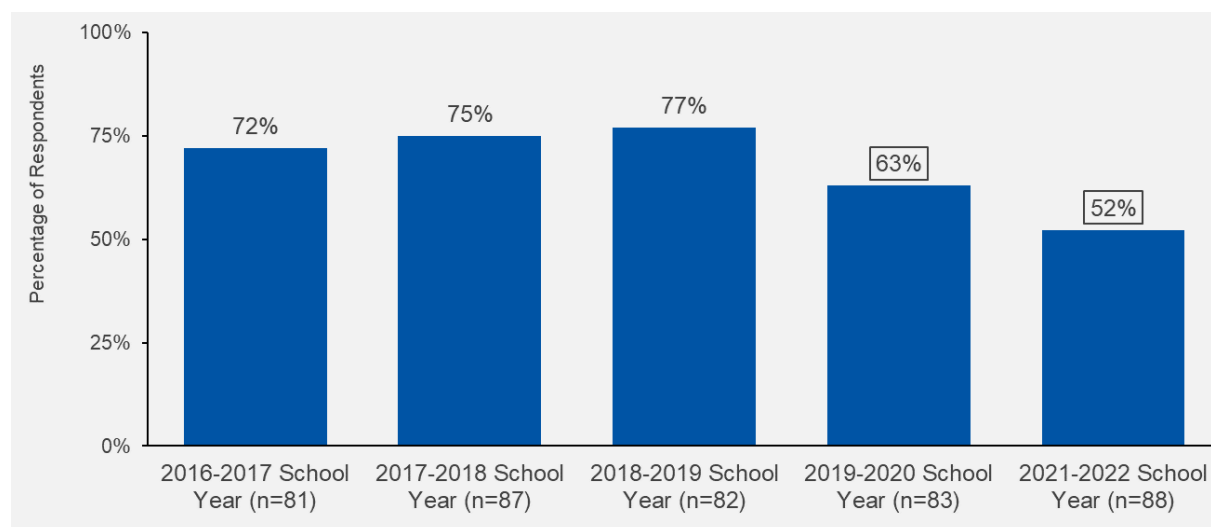


Boxes around results indicate a statistically significant difference between years at $p < 0.05$ or better using two-tailed t-tests. Source: 2021-2022 Member Survey Question B6 “During the 2021-2022 school year, did your institution accomplish any of the following? Please select all that apply.” Equivalent question B8 in 2019-2020 Member Survey.

2021-2022 Nonmember Survey Question C11 “During the two most recent school years (2020-2021 and 2021-2022), did your campus accomplish any of the following?” 2019-2020 Nonmember Survey Question D14 “In the past three years, did your campus accomplish any of the following?” Multiple responses allowed for all of these questions. The questions for members and nonmembers used different time periods by design in order to fit with the existing program measurement framework (for members) while also collecting the required information for calculating indirect impacts (nonmembers).

The percentage of members reporting newly completed clean energy projects on campus remained consistent between the 2016 to 2018 reporting years, as shown in Figure 12. Since then, a new trend has emerged as the rate of newly completed clean energy project completion declines. The first decline was during the 2019-2020 school year, when only 63% of members reported new clean energy projects, a significant decrease compared to the previous years and likely due to the COVID-19 pandemic. Another significant decline in the 2021-2022 school year was that only 52% of member campuses reported completing at least one clean energy project. As noted in the 2.1.1. *COVID-19 Impacts* section, campuses reported several persisting impacts of the COVID-19 pandemic on clean energy projects, which was likely a major contributing factor to this observed trend. Specifically, campuses described lasting reductions in staff (44%, $n=87$), funding (28%), and delayed or postponed clean energy projects (36%). Thus, the inability for campuses to begin projects due to these noted issues likely caused a sustained drop in this metric.

Figure 12. Members Reporting Newly Completed Clean Energy Projects



Boxes around results indicate a statistically significant difference from the previous year at $p < 0.05$ or better using two-tailed t-tests. Source: 2021-2022 Member Survey Question B6 “During the 2021-2022 school year, did your institution accomplish any of the following? Please select all that apply. (Completed new clean energy projects (i.e., energy efficiency, energy conservation, or renewable energy).” Equivalent question B8 in previous Member Surveys.

Interviews with facilities managers suggested that completing clean energy and sustainability projects improved building operations practices. Fourteen of 18 facilities staff interviewed discussed positive impacts, including reduced energy costs with increased energy efficiency of buildings (five responses), reduced demand for natural gas (two responses), and enhanced ability to monitor energy data (three responses).

Conversely, seven facilities managers cited maintenance and operations challenges associated with clean energy projects. Common barriers included high costs of upgrades to HVAC and other energy systems (four responses), implementation of resiliency strategies to keep equipment running once electrified (two responses), and complicated scheduling of equipment operations (one response).

2.3.3 Influential Factors

Cadmus collected information from campuses about what influenced (both directly and indirectly) their clean energy accomplishments. Member respondents in 2021-2022 mentioned fewer influences across all of their clean energy initiatives, with mentions of information and/or incentives from NYSERDA declining the most, though NYSERDA remained an important influence on completing clean energy projects (33%), at a level equivalent to consultants (38%) and utilities (36%). Information from peer institutions was the largest influence on four of the initiatives in the most recent survey, and consultants and the opportunity for recognition were the top influences on promoting projects in student-facing

materials (Table 9, highlighted cells). In the 2019-2020 school year, respondents generally noted 2.5 to 3 items that were influential on their clean energy initiatives, an average that fell below 1.5 for the 2021-2022 school year. As noted in earlier sections, it’s likely that other priorities have taken staff attention away from some of these items, reducing how many different entities/resources they can engage with.

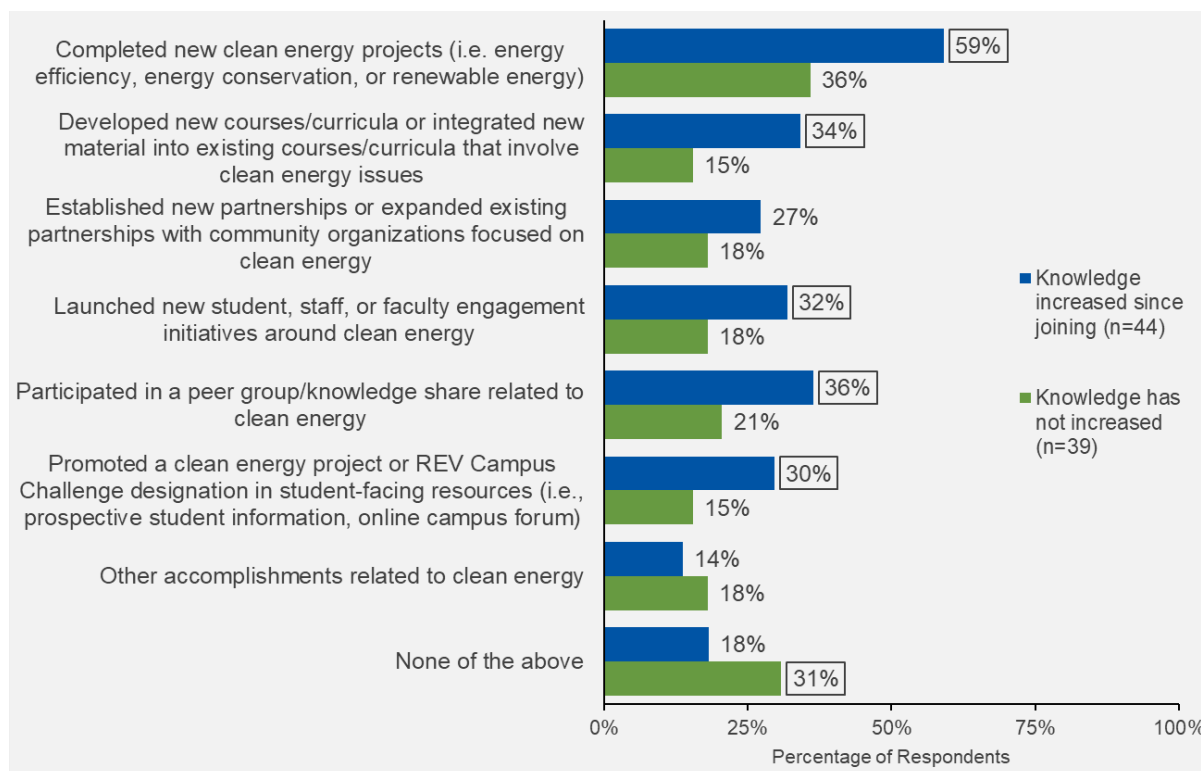
Table 10. Influencing Factors to Complete Various Clean Energy Accomplishments (Members)

Influence Factor	Clean Energy Accomplishments					
	Promoted a clean energy project or Clean Green Campuses designation in student-facing resources (n=19)	Completed new clean energy projects (n=45)	Launched new student or faculty engagement initiatives (n=22)	Established new or existing community partnerships (n=22)	Peer group/ knowledge share related to clean energy (n=26)	Developed new courses/ curricula (n=22)
Information/ incentives from NYSERDA	21%	33%	14%	14%	4%	18%
Information from a consultant or provider of clean energy services	26%	38%	5%	18%	15%	18%
Information/ incentives from a utility	11%	36%	9%	9%	4%	5%
Opportunity for recognition	26%	16%	18%	23%	23%	5%
Information from a peer institution	11%	11%	32%	27%	27%	27%
Training, workshop, webinar, or event	11%	7%	9%	14%	12%	9%
Other	16%	9%	27%	18%	15%	27%
None	16%	9%	18%	14%	15%	23%

Highlighted cells indicate the most influential factor for each clean energy project or initiative.

To investigate the extent to which Clean Green Campuses activities affected member clean energy initiatives, Cadmus analyzed reported clean energy accomplishments for members who reported an increase in their campus’ engagement/knowledge since joining the program compared to those who did not. Members who reported an increase in their understanding of clean energy opportunities on their campus since joining were more likely to complete a new clean energy project (59%) than were members who did not report an increase in their understanding (36%, Figure 13). Members who reported an increase in their understanding were significantly more likely to complete most types of clean energy initiatives, while those whose knowledge has not increased since they joined were more likely to have done none of the above in 2021-2022 (31% compared to 18% of members whose knowledge increased.)

Figure 13. Members Completing Initiatives by Knowledge Gained Since Joining Clean Green Campuses



Boxes around results indicate a statistically significant difference between groups at $p < 0.05$ or better using two-tailed t-tests. Source: 2021-2022 Member Survey Question B6 “During the 2021-2022 school year, did your institution accomplish any of the following? Please select all that apply.” The groups being compared are defined by their responses from multiple surveys; this variable is equivalent to reporting indicator I8, described in 2.1 Market Progress Indicators.

2.3.4 Indirect Impacts Estimation

Cadmus used results from the nonmember survey to estimate the indirect impacts of NYSERDA programs on clean energy projects. Only nonmembers were eligible for indirect impacts, as all benefits associated with member clean energy projects are included in the direct impact measurement. Cadmus designed the evaluation to identify nonmembers who have adopted a climate action/energy master plan or completed a clean energy project due to the influence of the Clean Green Campuses program and who met the minimum requirements for a Clean Green Campuses membership level. Cadmus then estimated the impacts associated with their implementation of clean energy projects. Full details of this methodology are included in *Appendix A. Indirect Impacts Estimation Methodology*.

