

# **P12 Schools Initiative Market Evaluation**

*Final Report*

Prepared for:

**New York State Energy Research and Development Authority**

Albany, New York

Tricia Gonzales

Senior Project Manager, Market Characterization and Evaluation

Prepared by:

**ILLUME Advising, LLC.**

Madison, Wisconsin

Leigh Michael, Director

Alex Dunn, Director

Andie Gemme, Consultant



# Notice

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## Acronyms and Abbreviations

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NYS	New York State
NYSERDA	New York State Energy Research and Development Authority
MMBtu	Million British thermal units
kWh	Kilowatt hours
MWh	Megawatt hours
DAC	Disadvantaged Community
CIP	Compiled Investment Plan
CEF	Clean Energy Fund
BOCES	Board of Cooperative Educational Services
NOMAD	Naturally Occurring Market Adoption
P12	Pre-Kindergarten through Grade 12

# 1 Key Findings and Recommendations

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This section presents an overview of the key findings from this evaluation. These findings are discussed in greater depth in the remainder of the report.

## 1.1 Key Findings

**Key Finding 1: The long capital funding process and limited non-capital funding opportunities make it difficult for schools to implement clean energy and efficiency projects.**

Most funding opportunities for energy projects in schools come from State formula funding, or from locally raised revenue; there are limited opportunities for non-capital funding. The evaluation team found that insufficient funding is the primary barrier for schools to implement clean energy and energy efficiency projects. Seventy-six percent (n=22) of participants and 87% (n=61) of nonparticipants reported a lack of funding as a barrier. However, participants are more aware of and successful at obtaining funding; 55% (n=16) of participating schools received energy project financing compared to just 6% (n=4) of nonparticipants.

In addition, while often the primary mechanism for schools to fund energy projects, the capital funding process is slow and hampers implementation. One participant described how the capital funding process took so long that the prices of equipment they planned to purchase changed dramatically and they had to go to the board to request additional funds.

**Key Finding 2: Aligning the value proposition for clean energy and energy efficiency investments with the priorities of a given school community is key to engaging decision-makers, though this is a time-consuming process.**

School values are shaped by the communities they serve, and vary by social (e.g., economic stability), political (e.g., conservative, liberal), and geographic (e.g., rural, urban) dimensions. Decision makers respond to messaging that aligns with those values. Respondents, for example, noted that in a politically conservative environment, it was more impactful to emphasize the cost savings potential – rather than environmental benefits – of energy projects. In addition, respondents noted that the realities and challenges of rural schools vary significantly from those in urban areas. Some common threads exist across school communities, however; respondents overwhelmingly selected cost savings and health improvements (driven by COVID-19) as the most valued outcomes of clean energy projects. In other words, schools are motivated by outcomes that create safe learning environments and free up funds to further student learning.

School boards comprised of community members are often the key decisionmakers for large energy projects. Many interview and survey respondents representing both public and private schools emphasized the pivotal role that boards play in moving clean energy or energy efficiency efforts forward. Several respondents expanded on the considerable time investment required to successfully engage with school boards, and noted they often lack the time and capacity to adequately prepare for board presentations. The critical role that schools' boards play—and the time and effort required to engage with them—may be a key barrier for schools to implement energy efficiency projects.

**Key Finding 3: The P12 Schools Initiative engages school staff across many roles with varying decision-making authority. This results in an inconsistent outreach and engagement experience, which may create challenges in driving progress.**

The P12 Schools Initiative engages a broad breadth of decisionmakers; for example, the evaluation team's sample frame of P12 participants included 38 distinct job titles, spanning superintendents to facilities managers to finance directors to energy managers. Similarly, the nonparticipant data included facilities managers, superintendents, principals, and other roles. This makes program engagement difficult, since these distinct roles have varying responsibilities, decision-making power, and various levels of technical expertise. Interview respondents who worked at the district level noted that the variability in who the program engages makes progress difficult, since tactics need to be tailored based on the specific contact.