The primary requirement for nonmember clean energy projects to count toward program indirect impacts was that the nonmember campus had either a climate action plan or an energy master plan. This

requirement is one of the initial steps that the program encourages all members to take. However, none of the 20 respondents to the 2019-2020 nonmember survey had a climate action plan or energy master plan, so there were no indirect impacts.

For the 2021-2022 evaluation, Cadmus modified this gateway requirement to also include nonmembers who completed clean energy projects due to the influence of Clean Green Campuses even if they did not have a climate action plan or an energy master plan. In the 2021-2022 nonmember survey, one respondent had both a climate action plan, one had an energy master plan, and the other six had neither. There was also one school that reported completing clean energy projects in the past two years. Of the three potentially qualifying schools, one reported that the school’s energy master plan was created in 2012, which was before Clean Green Campuses was launched, and therefore could not have been indirectly influenced by the program.

Of the remaining two nonmember respondents who met the gateway criteria for indirect impacts, none cited a program influence as a factor in their plans or projects, so no indirect impact was reported for Clean Green Campuses in 2021-2022. One respondent mentioned incentives from NYSERDA as an important influence on the school’s plans and projects, indicating that NYSERDA may have received credit for the direct impact of these activities through programs other than Clean Green Campuses. The results of the indirect impact analysis are shown in Table 10.

Table 11. 2021-2022 Qualifications for Indirect Impacts

Survey Respondent	Has climate action plan?	Has energy master plan?	Has GHG inventory?	Completed clean energy project in last 2 years?	Influences on plans or projects
Nonmember School 1	Yes, 2022	No	No	No	Pontifical call to action (does not qualify)
Nonmember School 2	No	Yes, 2012 (does not qualify)	No	No	Incentives from NYSERDA, opportunity for recognition (did not qualify due to timeframe)
Nonmember School 3	No	No	No	Yes, EV charging station 2022, lighting upgrades 2021-2022	Information and incentives from a utility (does not qualify)
Nonmember School 4	No	No	No	No	<i>Not applicable</i>
Nonmember School 5	No	No	No	No	<i>Not applicable</i>
Nonmember School 6	No	No	No	No	<i>Not applicable</i>
Nonmember School 7	No	No	No	No	<i>Not applicable</i>
Nonmember School 8	No	No	No	No	<i>Not applicable</i>

Source: 2021-2022 Nonmember Survey questions C4, C5, C11, C16, C17, and C20.

2.4 Student and Community Engagement

Cadmus administered online surveys with students and campus staff and conducted interviews with campus staff to better understand opportunities for college students to participate in campus clean energy and sustainability-related activities and the role these activities had on student enrollment decisions. This section discusses student awareness of and engagement with clean energy initiatives and community relations with respect to clean energy and sustainability initiatives. Table 11 summarizes the key findings discussed in this section. *Appendix B. Student Survey Demographics* provides more information about the student population.

Table 12. Student and Community Engagement Key Findings

Evaluation Questions	Key Findings
How aware and engaged are students of/with campus clean energy and sustainability initiatives?	<ul style="list-style-type: none"> • 14% of member respondents said they had high levels of student engagement with clean energy initiatives on their campus in the 2021-2022 school year. • Students were most likely to be aware of courses related to clean energy and student groups/councils focused on clean energy and initiatives on their campus. • From the 2019-2020 school year to the 2021-2022 school year, student's awareness and participation in clean energy initiatives remained consistent. • See <i>Student Engagement</i> section for more details.
What impact do campus clean energy and sustainability initiatives have on student enrollment decisions?	<ul style="list-style-type: none"> • Most members said their campus' commitment to clean energy was important in attracting prospective students. • 33% of student survey participants said their school's commitment to sustainability was important to their decision to enroll. • See <i>Clean Energy Impact on Enrollment</i> section for more details.
Have NYS campuses integrated clean energy and sustainability into course curriculum? How broadly? In which disciplines? Does curriculum integrate campus energy reporting data?	<ul style="list-style-type: none"> • 26% of member campuses reported integrating clean energy and sustainability topics into new or existing courses in the 2021-2022 school year. • See <i>Student Engagement</i> section for more details.
What level of collaboration exists between campuses and communities on clean energy and sustainability initiatives?	<ul style="list-style-type: none"> • One-quarter of members said they established or expanded existing partnerships with communities during the 2021-2022 school year. • As of the 2021-2022 school year, 30% of member campuses have reported higher ratings for the level of contribution their clean energy initiatives have had on improving relations with the surrounding community compared to the rating they gave when they joined Clean Green Campuses. • See <i>Campus-Community Collaboration</i> section for more details.

2.4.1 Student Engagement

To assess engagement, Cadmus asked current students at member campuses about their awareness of and participation in clean energy initiatives on campus. Overall, 61% of students (n=230) said they were familiar with campus clean energy and sustainability initiatives in general. These results match results in the 2019-2020 school year where 61% of students (n=169) and 62% of member campus students (n=117)

said they were familiar with campus clean energy and sustainability initiatives in general. Students' awareness of clean energy sustainability initiatives has remained consistent over the course of these initiatives.

During the 2021-2022 school year, 26% of member campuses (n=92) reported either incorporating clean energy themes and issues into new courses or integrating new clean energy topics into the existing curricula, and 25% also launched new clean energy initiatives to increase student, staff, and faculty engagement. However, these efforts have not appeared to increase the level of student engagement with clean energy initiatives from the perspective of member campus staff, with only 14% (n=91) reporting a high degree of engagement among its student population during the 2021-2022 school year (4 or 5 on a scale of 1 to 5, with 5 the highest rating). In 2019-2020, a significantly higher percentage of members gave high ratings for student engagement (27%, n=85; $p<0.01$).

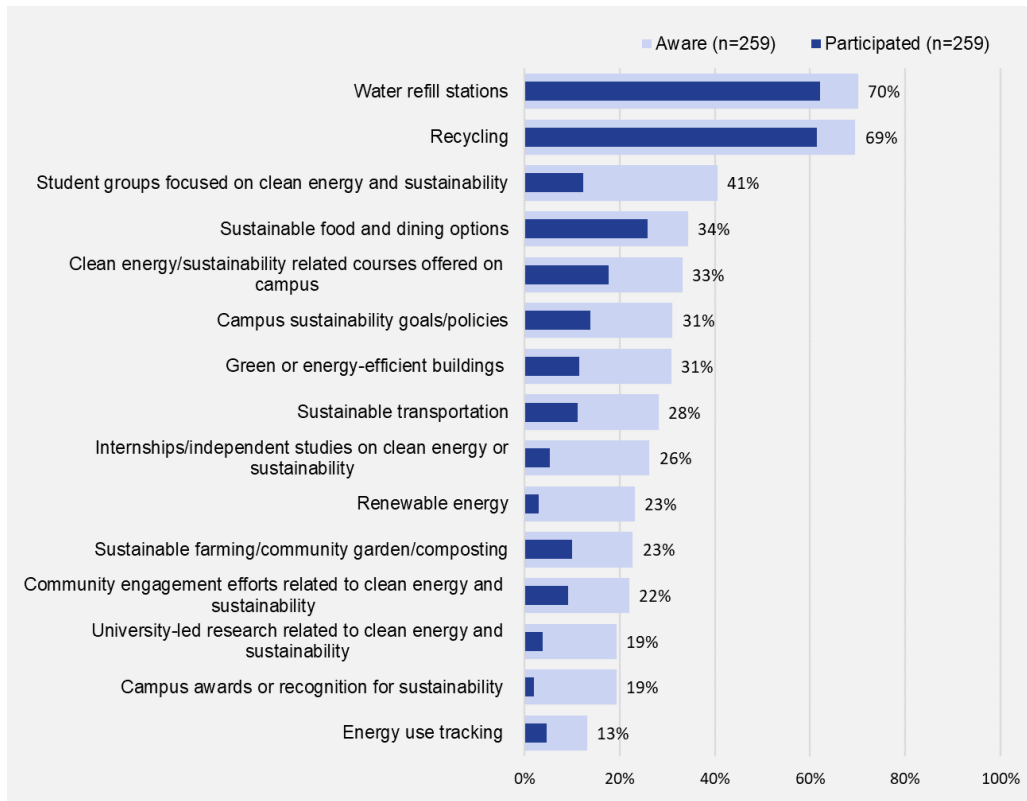
To help drive further student engagement with clean energy projects, sustainability staff said they used reports and newsletters on initiatives and ongoing projects, virtual platforms showing energy use by building, case studies, and live events. They also noted that enrolled students have several opportunities to participate in clean energy and sustainability initiatives on campus, including through extracurricular organizations (such as environmental clubs and sustainability councils that include student representatives), internship opportunities, class projects, and energy savings competitions held in dormitories. Four of 12 sustainability staff said that clean energy and sustainability topics are incorporated into course curriculum.

As shown in Figure 14, Cadmus asked students what energy and sustainability initiatives they were aware of on their campus. The most common responses were using water refill stations (71%), recycling (69%), and student groups focused on clean energy and sustainability/sustainability controls (41%). In the 2019-2020 school year, when asked about specific initiatives they were aware of, students were most likely to say courses related to clean energy (48% for all students; 51% for students at member campuses, n=122) and student groups/councils focused on clean energy and initiatives (44% for all students; 48% for students at member campuses) on their campus.

Cadmus asked students what energy and sustainability initiatives they participated in on campus. Compared to awareness, students reported low participation in campus energy and sustainability initiatives; the most common initiatives were using water refill stations (62%), recycling (61%), and sustainable food and dining options (25%). Compared to the 2019-2020 school year, the most common responses were to have taken a clean energy/sustainability-related course (20% for all students; 22% for students at member campuses) or participated in student groups/councils focus on clean energy and

initiatives (13% for all students; 11% for students at member campuses, n=122). Between these two survey cycles, Cadmus added new response options to the list, potentially leading to changes in response patterns.

Figure 14. Student Awareness of and Engagement with Campus Clean Energy Initiatives.



Source: 2019-2020 Student Survey questions B2 “What kinds of clean energy initiatives or projects are you aware of on your campus?” B3 “Since you’ve been a student, have you ever been involved with or participated in any of these clean energy or sustainability initiatives on your campus?” Multiple responses allowed (n=259). This figure only shows the most common responses. Other responses were: energy reduction competitions between residence halls (awareness = 6%, participation = 2%), Generation E: Students Leading for a Sustainable (awareness = 5%, participation = 1%), Recyclemania (awareness = 4%, participation = 2%), and The Campus Conservation Nationals (awareness = 0.8%, participation = 0.4%).

2.4.2 Clean Energy Impact on Enrollment

Cadmus asked member and nonmember respondents several questions regarding clean energy projects and prospective students. Most members (83%, n=92) rated the implementation of clean energy projects as *very important* or *somewhat important* for recruiting prospective students in 2021-2022, which was somewhat higher than the rate of 76% (n=84, p<0.10) from the 2019-2020 survey. Nonmembers in 2021-2022 gave ratings that were similar to members (75%, n=8), which represented a significant increase from the 2019-2020 nonmember survey (25%, n=20, p<0.01). Across the three member types

(i.e., Leader, Achiever, Participant), a similar degree of importance was laid on the implementation of clean energy projects for recruiting prospective students (81% to 85% by member level).