Regardless of role, respondents noted they have few opportunities to network or idea-share with peers about the school-energy nexus. Most schools do not engage in peer networking, but if they do, they are more likely to be public schools. However, peer networking may correlate to higher project adoption; although just nine nonparticipating schools said they engaged in peer networking, one-third of those respondents implemented projects.

**Key Finding 4: Participants were satisfied with the P12 Schools Initiative but wanted more implementation support for recommended energy projects.**

Seventy-nine percent of respondents gave the P12 Schools Initiative a 4 or higher satisfaction rating (out of 5). Those that gave high scores thought that the benchmarking data they received from the program was helpful to use as a tool to get approval for energy projects (n=5), felt that the program helped them identify future energy projects (n=4), and had a good experience with their contractor and with NYSERDA (n=3).



However, some respondents wanted more implementation support (e.g., assistance identifying funding and finding contractors) from NYSERDA after participating in the Benchmarking Program. While about half of participants said that the program did help to address barriers to energy projects in their districts, about half said that it did not. Ten (24%) discussed some level of dissatisfaction with their experience, and feedback consistently related to a desire for more support from NYSERDA to implement recommended energy projects.

**Key Finding 5: There are no indirect benefits for the P12 Schools Initiative due to high naturally occurring market adoption (NOMAD) and minimal influenced adoption from schools who implemented projects.**

There are a few considerations that provide context for this finding. The first, through mid-2022 – the evaluation period – the P12 Schools Initiative consisted of two separate programs (Benchmarking, Green and Clean Energy Solutions) with unique designs and goals; now, it consists of one program (Clean Green Schools) in addition to a funding mechanism (FlexTech). The shifting of programs under the P12 Schools Initiative will impact indirect benefits measurements in future evaluation years.

Additionally, the structure of the programs under the P12 Schools Initiative and the inherent differences between school sizes made applying the established methodology imperfect. NYSERDA is often a hidden actor in this market, and within the P12 Schools Initiative. The current methodology for calculating indirect benefits only allows NYSERDA to claim influence if respondents directly name NYSERDA or specific NYSERDA-affiliated market actors. Therefore, it is likely that the evaluation team under-attributed NYSERDA’s influence in the market. Reworking the influence constraints in future indirect benefits calculations may more accurately reflect NYSERDA’s true role in the market. Finally, indirect benefits were not expected for the P12 Schools Initiative until 2024 and because these programs had short timelines, the lack of indirect benefits is not unexpected.

## **1.2 Recommendations**

**Recommendation 1:** New P12 Initiative programs should support schools through the capital funding process and incorporate additional project implementation support. This could include:

- Developing roadmaps around how to embed clean energy /energy efficiency project planning into a capital funding process – and providing step-by-step resources for schools.

- Developing step-by-step guidelines for the implementation process.
- Identifying and sharing funding opportunities outside the capital funding process (e.g., Infrastructure Investment and Jobs Act (IIJA) funding).
- Connecting schools with vendors who can ‘project manage’ energy projects.
- Working with utilities to identify funding opportunities for recommended measures and sharing these with participants.
- Helping schools conduct actions identified through benchmarking assessments.
- Developing step-by-step guidelines for the implementation process

*Note: this recommendation will require additional effort from NYSERDA beyond what is outlined in the current P12 Schools Initiative workplan. Additional staff members and/or budget may be needed.*

**NYSERDA response to recommendation:** Implemented. NYSERDA’s Clean Green Schools program supports schools through the capital funding process and offers implementation support.

**Recommendation 2:** NYSERDA should investigate strategies to facilitate more streamlined and effective decision-maker (i.e., school board) engagement. This could include:

- Connecting participating schools with architects or consultants skilled in presenting to boards.
- Developing outreach templates that schools can use to promote projects to decision-makers.
- Creating sample messaging that highlights the universal benefits—such as health outcomes and energy cost savings that could be reallocated to other budgets—of energy projects.

Effective outreach is another key ingredient of stakeholder engagement. NYSERDA should customize outreach and engagement based on the role/job title, including:

- Identifying ideal outreach targets by role.
- Tailoring the value proposition by creating role-specific messaging and materials.
- Sending outreach that is framed for those roles.
- Developing outreach and marketing materials that schools can use to promote projects to decision-makers like school boards; highlight health benefits and energy cost savings that could be reallocated to other budgets.

*Note: this recommendation will require additional effort from NYSERDA beyond what is outlined in the current P12 Schools Initiative workplan. Additional staff members and/or budget may be needed.*

**NYSERDA response to recommendation:** Implemented. NYSERDA coordinates targeted outreach to promote participation in the program to the P-12 decision makers (e.g.

Superintendents, Business Officials, Facility Directors, School Boards, etc.) through webinars, in-person presentations, e-mail blasts, newsletters and more.

**Recommendation 3:** NYSERDA should consider establishing a cohort for future program participants. This could build community among peers and facilitate information-sharing—and implementation—on clean energy and energy efficiency in schools. As the P12 Schools Initiative focuses program outreach on schools that serve Disadvantaged Communities (DACs), this model could be particularly useful, as it creates a structure for schools with similar challenges to support and learn from one another. NYSERDA can also learn from the cohort and adopt a continuous improvement model, where it refines the program iteratively throughout the program cycle based on participant feedback. Finally, NYSERDA might consider tools (i.e., a portal or webpage) that cohort members can use to easily access information and idea-share with one another.

**NYSERDA response to recommendation:** Implemented. NYSERDA has built a community among peers and facilitates information sharing around clean energy and energy efficiency in schools. NYSERDA continuously includes program participants to present during webinars, so that their peers can learn from one another on the steps they can take to integrate clean energy into their school buildings.

**Recommendation 4:** As the program team begins to see trends in program participation, consider conducting a nonparticipant and/or non-respondent study for the Clean Green Schools Program, which targets DAC and high-need schools, to identify early trends around engagement.

**NYSERDA response to recommendation:** Pending. NYSERDA’s Clean Green Schools Initiative plans to conduct a non-participant survey for the Clean Green Schools Initiative in Q2 2024.

**Recommendation 5:** NYSERDA should highlight case studies from schools and districts. To the extent possible, they could reflect diversity in geography (e.g., region, rural/urban), type (e.g., public, charter, private), and basic characteristics (i.e., size, building age) in marketing materials. Real-world examples can highlight the potential for energy projects and provide best practices for engaging hesitant school boards or communities.

**NYSERDA response to recommendation:** Implemented. NYSERDA’s Clean Green Schools Initiative will develop case studies on the Track II projects (e.g. decarbonization construction projects). In addition, these projects (and project teams) are showcased at P-12 conferences.

**Recommendation 6:** Consider reworking the indirect benefits framework to be more flexible when evaluating initiatives that contain several unique, complex, and multi-faceted program designs. Consider refinements to the process for calculating UEBs to account for the variation in school size, district size, and building square footage as well as reworking influence attribution constraints. The latest version of the indirect benefits framework, released in October 2023, contains changes to the indirect benefits calculation process that would ease some of the issues the evaluation team found in this study. More detail on this is provided in section 4.

**NYSERDA response to recommendation:** Pending. This recommendation will be explored as part of the next planned evaluation.

## 2 Introduction

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The P12 Schools Initiative was launched in 2017 through the Commercial Chapter of the Clean Energy Fund (CEF) Compiled Investment Plan (CIP) Market Development Portfolio, and the first program launched in 2019.<sup>1</sup> Within the P12 Schools Initiative, NYSERDA developed several programs to engage the Pre-Kindergarten through Grade 12 (P12) sector in pursuing carbon savings and clean energy projects. Service to under-resourced schools is a primary focus of the P12 Schools Initiative, which includes schools located in disadvantaged communities (DAC) and schools designated as high need. The DAC criteria was developed the New York State (NYS) Climate Justice Working Group and identifies communities that are underserved and disproportionately affected by climate change.<sup>2</sup> High need schools are defined by the NYS Education Department using the need/resource capacity index. This index is a ratio of the estimated poverty percentage to the Combined Wealth Ratio.<sup>3</sup>

During this evaluation, NYSERDA published an updated indirect benefits framework in October of 2023, and an updated CIP in August of 2023. The updates in the new CIP commercial chapter included new wording for both program goals and indicators. While this report contains the most recent wording in the 2023 CEF CIP, it is important to note that most of this evaluation was conducted prior to this publication; thus, the research questions and research tasks were developed following the wording of the goals and indicators in the 2022 CEF CIP. The most significant changes included in the updated indirect benefits framework are discussed in section 4.