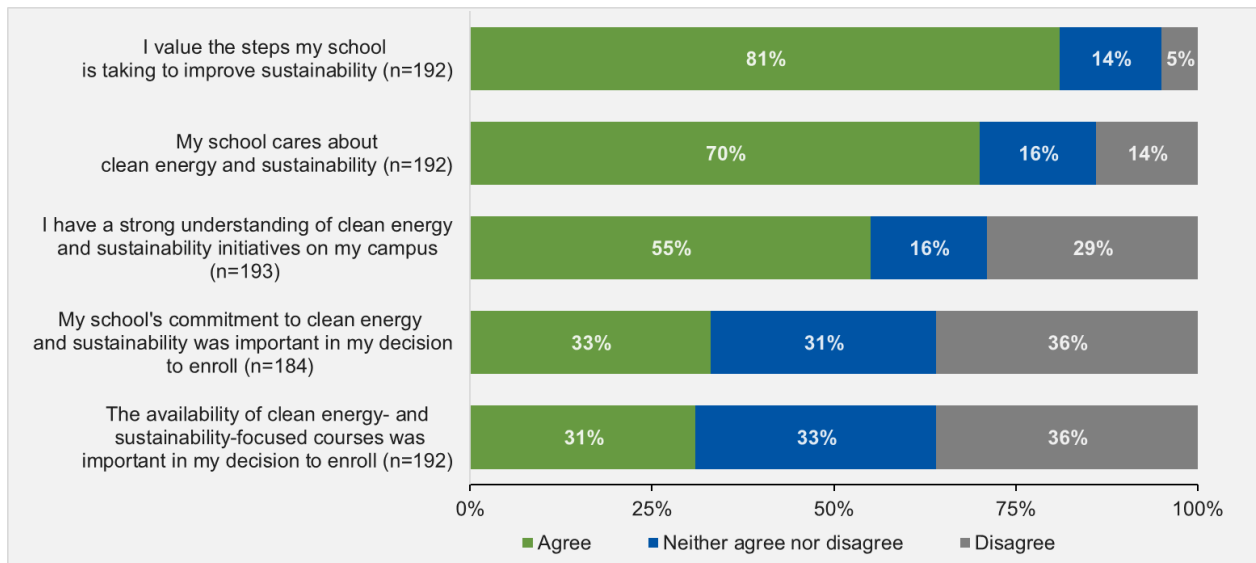
Members reported promoting clean energy projects and Clean Green Campuses designations in student-facing resources during the 2021-2022 school year. Overall, 24% of members (n=88) promoted a clean energy project or Clean Green Campuses designation in student-facing resources in 2021-2022, which was equivalent to the rate of 29% (n=83) in the 2019-2020 member survey. Only one nonmember respondent reported promoting clean energy projects to students (13%, n=8), which was statistically equivalent to the 2019-2020 rate for nonmembers (0%, n=20).

Cadmus asked sustainability staff how important they considered campus sustainability for prospective students. Five of 12 sustainability staff said that campus sustainability was *somewhat* or *very important* for prospective students, and one mentioned using sustainability initiatives as a recruiting tool for prospective students.

2.4.2.1 Student Attitudes Toward Enrollment Decisions

Cadmus asked students about their agreement with various statements about clean energy initiatives on campus. As shown in Figure 15, 81% of students said they value the steps their school is taking to improve sustainability (n=192), and 70% said their school cares about clean energy and sustainability (n=192). Thirty-six percent of participants disagreed with the statement that their school's commitment to clean energy and sustainability was important in their decision to enroll (n=184), and 36% disagreed with the statement that the availability of clean energy- and sustainability-focused courses was important to their decision to enroll (n=192).

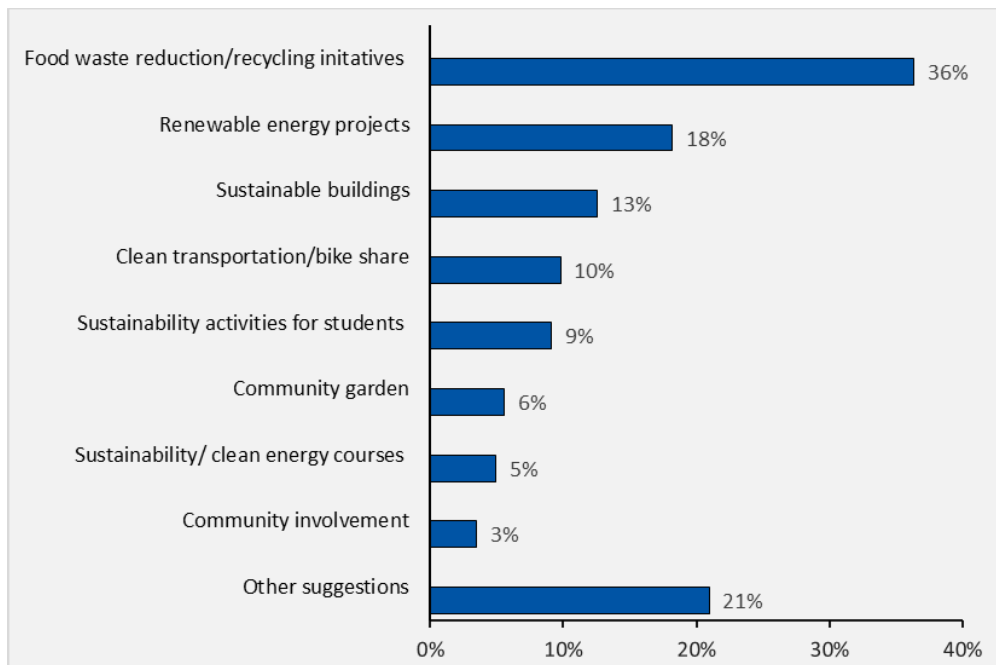
Figure 15. Student Attitudes Toward Clean Energy Initiatives on Campus



Source: 2021-2022 Student Survey question C1 “For each of the following items, please rate how much you agree or disagree with the statement.”

As shown in Figure 16, in the future, students said they would like to see more food waste reduction/ recycling initiatives (36%), renewable energy projects (18%), sustainable buildings (13%), and clean transportation/bike shares (10%). These responses are generally consistent with top responses from the 2019-2020 school year, where students said they would like to see more renewable energy projects (38%), food waste/recycling initiatives (35%), and sustainability activities for students (18%).

Figure 16. Desired Campus Initiatives Among Students



Source: 2021-2022 Student Survey question C3 “What type of clean energy or sustainability projects or initiatives would you like to see implemented on your campus in the future?” (open ended; n=143). This figure only shows the most commonly-cited responses, with the remainder included in the “Other suggestions” category.

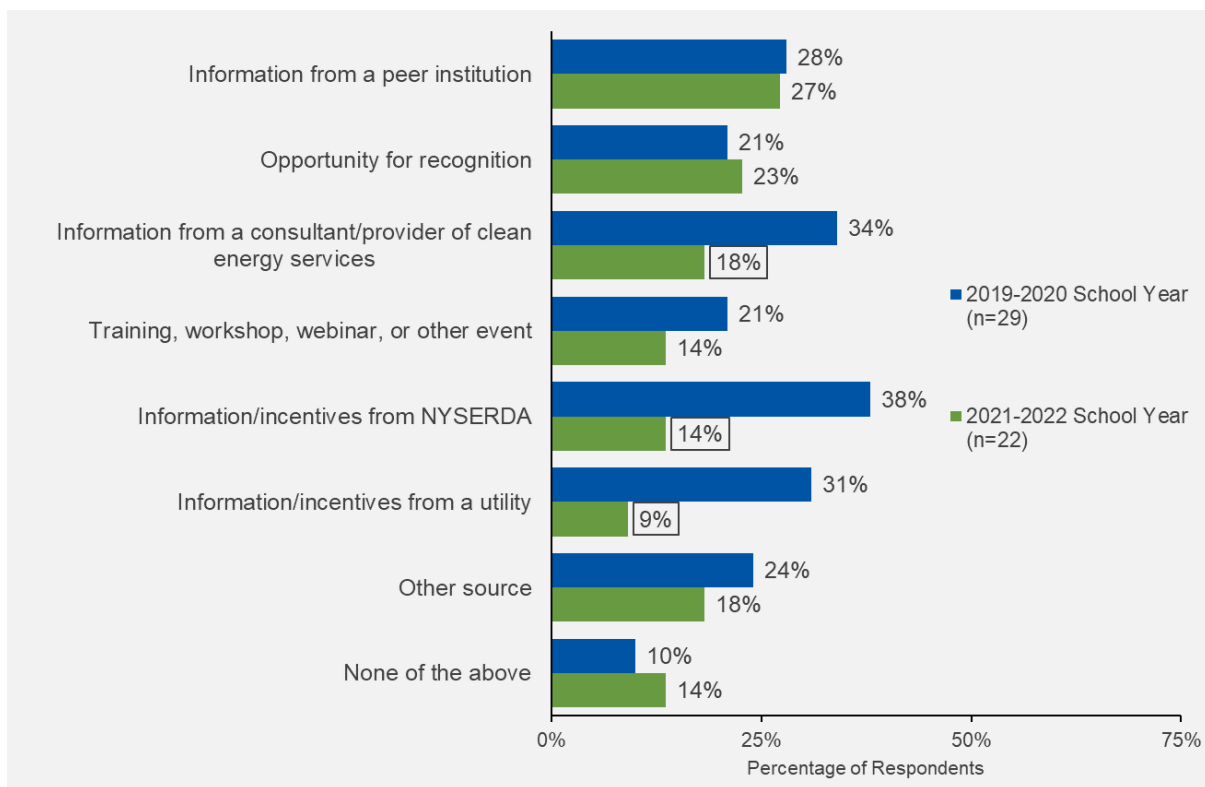
2.4.3 Campus-Community Collaboration

Cadmus asked member and nonmember campuses about their partnerships with neighboring communities during the 2021-2022 school year, such as joint ownership of projects focused on clean energy or sustainability. Over one quarter of members (26%, n=92) established new partnerships or expanded existing partnerships with community organizations in the past school year, especially Leaders (44%; n=25). As of the 2021-2022 school year, 30% of member campuses (n=143) have reported higher ratings for the level of contribution their clean energy initiatives have had on improving relations with the surrounding community compared to the rating they gave when they joined Clean Green Campuses. None of the nonmembers surveyed in 2021-2022 established or expanded partnerships with community organizations (0%, n=8).

Six of 12 sustainability staff from member campuses reported collaborating with the surrounding community on clean energy and sustainability initiatives. These initiatives included partnerships with local and regional coalitions on events and programs (such as rideshare), collaboration on actions to bring energy costs down in surrounding neighborhoods, and educational offerings to community members (such as workshops on heat pump technologies).

As described in the 2.3.3 *Influential Factors* section, information from NYSERDA and peer institutions helped foster campus community partnerships. When asked what factors contributed to the decision to establish or expand community partnerships, only 14% of member respondents who established community partnerships cited information and incentives from NYSERDA, while the most frequently mentioned factors were information from a peer institution (27%) and the opportunity for recognition (23%). Both of these were mentioned at similar rates by 2019-2020 member respondents (Figure 17). In 2021-2022, members were significantly less likely to mention NYSERDA as a factor, and also less likely to mention clean energy consultants (18%) and utility incentives and information (9%) compared to 2019-2020 respondents (34%, 38%, and 31%, respectively). The three factors that declined significantly in 2021-2022 were also the top three factors in 2019-2020. Cadmus hypothesizes that this may be related to members completing fewer clean energy projects in 2021-2022, which may mean they have had less contact with NYSERDA, consultants and utility programs than in previous years.