This section provides a brief overview of the P12 Schools Initiative programs offered by NYSERDA that were evaluated as part of this market evaluation. This section begins with the goals of this initiative, followed by its key activities, and ends with a description of each program nested under this initiative.

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<sup>1</sup> <https://www.nyserdera.ny.gov/-/media/Project/Nyserda/Files/About/Clean-Energy-Fund/2023-11-01-Clean-Energy-Fund-Compiled-Investment-Plans.pdf>

<sup>2</sup> <https://climate.ny.gov/Resources/Disadvantaged-Communities-Criteria>

<sup>3</sup> <https://nycteachingfellows.zendesk.com/hc/en-us/articles/360054127711-What-is-a-high-need-district-#:~:text=A%20high%20need%20district%20is%20designated%20as%20a,vacancies%20and%20are%20in%20need%20of%20effective%20educators.>

## 2.1 P12 Schools Initiative Objectives, Outcomes, and Indicators

The objectives of the P12 Schools Initiative, as outlined in the CEF CIP commercial chapter, are to:

- Stimulate demand and investment in clean energy across the P-12 sector.
- Increase awareness of the value of energy efficiency and efficient operations and maintenance practices, for infrastructure that is entirely existing buildings.
- Six hundred schools will engage with NYSERDA to conduct clean energy benchmarking by 2025.
- Service providers utilize the guidance documents as reference guides and have increased opportunities to facilitate clean energy investments in schools.

To achieve these objectives, NYSERDA developed output and outcome indicators to assess progress on the P12 Schools Initiative. Table 1 below lists the outputs and near-term outcomes associated with the programs under the P12 Schools Initiative and the data source for each indicator. As described in the workplan for this research, output indicators are “used to regularly track progress” and outcome indicators “can encompass longer-term changes in market conditions expected to result from an intervention; and have baseline values and progress measured periodically through market evaluation.” As determined in the CEF CIP, this evaluation collected data on two of the outputs listed—and all outcomes—as described in Table 1.

**Table 1: P12 Schools Initiative Outputs and Outcomes Indicators <sup>a</sup>**

	<b>Indicators</b>	<b>Data Source</b>
<b>Outputs</b>	Number of projects implemented because of P12 Schools Initiative funding	Program & Evaluation
	<i>Number of schools that receive NYSERDA funding</i>	<i>Program reported</i>
	<i>Number of schools engaging with NYSERDA to conduct clean energy benchmarking</i>	<i>Program reported</i>
	Number of schools utilizing NYSERDA funding for student and faculty engagement (i.e., workforce development efforts)	Program & Evaluation
	<i>Number of information downloads from website</i>	<i>Program reported</i>
	<i>Number of case studies developed and disseminated</i>	<i>Program reported</i>
<b>Near-Term Outcomes</b>	Number of schools receiving recognition	Evaluation
	Number of schools utilizing benchmarking data and energy master plans to make informed decisions towards future clean energy projects	Evaluation
	Number of schools reporting a greater understanding of the benefits of clean energy at their school	Evaluation
	Number of schools utilizing clean energy case studies to make informed decisions towards future clean energy projects	Evaluation

<sup>a</sup> When this evaluation began, the evaluation team used the 2022 CIP. The language changed slightly for the 2023 CIP. The most recent language is reflected in this report.

## 2.2 Key Activities

To deliver on the objectives for the P12 Schools Initiative, NYSERDA implemented the following activities as described in both the 2022 CEF CIP and the 2023 CEF CIP:<sup>4</sup>

- Provide funding to school districts to collect data on energy consumption and costs. Use initial benchmarking as a stepping off point to engage the schools in the use of this resource and to lead to greater understanding of their energy use, patterns, and opportunities for improvement.
- Provide cost-sharing to schools, focused on under-resourced schools, for professional services related to clean energy and indoor air quality analysis as well as limited funding for installations and demonstrations.
- Develop and disseminate a centralized website of state-supported strategies and funding programs, recognition programs and events, to encourage schools to participate in and leverage existing market resources.
- Publish and promote guidance documents and project results along with case studies and green design documents.

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<sup>4</sup> <https://www.nysERDA.ny.gov/-/media/Project/Nyserda/Files/About/Clean-Energy-Fund/2023-11-01-Clean-Energy-Fund-Compiled-Investment-Plans.pdf>

The following section describes the programs under the P12 Schools Initiative and the timelines associated with each program.

## 2.3 P12 Schools Initiative Programs

The market transformation programs nested under the P12 Schools Initiative include four discrete programs. These are described below:

**Benchmarking Program [2019 – 2022]:** The Benchmarking Program, the first program to launch under the P12 Schools Initiative, operated from April 2019 to March 2022. NYSERDA hired two consulting firms to collaborate with school districts and conduct outreach to market the program. Participants received an initial baseline benchmarking report followed by biannual reports for three years. The B3 benchmarking tool, paid for by NYSERDA, generated reports with three benchmarks, the baseline, and periodic performance. Schools participating for over six months could get operational assessments for two buildings.

**Green and Clean Energy Solutions [2019 – 2022]:** The Green and Clean Energy Solutions program ran from November 2019 through the end of December 2022 and served as an open enrollment program, where applications were accepted on a first come first serve basis. High needs schools received a 100% cost share, and non-high need schools received a 75% cost share. It had three paths for participation:

1. *Energy studies:* Schools or school districts could collaborate with a consultant to conduct an energy assessment and receive recommendations for specific energy efficiency measures.
2. *Clean heating/cooling and net zero design projects:* This path paid for heat pump design and engineering costs.
3. *Direct Incentive:* this path gave an incentive for the installation of certain energy efficiency projects that were not covered by local utility incentives.

This program also included complimentary benchmarking and clean heating and cooling technology screening services.

**Clean Green Schools Initiative [2022 – Present]:** The Clean Green Schools Initiative launched in April 2022 and serves under-resourced schools (i.e., schools located in DACs, or high needs schools). As the only continuing 2023 program, it has two tracks:



1. **Track I:** *Technical assistance for energy efficiency, heating and cooling and indoor air quality projects:* This track supports schools in planning energy efficiency projects and covers the payment to hire an On-Site Energy Manager.
2. **Track II:** *Construction and installation of energy efficiency and clean energy projects:* This track is a competitive funding source, where schools and school districts must apply to be considered.

This program also includes clean energy educational and professional development activities. Schools participating in either track may receive funding to support eligible activities that create or further support clean energy educational activities for students, faculty, and staff. Project costs are funded by NYSERDA up to 100% with a maximum of \$10,000 per building and \$50,000 per district.

**FlexTech Program [2023 – Present]:** The FlexTech program (acting as a funding mechanism for P12 Schools Initiative Participants) provides cost sharing for energy studies in buildings that helps schools best determine how to implement clean energy or energy efficient technologies. This program is distinct from the P12 Schools Initiative, but in 2020, driven by the COVID-19 pandemic, NYSERDA offered a 100% study cost share with proof of installation for customers who installed measures which were recommended through an approved FlexTech energy study. P-12 Schools Initiative participants were always eligible to apply to FlexTech, but once the Green and Clean Energy Solutions Program closed in December 2022, NYSERDA started marketing the FlexTech Program to non-under-resourced schools.

A visual representation of these timelines is seen in Figure 1 below.