Figure 17. Contributing Factors to Establish Community Partnerships



Boxes around results indicate a statistically significant difference between years at $p < 0.10$ or better using two-tailed t-tests. Source: 2021-2022 Member Survey question B8 “You mentioned your institution completed the accomplishments listed below during the 2021-2022 school year. Which, if any, of the following factors contributed to your institution’s decision to take these actions?” and equivalent question B10 from 2019-2020 Member Survey.

2.5 Support and Recognition

Cadmus surveyed members and nonmembers and interviewed facilities and program staff to identify what types of knowledge are exchanged among peer institutions, the level of support campuses receive for advancing sustainability goals, and the role of public recognition for clean energy initiatives. Table 12 summarizes key findings included in this section.

Table 13. Support and Recognition Key Findings

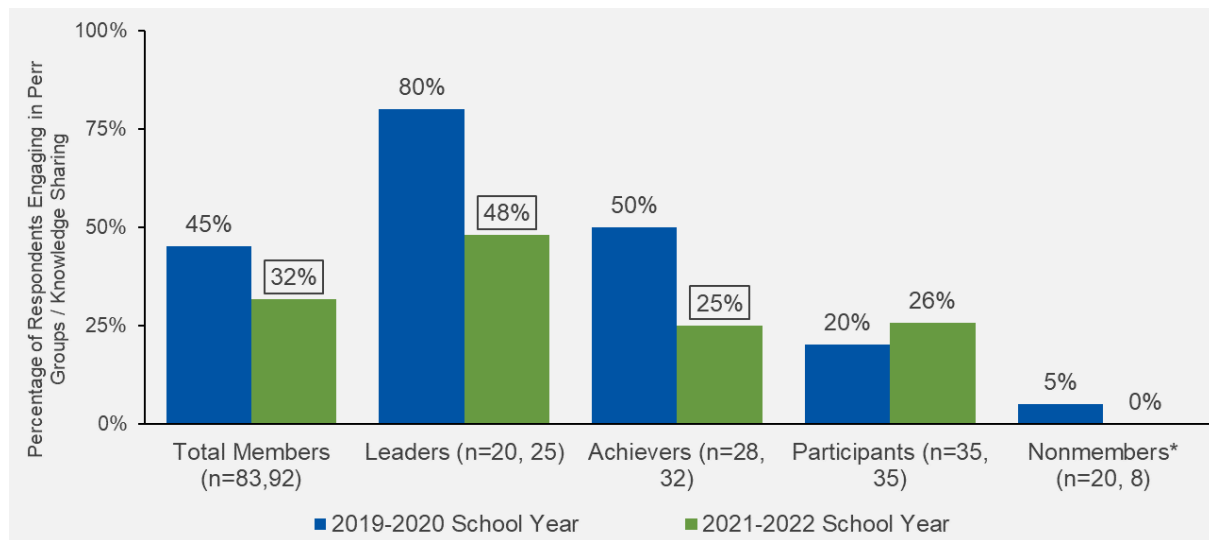
Evaluation Questions	Key Findings
<p>What types of knowledge exchange, or collaboration, related to clean energy and sustainability initiatives takes place among NYS campuses? How frequently? Among whom?</p>	<ul style="list-style-type: none"> • 32% of members reported participating in a peer group or sharing clean energy-related knowledge in the past year. The level of sharing was highest among Leaders (43%) and equal among Achievers and Participants (25%). • See <i>Learning Exchange</i> section for more details.
<p>What level of support does management have for clean energy projects and initiatives?</p>	<ul style="list-style-type: none"> • 56% of members gave high ratings for campus management's level of support for clean energy and projects and initiatives, an 11-percentage-point decrease when compared to the 2019-2020 school year. This decline was most pronounced among Leaders, whose proportion of high ratings fell 25-percentage-points from 84% to 59%. Achievers showed the largest overall increase in campus management support, with 59% giving high ratings in 2021-2022 compared to 33% when they joined the program. • See <i>Support from Campus Administration</i> section for more details.
<p>What support have NYS campuses received in pursuit of more advanced clean energy goals? What actions have NYS campuses taken as a result of support received in pursuit of more advanced clean energy goals?</p>	<ul style="list-style-type: none"> • 41% of member campuses had at least one full-time employee (FTE) dedicated to clean energy and sustainability, while 16% had fewer than one FTE. • 40% of members said the program provided significant support toward their clean energy goals, rating the Clean Green Campuses resources a 4 or 5 on a 1 to 5 rating scale (with 5 representing the highest). • As of the 2021-2022 school year, 36% of members have participated in FlexTech, an increase from 18% of members in 2019-2020. OsEM participation also increased from 11% to 13% during this period. • See <i>Support Staff for Clean Energy and Sustainability</i> and <i>Support from Campus Administration</i> section for more details.
<p>How many NYS campuses are receiving recognition? Through which channels (program or non-program)?</p>	<ul style="list-style-type: none"> • 16% of member campuses reported receiving recognition for clean energy achievements in the 2021-2022 school year, with Leader (23%) and Achievers (19%) most likely to receive recognition. The sources of recognition were NYSERDA via the Clean Green Campuses, the Princeton Review Guide to Green Schools, Times Higher Education (THE), the U.S. Environmental Protection Agency (EPA), the Association for the Advancement of Sustainability in Higher Education (AASHE), and New York Power Authority's (NYPA) Customer Clean Energy Exchange among other local organizations. • See <i>Recognition for Clean Energy Achievements</i> section for more details.

2.5.1 Learning Exchange

Among Clean Green Campuses members, knowledge exchanges with peers was the second most common accomplishment during the 2021-2022 school year, as highlighted in section 2.3.2 *Campus Clean Energy Projects and Initiatives*. Despite this ranking, only 32% of surveyed members said they had participated

in a peer group or shared knowledge related to clean energy during the past school year (Figure 18), which was significantly less than reported in the 2019-2020 survey (45%, $p < 0.01$). By membership level, peer group participation and knowledge-sharing was twice as common among Leaders (48%, $n=25$) as among Achievers (25%, $n=32$) and Participants (26%, $n=35$). Peer group participation and knowledge-sharing was rarely reported by surveyed nonmembers, none of whom participated in a peer group or shared knowledge related to clean energy *in the past two years* in 2021-2022 (0%, $n=8$) and only one of whom had done so *in the past three years* in 2019-2020 (5%, $n=20$).

Figure 18. Participation in Peer Group or Knowledge-Sharing



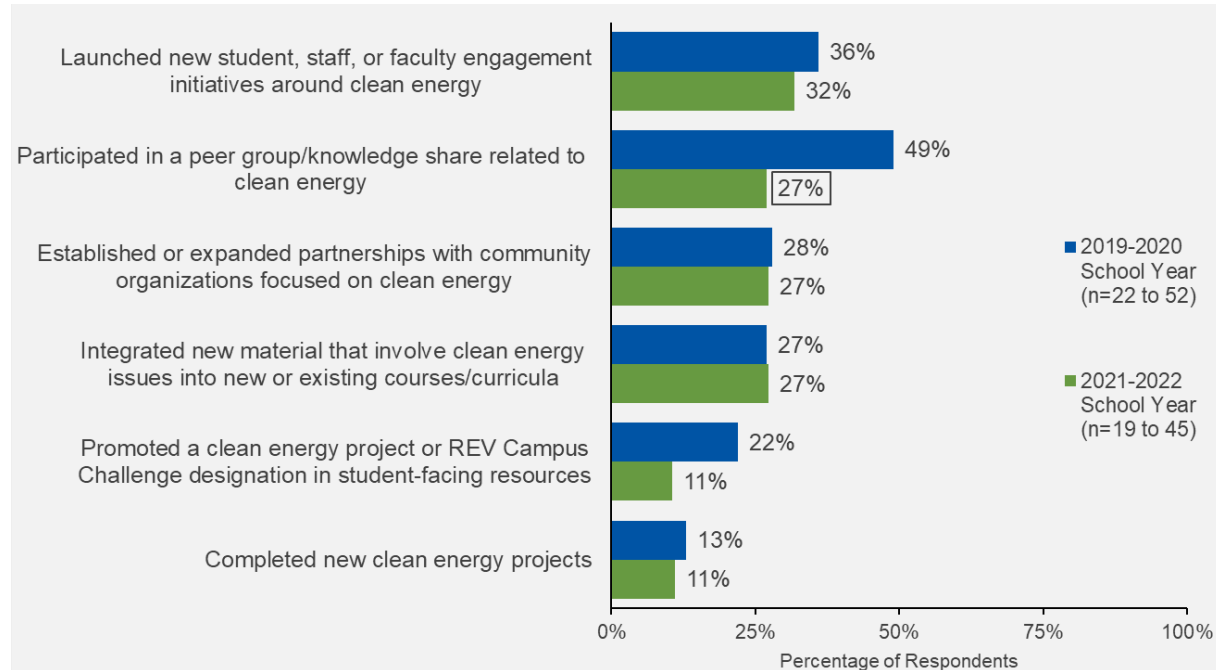
* The nonmember survey questions asked about different time periods (past two years in 2021-2022, three years in 2019-2020) than members survey questions (past year only).

Note: Boxes around results indicate a statistically significant difference between years at $p < 0.05$ or better using two-tailed t-tests. 2021-2022 Member Survey Question B6: “During the 2021-2022 school year, did your institution accomplish any of the following? (Select all that apply): Participated in a peer group/knowledge share related to clean energy” and equivalent question B8 from 2019-2020 Member Survey. 2021-2022 Nonmember Survey Question C11 “During the two most recent school years (2020-2021 and 2021-2022), did your campus accomplish any of the following? Participated in a peer group/knowledge share related to clean energy” and equivalent question B8 in 2019-2020 Member Survey. 2019-2020 Nonmember Survey Question D14 “In the past three years, did your campus accomplish any of the following? Participated in a peer group/knowledge share related to clean energy”.

Cadmus also asked member respondents if information from peer institutions influenced the clean energy projects and initiatives they undertook in the 2021-2022 school year (Figure 19). Peer institutions had the most influence on launching new student, staff, or faculty engagement initiatives, with 32% of those launching such initiatives reporting that information from peer institutions was a factor in their decision to pursue the initiative. Peer influence on peer group knowledge sharing decreased significantly to 27% in

2021-2022 from 49% in 2019-2020 ($p < 0.05$), otherwise the pattern of peer influence on initiatives was consistent between years.

Figure 19. Peer Influence on Clean Energy Projects and Initiatives



Note: Boxes around results indicate a statistically significant difference between years at $p < 0.05$ or better using two-tailed t-tests. Source: 2021-2022 Member Survey question B8 “You mentioned your institution completed the accomplishments listed below during the 2021-2022 school year. Which, if any, of the following factors contributed to your institution’s decision to take these actions? (Select all that apply): Information from a peer institution” and equivalent question B10 in 2019-2020 Member Survey. Sample sizes vary by accomplishment because respondents were only asked about influences on an accomplishment if they reported achieving that accomplishment.

Though 50% (six out of 12) sustainability staff reported collaborating with other New York State campuses on clean energy and sustainability initiatives, two said that the collaborations were focused on partnering on specific projects such as reducing single-use plastics and solar panel installations, and four said collaborations focused on general knowledge-sharing of best practices. One sustainability staff member noted taking part in New York Coalition of Sustainability in Higher Education (NCSHE) activities. Others cited more informal collaborations, such as communications among the network of SUNY schools (specifically, participation in the SUNY Sustainability Coalition) or collaboration with nearby universities.

2.5.2 Support for Clean Energy Achievements

Most members across membership levels said support from the Clean Green Campuses furthered their campuses’ sustainability goals, and most received a high level of support from their administrations.

Campuses with dedicated staff for clean energy projects and initiatives were correlated to membership level, with most Leaders having dedicated staff and most Participants having none.

2.5.2.1 Support from NYSERDA

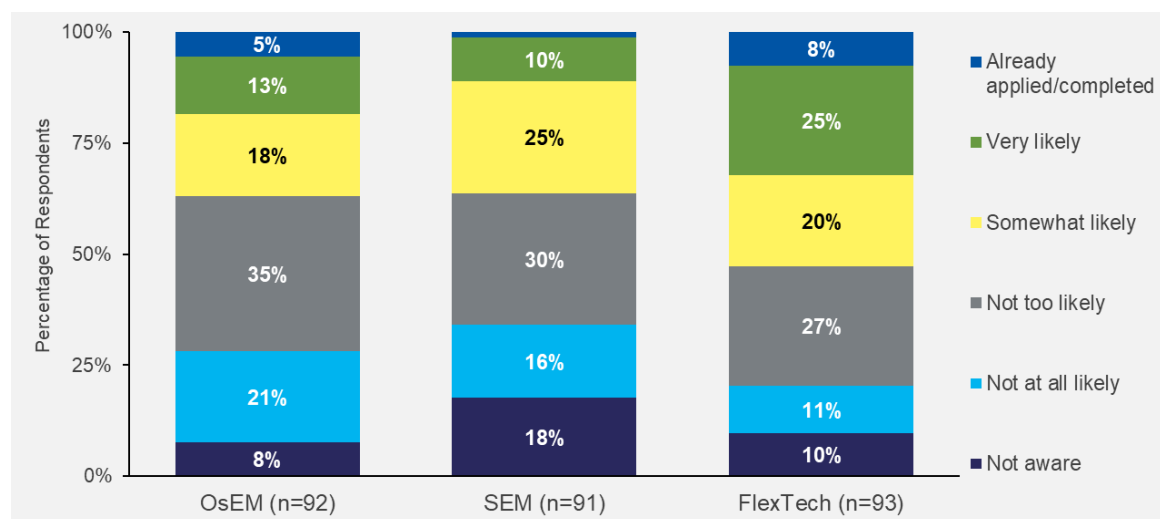
Less than half of the member respondents gave a high rating for the resources and programs provided by the Clean Green Campuses for their contributions to further their institution's goals during the 2021-2022 school year. Specifically, 40% of members (n=88) rated the Clean Green Campuses resources a 4 or 5 on a scale of 1 to 5 (with 5 the highest rating) for its contribution in 2021-2022, which represented a significant decrease from 55% of members giving these ratings in 2019-2020 (n=85, $p<.0.01$).

Members' reported interest in relevant NYSERDA offerings reflected their ratings on the usefulness of the resources in supporting their institutions' goals. According to program records, 36% of members (n=143) had participated in FlexTech and 13% had participated in OsEM by the 2021-2022 school year, representing increases from 18% and 11% (n=132), respectively, in the 2019-2020 school year. However, there was no statistically significant change in the percentage of members who were *likely* or *somewhat likely* to participate in FlexTech (45%) in 2021-2022 compared to the 2019-2020 school year (40%), while interest in OsEM increased significantly from 24% to 31% ($p<0.10$) during this time period.

As shown in Figure 20, the level of interest and participation was greater for the FlexTech program (45%, 8%) than for the OsEM program (31%, 5%) or the Strategic Energy Management (SEM) program (35%, 1%), likely due to the wider array of projects that can be completed using FlexTech funding.

Facility and sustainability staff identified several other sources of support available to them: utility incentives (e.g., Public Service Electric & Gas, Consolidated Edison), New York Power Authority, New York Green Building Council, Second Nature, SUNY support, and third-party consultancies.

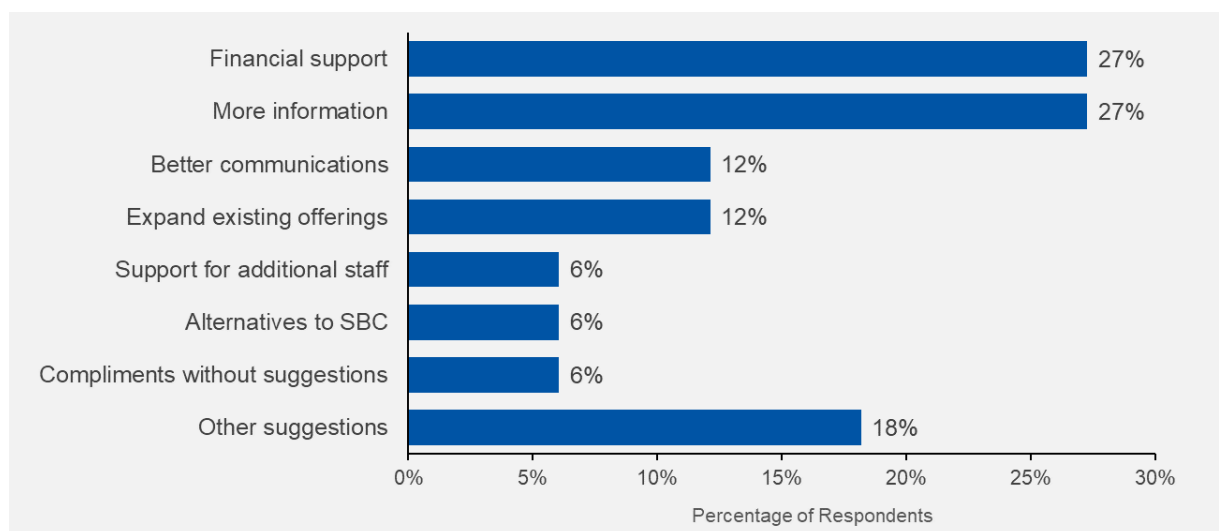
Figure 20. Member Likelihood to Engage in NYSERDA Programs in the Next 12 Months



Source: 2021-2022 Member Survey question E2 “In the next 12 months, how likely is your campus to engage in the following clean energy activities?”. Percentages of 2% or less are not labeled in the figure.

Member survey respondents offered suggestions for resources the Clean Green Campuses program could provide that it does not currently. Thirty-three members offered suggestions, which are shown in Figure 21. Respondents most commonly suggested more financial support for projects and initiatives (27%) and more information (27%). Several requests for more information were for case studies, templates, or best practices from projects and initiatives successfully completed by other institutions. Several respondents also suggested improving communications (12%), which generally meant more contact from NYSERDA, or expansion of existing programs (12%). Three of the four members who suggested expanding programs specifically mentioned expanding OsEM. Six respondents made “other” suggestions, which included support for natural gas projects (one of these respondents cannot pursue extensive electrification due to grid restrictions) and service-based training opportunities.

Figure 21. Additional Resources to Help Clean Energy Goals



Note: Percentages sum to more than 100% because respondents could make multiple suggestions. Source: 2021-2022 Member Survey Question E4 “The Clean Green Campuses is committed to providing members with resources that help further their clean energy goals. What resources that are not currently being provided would be valuable to your institution?” (n=33). This question is not comparable to the 2019-2020 survey due to a change in method (closed-ended question in prior survey; open-ended question in this survey).

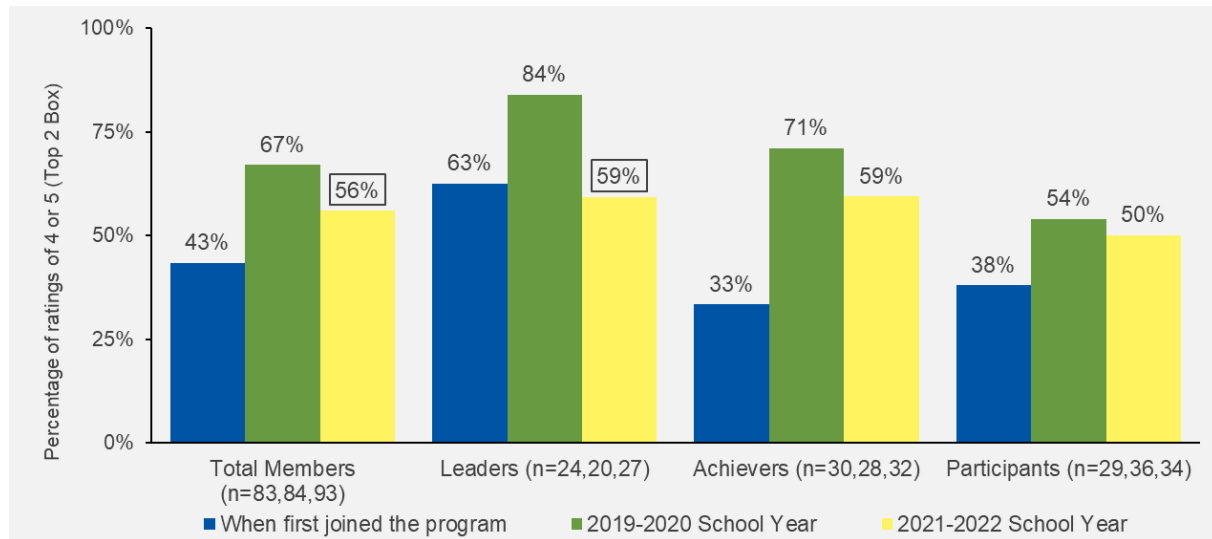
In regard to topics that members would like to see included in future Green Campus events, 42% of member respondents were highly interested in identifying project funding opportunities (n=24), a subset (17%) of which specified the need for opportunities not related to the system benefits charge (SBC). Twenty-five percent of member campuses (n=24) asked for greater support instituting new clean technologies that could help decarbonize campus and enhance energy efficiency in building operations and maintenance. Many of the remaining member respondents (17%, n=24) conveyed interest in learning more about the federal Inflation Reduction Act (2022), New York State’s evolving carbon reduction policies and goals, and relevant local codes and ordinances.

2.5.2.2 Support from Campus Administration

Buy-in and support of management for clean energy projects and initiatives is common among members, especially among campuses that have already made significant progress related to clean energy and sustainability. As shown in Figure 22, 56% of member respondents gave high ratings (4 or 5 on a scale of 1 to 5, with 5 the highest rating) for the level of support they received from their administrations for implementing clean energy projects and initiatives during the 2021-2022 school year. However, this represented a statistically significant decline from 2019-2020, when 67% of members gave high ratings for support from their administration ($p<0.05$). This decline was concentrated among Leaders, whose high ratings fell from 84% to 59% ($p<0.01$). The difference between membership levels was much less pronounced in 2021-2022 (ranging from 50% to 59%) than it was in 2019-2020 (ranging from 54% to

84%). Compared to their ratings when they joined the program, Achievers saw the largest increase in high ratings (from 33% to 59%), while Participants showed a smaller increase (from 38% to 50%), and ratings from Leaders have not increased (from 63% to 59%).

Figure 22. Level of Administration Support for Clean Energy Projects and Initiatives



Note: Boxes around results indicate a statistically significant difference between years at $p < 0.05$ or better using two-tailed t-tests. Source: 2021-2022 Member Survey questions D1 “For each of the following items, please rate the level/amount of each during the 2021-2022 school year: The level of support from the administration for implementing clean energy projects and initiatives.” And equivalent question D2 from the 2019-2020 Member Survey. The baseline rating, “For each of the following items, please rate the level/amount of each when you first joined the REV Campus Challenge. - The level of support from the administration for implementing clean energy projects and initiatives.”, was asked to each respondent once, the first time they took a survey in 2019-2020 or after. Since not all members respond to the survey every year, and new members joined the program, the average rating presented for “when first joined the program” is a combination of responses from the last three years of the member survey.

Across all surveyed members ($n=93$), 13% gave low ratings for administration support during the 2021-2022 school year (1 or 2 on a scale of 1 to 5, with 5 the highest rating). By membership levels, 26% ($n=34$) of Participant members reported low ratings for the support provided by their administration in 2021-2022, while less than 10% of Leaders and Achievers gave a low rating for support from their administrations (7%, $n=27$, and 3%, $n=32$, respectively).

Interviews with sustainability and facilities staff provided an overview of the process typically required to secure management buy-in and support for clean energy and sustainability projects. The personnel ultimately responsible for project approval depends on a mix of project size, scope, cost, and subject matter. Facilities staff reported that project approval personnel ranges from the facility department or manager (for smaller, less costly projects) up to the Chief Financial Officer and other administrative or executive offices including the President and Board of Trustees. While both facilities and sustainability

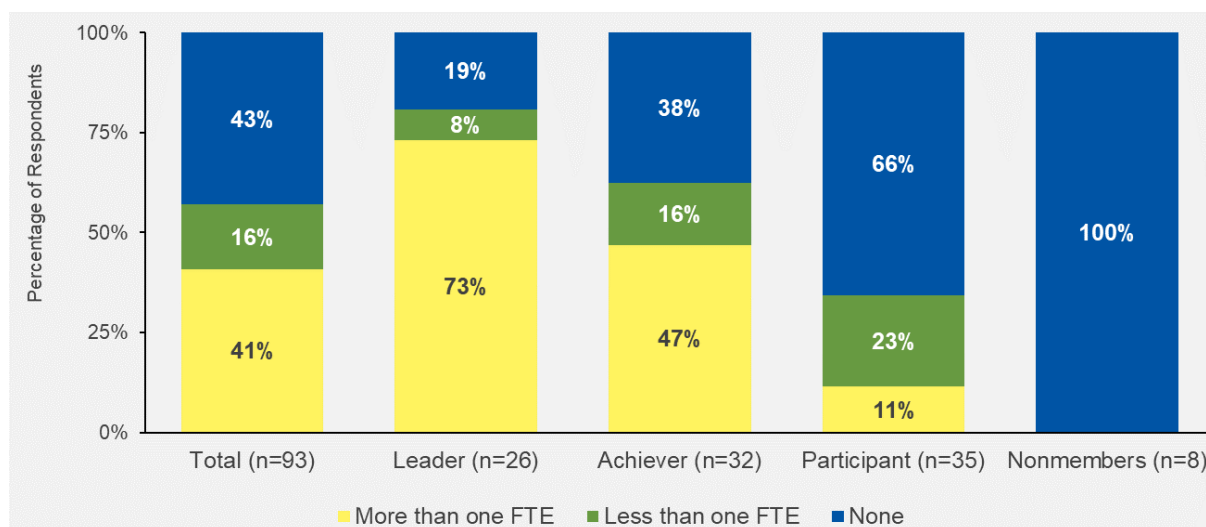
staff emphasized the role of executive offices in project approvals, leaders in facilities management are more often involved in making the final decision than are sustainability staff.

When asked further questions about the critical information needed to propel a clean energy or sustainability project forward, interviewees said members of the sustainability, energy management, and facilities staff gather relevant project details, including projected cost savings and implications, benefits of reducing emissions, sources of external funding, costs, and other key financial indicators (e.g., return on investment and payback period). When asked what information is most critical to securing project approval, the two most common responses were the economics of the project, including costs and benefits (15 out of 30 campuses), and alignment with campus priorities and needs, such as those described in a campus's master plan (six out of 30 campuses).

2.5.2.3 Support Staff for Clean Energy and Sustainability

Nearly half of the members surveyed have dedicated staff for clean energy and sustainability projects. Overall, 41% had at least one full-time equivalent (FTE), 16% had less than one FTE, and 43% did not have dedicated staff (Figure 23). The presence and level of staffing varied by membership levels, with 73% of Leaders having at least one dedicated FTE, and 66% of Participants not having any dedicated staff. The percentage of member campuses with no dedicated staff in 2021-2022 (43%) increased significantly from the 2019-2020 school year (31%, $n=83$, $p<0.01$), and this decrease was spread proportionally across membership levels. None of the nonmember respondents reported having dedicated staff in 2021-2022, which was directionally lower but statistically equivalent to the rate from the 2019-2020 survey (10%).

Figure 23. Dedicated Staff for Clean Energy and Sustainability Initiatives



Source: 2021-2022 Member Survey question B5 “Does your institution have a dedicated staff member assigned to manage clean energy and sustainability initiatives?” and equivalent 2021-2022 Nonmember Survey question C8.

2.5.3 Recognition for Clean Energy Achievements

This section explores trends in the type and frequency of public recognition that New York campuses receive for clean energy and sustainability initiatives. It also explores the extent to which this public recognition can drive further clean energy and sustainability initiatives.

2.5.3.1 Trends in Public Recognition

Both NYSERDA and outside organizations publicly recognize New York State campuses, especially Clean Green Campuses members, for clean energy and sustainability accomplishments. Among surveyed member campuses, 16% (n=92) received recognition from an organization related to their clean energy initiatives in 2021-2022, which was significantly less than in 2019-2020 (27%, n=85). Leaders (23%, n=26) and Achievers (19%, n=31) were about twice as likely to receive recognition as Participant members (9%, n=35). Recognition was also more common among private institutions, with 20% of private institutions (n=50) being recognized versus 12% of public institutions (n=42). None of the nonmembers surveyed in 2021-2022 (n=9) were recognized for their clean energy and sustainability accomplishments.

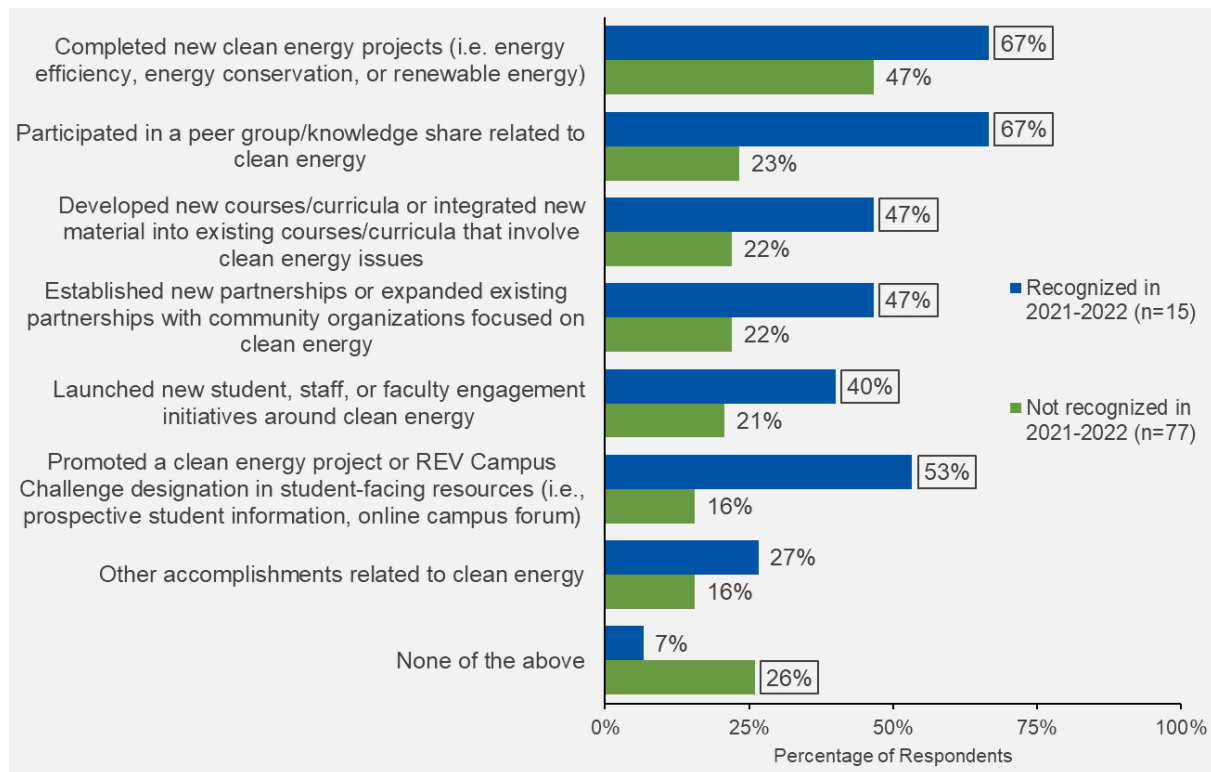
Organizations that awarded these recognitions included NYSERDA via the Clean Green Campuses program, the Princeton Review Guide to Green Schools, Times Higher Education (THE), the U.S. Environmental Protection Agency (EPA), the Association for the Advancement of Sustainability in Higher Education (AASHE), and New York Power Authority (NYPA) Customer Clean Energy Exchange

among other local sources. The most common form of recognition reported included receiving a distinguishing clean-energy related title (58%, n=12) such as “Green Power Partner” or “AASHE STARS Gold rated” institution. The next frequent type of acknowledgement highlighted member campuses via public-facing press releases and articles, with 25% of recognized members (n=12) having received this type of credit during the 2021-2022 school year.

As shown in Figure 24, campuses that were recognized during the 2021-2022 school year more frequently reported every type of clean energy-related accomplishment asked about in the survey compared to campuses that did not receive recognition ($p < 0.05$ or better). Members who did not receive recognition were significantly more likely to have none of the accomplishments asked about in the survey (26%), compared to members who were recognized in 2021-2022 (7%, $p < 0.01$).

Six out of 12 sustainability staff who provided responses during interviews reported receiving recognition from NYSERDA and/or outside organizations. The most common sources of outside recognition were the EPA, Second Nature, and utilities.

Figure 24. 2021-2022 Accomplishments and Clean Energy Recognition



Note: Boxes around results indicate a statistically significant difference between groups at $p < 0.05$ or better using two-tailed t-tests. Source: 2021-2022 Member Survey questions B6 “During the 2021-2022 school year, did your institution accomplish any of the following? Please select all that apply” by B13 “Was your institution recognized during the 2021-2022 school year for its clean energy efforts?” (n=83)

2.5.3.2 Influence of Public Recognition

As mentioned in the 2.3.3 *Influential Factors* section, the opportunity for recognition had only a moderate influence on campuses decisions regarding clean energy and sustainability initiatives.

Surveyed member campuses provided feedback on the influence of different factors on their decisions to take certain clean energy and sustainability actions. Members reported that the opportunity to earn recognition was most influential on the decision to promote clean energy projects in student-facing resources, as shown in Table 13.

Table 14. Influence of Opportunity to Earn Recognition

Members	Percentage
Promoted a clean energy project or Clean Green Campuses designation in student-facing resources (i.e., prospective student information, online campus forum)	26% (n=19)
Participated in a peer group/knowledge share related to clean energy	23% (n=28)
Established new partnerships or expanded existing partnerships with community organizations focused on clean energy	23% (n=22)
Launched new student, staff, or faculty engagement initiatives around clean energy	18% (n=22)
Completed new clean energy projects (i.e., energy efficiency, energy conservation, or renewable energy)	16% (n=45)
Developed new courses/curricula or integrated new material into existing courses/curricula that involve clean energy issues	5% (n=22)

Source: 2021-2022 Member Survey question B8, “You mentioned your institution completed the accomplishments listed below during the 2021-2022 school year. Which, if any, of the following factors contributed to your institution’s decision to take these actions? – The opportunity for recognition as a result of taking action”.

The opportunity to receive recognition had a smaller influence on the decision to take on other clean energy and sustainability actions, such as establishing new or expanded partnerships with community organizations; developing new courses, curriculum, or educational material; and participating in a peer group or knowledge share. Notably, only two of 12 sustainability staff interviewed noted that public recognition was a significantly motivating factor in advancing clean energy projects on campus, with one stating that receiving recognition made them want to do more in terms of initiating new clean energy and sustainability initiatives, and another stating that recognition (specifically national sustainability rankings such as the Princeton Review) was important for recruiting students to their university.

When asked what types of recognition for achievement in clean energy and sustainability initiatives would be most valuable to their campus, sustainability staff noted the following: press releases; recognition from electives or senior officials; recognition from specific organizations (such as ASHRAE); and any kind of recognition that communicates their campus’ progress to the community to show how devoted they are to sustainability initiatives.

3 Methodology

This section describes the methodology for each data collection activity.

3.1 Member and Nonmember Surveys

Cadmus fielded surveys with representatives from New York State colleges and universities that have enrolled in Clean Green Campuses (the member survey) and representatives from campuses not enrolled in the program (the nonmember survey). Since members and nonmembers are mutually exclusive groups, the population covered by these two surveys comprised all institutions of higher education (campuses) in the state.

3.1.1 Member Survey

NYSERDA has fielded a survey among member campuses every year since the program began, though not all survey questions have been the same every year. For the 2021-2022 school year survey, Cadmus solicited members to take an online survey through email invitations, sending three emails per contact. After these initial emails, the NYSERDA program team conducted additional outreach to nonresponders, encouraging members to complete the survey. Of 143 members enrolled in the program for the 2021-2022 school year, 96 (68%) completed enough questions to be included in the analysis, though not all respondents answered all questions. Due to the high response rate relative to the small population size, the 90% confidence interval for binomial responses was $\pm 4.8\%$ or better (for questions with 96 responses).

3.1.1.1 Annual Reporting

NYSERDA annually reports on the progress of the Clean Green Campuses market progress indicators included in the Clean Energy Fund Investment Plan to the NYS DPS. NYSERDA uses two primary data sources to measure these indicators: the annual Member survey of campuses participating in Clean Green Campuses and program records/other publicly available data (i.e., AASHE STARS reporting). These activities are part of the broader evaluation Cadmus is conducting on behalf of NYSERDA to assess the market transformation impacts of Clean Green Campuses.

While Cadmus conducted a survey of Clean Green Campuses members on the 2020-2021 school year (“2021”), the impacts of the COVID-19 pandemic made comparisons to prior evaluation cycles not reflective of long-term trends. Thus, in this report, Cadmus compares the 2021-2022 school year results to the data collected on the 2019-2020 school year (“2020”).

New Analysis Approach: Cumulative Data

Cadmus analyzed and reported 2020 results consistent with the practice that had already been established by NYSERDA in prior years. For 2022 reporting, Cadmus has already presented a draft memo to NYSERDA using the previous approach. The approach used by NYSERDA and Cadmus through 2020 reported results is based on the most recently available member survey data. However, some metrics/survey questions are worded to understand *new* actions only, which would not count actions a campus took in a prior year. For example, if a campus reported forming new community partnerships in the prior year but did not form new partnerships in the current year, they would not be counted under this prior approach. In this new approach, this campus would get credit for the new community partnership in both survey periods. This is an issue that arises when a program matures – i.e., members have taken several clean energy actions and thus have fewer opportunities for further improvement. Additionally, benefits from some actions, such as community partnerships and clean energy curricula, accrue over time and thus do not need to be “new” each year to add value to the campus’s sustainability efforts.

This report re-analyzes the data for 2020 and 2022 using a cumulative approach, where an indicator is considered met in the year being reported if the school met the indicator in the current year *or any previous year*. Cadmus is reporting indicators in this analysis using the current number of member schools as the base (132 members in 2020 and 143 in 2022), which does not account for the possibility that members who have not responded to the survey may have met the criteria for reporting indicators. By 2020, 8 of 132 members had not responded to a survey. In 2022, 14 of 143 members had not responded to a survey.

Four of the indicators were not recalculated using the full cumulative approach because Cadmus updated the survey questions and analysis approach for these indicators in 2020 (I8, I17, I18, and I25). Therefore, the data for 2020 and 2022 is not comparable to surveys from prior to 2020, and a cumulative analysis is not possible.

3.1.2 Nonmember Survey

Cadmus conducted a survey among nonmember campuses – i.e., campuses that are not members of the Clean Green Campuses program. Cadmus used the list of contacts generated during the 2019-2020 evaluation, supplemented with additional research and contacts from NYSERDA, to develop the survey sample, selecting 93 nonparticipating campuses for outreach. Upon completion of the survey, the interviewer asked respondents if they were willing to participate in a follow-up interview and for contact information for other staff who are part of the decision-making process for planning and approving clean energy projects. Cadmus set a target quota of 41 surveys with nonmember campuses and completed 8

surveys, despite making at least five attempts per campus. The nonmember survey assessed the following research objectives:

- Understand awareness of the REV Campus Challenge and barriers to participation
- Assess current levels of participation in local, regional, or national sustainability initiatives, events, conferences and working groups, and levels of interest in future opportunities
- Assess levels of energy usage reporting and clean energy opportunities or projects and collaboration with peer institutions
- Assess levels of support and achievement for advancing sustainability goals
- Identify levels and types of recognition
- Assess levels of engagement with clean energy projects and initiatives
- Assess external impacts of campus clean energy commitment on prospective students and community engagement
- Understand the impact of COVID-19 on institutions' operations and clean energy project implementation

3.2 In-Depth Interviews

Cadmus designed a sample that contained more than 250 campuses across New York State, including both members and nonmembers. Campuses represented a variety of institution types (community colleges, state universities, and private institutions), locations (rural and urban), and curricula focus (liberal arts, medicine, music, religion, and more). For each of the campuses included in the sample, Cadmus aimed to interview two contacts, holding the following roles: sustainability directors and coordinator staff and facility and energy management staff. The goal was to collect multiple perspectives from the same campus to capture a more holistic view of clean energy and sustainability progress and roadblocks across member and nonmember campuses, as well as the potential role NYSERDA could play in further advancing related initiatives.

Cadmus set a phone interview target of 15 sustainability directors and coordinator staff and 15 facility and energy management staff. Interviews took place during October through December 2022. Cadmus made up to three outreach attempts through a combination of email and phone calls. Table 14 shows the list of campuses interviewed. Cadmus sought to interview nonmember campus staff as well, but was unable to complete any interviews with this group. The comparative lack of clean energy engagement among nonmembers relative to members makes it less likely that this group would respond. Additionally, Cadmus prioritized responses to the nonmember survey over the in-depth interviews, as the same contact was targeted for both research activities.

Table 15. Completed Interviews

Sustainability Staff	Facility/Energy Management Staff
Member	
12 Completes	18 Completes
Suffolk County Community College University of Rochester SUNY University at Buffalo Wells College New York University SUNY Sullivan County Community College SUNY Maritime College SUNY College at Old Westbury Lemoine College Fordham University CUNY College of Staten Island SUNY: Cobleskill	Syracuse University Bard College SUNY Fashion Institute of Technology Cooper Union Manhattan College SUNY Farmingdale State College SUNY Orange SUNY College at Oneonta SUNY Maritime College Lamont-Doherty Earth Observatory at Columbia Erie Community College Mercy College Yeshiva University CUNY College of Staten Island SUNY Courtland Morrisville SUNY Finger Lakes Community College SUNY College of Environmental Science & Forestry
Nonmember	
0 Completes	0 Completes
Total	
12 Completes	18 Completes
Target	
15 Completes	15 Completes

3.3 Student Survey

Cadmus conducted a survey with students to assess three key topics:

- Student engagement with campus clean energy initiatives
- Student awareness of campus clean energy and sustainability initiatives
- Influence of campus clean energy commitment on student enrollment decisions

Cadmus enlisted member and nonmember New York State campuses via the other research activities to help distribute an online survey to students, offering a chance to win one of five \$100 gift cards to encourage participation. Staff members who agreed to administer the survey to students did so via an anonymous link emailed to the entire student body. Cadmus set a target quota for member campuses and nonmember campuses of 68 each (for a total of 136 surveys). Cadmus achieved the target quota for member campus responses but was short of nonmember target quota, as none of the nonmember contacts agreed to distribute the survey. The student survey yielded 257 responses from eight New York State

campuses (n=9,260 students across eight member campuses). Survey fielding took place during March and April 2023. Table 15 details student response rates.

Table 16. Student Survey Response Rates

Campus	Clean Green Campuses Member Status	Survey Population	Surveys Completed	Estimated Response Rate
Clarkson University	Member	Full student body (3,081)	1	.03%
Fordham University	Member	Full student body (16,986)	2	.01%
Ithaca College	Member	Full student body (5,293)	49	.93%
Marymount Manhattan College	Member	Full student body (1,470)	2	.14%
SUNY Cortland	Member	Full student body (6,658)	57	.86%
SUNY New Paltz	Member	Full student body (7,075)	1	0.0001%
University of Rochester	Member	Full student body (7,021)	122	1.73%
Wells College	Member	Full student body (342)	23	6.73%
Total		Full student body (47,926)	257	0.5%

3.4 Secondary Data Review

Cadmus reviewed program data provided by NYSERDA to track member campus activities and support the measurement of two program indicators. Additionally, Cadmus conducted a thorough review of all nonmembers to identify which would be most likely to join the Clean Green Campuses program. This work helped to give NYSERDA and Cadmus a more accurate picture of the nonmember campus population and set expectations for research activities with nonmembers.

Appendix A. Indirect Impacts Estimation Methodology

This methodology was finalized on June 15, 2022 and incorporates feedback and revisions from the indirect impacts estimation work completed on the 2019-2020 school year.

This section provides an overview of the methods the Market Evaluation Team (“the Team”) will use to estimate indirect impacts associated with the REV Campus Challenge initiative. Two types of indirect impacts will be measured: energy savings (in MWh or MMBtu) and leveraged funds (in dollars).

The Team will estimate indirect impacts for nonmember higher-ed institutions but not for REV Campus Challenge members, since all member savings are being counted as direct impacts of the program. The Team will use the following algorithm to estimate indirect energy impacts from the REV Campus Challenge.

$$\textit{Indirect benefits} = \textit{Influenced Nonmember Adoption}_{ml} * \textit{UEB}_{ml}$$

Where the equation’s variables have the following definitions:

- **Influenced Nonmember Adoption_{ml}**: Number of nonmember higher-ed institutions who have adopted a climate action plan, energy master plan or energy audit/study, or completed clean energy projects due to the influence of the REV Campus Challenge and meet the minimum requirements for a REV Campus Challenge membership level (ml). A nonmember campus can receive either 100% or 50% adoption depending on the influence level.
- **Unit Energy Benefit (UEB_{ml})**: Assigned energy savings (MWh or MMBtu) or CO₂e reductions per campus for clean energy practices resulting from self-designated adoption levels, equivalent to criteria for REV Campus Challenge membership levels (ml)

The indirect impact on leveraged funds will be measured using the same survey algorithms to calculate Influenced Nonmember Adoption_{ml} for energy impacts, however in the formula above **UEB_{ml}** will be replaced by the influenced institution’s dollar value of project investment. Membership level is not a consideration in the calculation of Leveraged Funds benefits.

$$\textit{Indirect leveraged funds} = \textit{Influenced Nonmember Adoption}_{ml} * \textit{Project Investment}$$

Research Methods

The Market Evaluation Team will design market research activities and research instruments to estimate Influenced Nonmember Adoption, while UEB values will be based on NYSERDA’s impact evaluation of member savings. These research activities and the estimation approach for each variable are summarized in Table A-1.

Table A-1. Indirect Impacts Algorithm Variables and Research Activities

Algorithm Variables	Research Activity/Source	Estimation Method
(1) Influenced Nonmember Adoption	Nonmember survey	Estimate influence of REV Campus Challenge on the adoption of a climate action/energy master plan or the completion of clean energy projects.
(2) Unit Energy Benefit (UEB)	NYSERDA impact evaluation assumed/updated values Nonmember survey	Unit energy savings and CO ₂ e reduction values for nonmembers will be applied according to equivalent REV Campus Challenge membership levels (determined by nonmember survey responses).
(3) Leveraged Funds	Nonmember survey	Leveraged Funds benefits are the total dollar value of institutional and third-party (non-NYSERDA) funds spent by the institution on clean energy projects.

The Team will use the Unit Energy Benefits (UEB) values NYSERDA used to estimate benefits in the Member Metrics workbook or updated values, as appropriate. The Team will use the specific methods described below to estimate influenced nonmember adoption.

Influenced Nonmember Adoption

Data Sources

The Market Evaluation Team will rely on two key data sources to estimate nonmember adoption:

- **Campus Inventory:** A database of all higher-ed institutions in New York, and
- **Nonmember Survey:** a survey of staff with clean energy roles at higher-ed institutions which are not REV Campus Challenge members (the equivalent of the member survey for REV Campus Challenge members).

To inform the market evaluation, the Team created a database identifying all college campuses located in New York (the “Campus Inventory”) based on data from the NYSED Office of Higher Education. The Team considers this database to be a census of all higher-ed institutions campuses in the state.

In 2020, the Market Evaluation Team developed a Nonmember Survey to inform analysis of indirect impacts, which it will use to estimate the energy savings associated with the adoption of clean energy projects and practices. The survey’s first wave was completed in late 2020.

One of the key evaluation challenges presented by market transformation programs is their indirect influence on the end users that ultimately adopt the energy-saving technologies or practices. Because market transformation programs seek to increase market adoption by effecting structural market changes, the Team expects that survey respondents may be unable to make direct connections between their implementation of clean energy projects and practices and NYSERDA’s program activities. Therefore,

the questions designed to detect program influence will focus on timing and identification of market influences that are the result of NYSERDA’s program activities.

The nonmember survey includes batteries of questions to determine the level of adoption of clean energy practices equivalent to REV Campus Challenge membership levels (Leader, Achiever, Participant), and the level of influence of REV Campus Challenge on the adoption of a climate action/energy master plan or completion of clean energy projects (Table A-2).

Table A-2. Nonmember Survey Topics for Adoption of Practices and Influence of the Program

Factor	Survey Questions and Responses
Level of Engagement/ Adoption	<ul style="list-style-type: none"> • In order to be eligible for indirect impacts, a nonmember campus must minimally report that they either (a) have a clean energy action/energy master plan/energy audit/energy study or (b) completed clean energy projects in the last two school years, and REV Campus Challenge activities had an influence on their plans or clean energy projects. • For calculating energy benefits, the Team will then use the clean energy commitment level designation described in Table A-3 to apply an appropriate UEB for each nonmember campus. The Team defined these levels to approximate the three REV Campus Challenge membership levels. This unit energy benefit will be scaled by the influence score calculated from the nonmember survey. NYSERDA will determine the UEB for each membership level based on results from the program impact evaluation. • For calculating leveraged funds benefits, the Team use the total dollar amount spent on clean energy projects by the influenced institution, as reported in the nonmember survey. This amount of this benefit will be scaled by the influence score calculated from the nonmember survey.
Level of Influence	<ul style="list-style-type: none"> • To achieve any indirect impacts, a campus must report that they either (a) have a clean energy action/energy master plan or (b) completed clean energy project(s) during or after the 2020-2021 school year, the period since the previous nonmember survey was fielded. • If the campus reports that something influenced their decision to complete clean energy project(s) or adopt a clean energy action/energy master plan, they will be asked a question about the influence level of each factor. • If the respondent answers “very important” or “important” for any of the following factors, they will be eligible for counting towards indirect impacts: <ul style="list-style-type: none"> ○ Information from NYSERDA ○ Information from a peer institution (Cadmus will verify the peer institution is a REV Campus Challenge member) ○ The opportunity for recognition as a result of taking action ○ Training, workshop, webinar, or other event (Cadmus will verify the event is relevant) • If the respondent gives an answer of “very important” for any influence source, they will be awarded 100% influence. If they say a factor is “somewhat important,” they will be awarded 50% influence. All other responses will receive 0% influence.

The nonmember survey questions that correspond to the level of influence criteria listed above are shown in Table A-3.

Table A-3. Nonmember Levels Equivalent to Membership Level Criteria

Membership Level	Description of Membership Level ¹	Requirements (Survey Responses)
Minimum requirements for indirect impacts	<p>Either (a) have climate action, energy master plan, or energy audit/study in place that was initiated after Rev Campus Challenge began or (b) complete a clean energy project over the prior two school years; plans/decision to complete a clean energy project were influenced by REV Campus Challenge, and the influence level was “very important” or “somewhat important”</p>	<p>D4=1, 2, or 3, based on corresponding year in D5; and D17=1, 4, 6 or 7; and corresponding D18 rating is at least “somewhat important”; and D19 or D20 confirms corresponding D17 item if applicable OR D10=1, based on corresponding year in D11; and D13=1, 4, 6 or 7; and corresponding D14 rating is at least “somewhat important”; and D15 or D16 confirms corresponding D14 item if applicable</p>
Participant	<p>These members have a strong desire to jump-start their institution’s commitment to and ability to achieve clean energy adoption goals and to engage in energy efficiency opportunities and investigate the potential for on-campus renewable energy projects.</p>	<p>Same as “Minimum requirements”</p>
Achiever	<p>These members formally committed to reducing greenhouse gas emissions either in an existing statewide or national campus energy challenge and have dedicated staff to focus on clean energy investments. They have a desire to engage with the external community to promote clean energy.</p>	<p>Meet Participant requirements plus:</p> <ul style="list-style-type: none"> • D4=1, 2, or 3 (based on year given in D5) • D8=1 or 2 (based on year given in D9) • EITHER D2=1-4 for any option OR D6=1, 2, or 3
Leader	<p>These members have demonstrated the value of comprehensive campus clean energy investments, are embracing clean energy research and development and curricula efforts as applicable to their institution and are looking to increase engagement with their communities.</p>	<p>Meet Achiever requirements plus both of the following (based on year given in D11)</p> <ul style="list-style-type: none"> • D10=3 • D10=4

¹The descriptions are directly from NYSERDA and describe the equivalent REV Campus Challenge membership level for nonmembers providing specific responses.

Nonmember Adoption Estimation Approach

The Team will rely on the Campus Inventory and the Nonmember Campus Survey to estimate nonmember adoption influenced by REV Campus Challenge. The Campus Inventory database will provide the total number of higher-ed institutions in New York, while the survey data will indicate the proportion of the nonmember population that have adopted clean energy practices influenced by the program. There will be three adoption levels equivalent to the Leader, Achiever, and Member categories for member institutions. The Team will multiply the proportions of campuses surveyed that have adopted practices at each adoption level (including the factor for proportion of influence at 100% or 50%) by the total number of campuses in New York state to determine influenced nonmember adoption for each adoption level, as described by the equation below.

Influenced Nonmember Adoption_{mt}

= (% NY nonmember campuses that have adopted practices influenced by REV Campus Challenge_{mt}
**** total NY nonmember campuses)***

Program Influence Assessment Approach

As noted in Table A-2, the nonmember survey asks survey respondents who adopted a climate action/energy master plan following the launch of NYSERDA’s REV Campus Challenge or completed clean energy projects during the last two school years and who identify one or more contributing factors that correspond with a REV Campus Challenge activity or output to rate the importance of each factor in their decision to implement each clean energy project or practice. The Market Evaluation Team will use the survey responses to assign a level of program influence to nonmember market adoption—no or little influence (zero percent), some influence (50 percent), or fully program influenced (100%).

Influenced Nonmember Projects

In the nonmember survey, the Team will collect data on whether the campuses completed clean energy projects, how much energy was saved, if these savings were reported to an organization such as AASHE as part of a reporting initiative, and the amount spent on the projects. The Team will not use these reported project-level energy savings to calculate indirect energy impacts; it will use UEB values informed by the impact evaluation and determined by NYSERDA for each membership level. However, the Team will attempt to collect project-level savings information and report results. The Team will calculate indirect leveraged funds impacts using project-level spending as reported in the nonmember survey.

Appendix B. Student Survey Demographics

To gain a better understanding of the student population surveyed, Cadmus asked a series of demographic questions; These results are shown in Table B-1.

Most of the student survey respondents live in university owned housing. The student respondents mainly live within three to ten miles of their campus. There was a fairly even representation of different college classes in this survey. Most respondents were either freshman or seniors. Graduate students were the demographics that were least represented group in the survey.

Table B-1. Student Demographics

Question	Percentage of Students
D1. What type of housing do you live in? (n=192)	
University owned	79%
Non-university owned	19%
Prefer not to say	2%
D2. Approximately how far do you live from campus? (n=55; only asked for non-university owned housing)	
Closer than 2 miles	14%
3 to 10 miles	78%
Greater than 10 miles	8%
D3. What year of college are you currently in? (n=191)	
Freshman	29%
Sophomore	18%
Junior	20%
Senior	28%
Graduate	5%
Prefer not to say	0%