**Figure 1: P12 Schools Initiative Programs and Timing**



## **2.4 Evaluation Objectives and Approach**

This market evaluation primarily assessed progress on the outcomes defined in the P12 Logic Model and the CEF CIP chapter and are documented in Table 1.<sup>5</sup> The baseline for all measurements is zero, as described in Section 2.4 of the 2023 CEF CIP. The evaluation team developed two additional research objectives in concert with the P12 Program Team and the NYSERDA evaluation team related to COVID-19 impacts and the experiences of DAC and high-need schools. These are described more below.

### **2.4.1 Summary of Evaluation Objectives**

The evaluation team developed research questions with NYSERDA to achieve the evaluation objectives and assess the output and outcome indicators. Table 2 outlines the research objectives and related questions, linking each to the associated indicators assessed.

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<sup>5</sup> <https://www.nyscrda.ny.gov/-/media/Project/Nyscrda/Files/About/Clean-Energy-Fund/2023-11-01-Clean-Energy-Fund-Compiled-Investment-Plans.pdf>

**Table 2: Evaluation Objectives, Research Questions, and Indicators.**

Objective	Research Questions	Indicators
<p>Assess market change by measuring key market indicators</p>	<ul style="list-style-type: none"> <li>• What is awareness and use of utility programs among P-12 schools?</li> <li>• Are schools receiving recognition for clean energy activities through the Green Ribbon Schools program or other organizations or municipalities? Is this recognition motivating for completing more energy activities?</li> <li>• Do schools report a greater understanding of the benefits of clean energy, benchmarking, energy master plans, and efficient operation at their school because of the program they participated in?</li> <li>• Either through NYSERDA or otherwise, have P-12 schools utilized benchmarking data and energy master plans to make informed decisions towards future clean energy projects? If they have, how have they made use of the benchmarking results?</li> <li>• Either through NYSERDA or otherwise, have P-12 schools implemented any clean energy projects after using benchmarking data or energy master plans?</li> <li>• What value do participating schools see in clean energy projects? How do schools demonstrate that value?</li> <li>• Does receiving recognition for a clean energy project motivate a school to do more clean energy projects?</li> </ul>	<p>Number of schools utilizing benchmarking data and energy master plans to make informed decisions towards future clean energy projects</p> <p>Number of schools receiving recognition</p> <p>Number of schools reporting a greater understanding of the benefits of clean energy at their school</p> <p>Number of projects implemented because of P12 Schools Initiative funding</p>
<p>Assess the indirect benefits of the program</p>	<ul style="list-style-type: none"> <li>• Have nonparticipating schools undertaken benchmarking? What influence did the program have on that decision?</li> <li>• Have schools engaged in any peer networking on the topic of benchmarking or clean energy?</li> <li>• Have nonparticipating schools conducted an energy study, energy master plan or other feasibility study? Did it result in implementation?</li> <li>• How have market participants used templates and guidance provided by the program to increase clean energy adoption in schools?</li> <li>• What changes in clean energy planning and adoption among schools have market participants seen? Is any of this influenced by the program they participated in?</li> </ul>	<p>Number of schools utilizing benchmarking data and energy master plans to make informed decisions towards future clean energy projects</p> <p>Number of schools utilizing clean energy case studies to make informed decisions towards future clean energy projects</p>

Objective	Research Questions	Indicators
Assess the energy efficiency and electrification funding that participating and nonparticipating schools are receiving from utilities, NYSEERDA or other funding sources	<ul style="list-style-type: none"> <li>• What funding (dollar amount and type) has the school received for energy resources?</li> <li>• From what providers have P-12 schools received funds?</li> <li>• What will the funding be used for? What are the expected benefits or impacts of the funding?</li> <li>• How well did the funding work with schools' procurement and planning policies?</li> </ul>	Number of schools utilizing NYSEERDA funding for student and faculty engagement (i.e. workforce development efforts)
Assess the program's impact on schools and residents of DACs and high-need schools	<ul style="list-style-type: none"> <li>• How does the experience with benchmarking, clean energy projects, and funding of schools within DACs compared to schools outside of DACs? High-need compared to non-high-need schools?</li> <li>• What unique barriers to participating in benchmarking, energy projects, or procuring funding do schools located in DACs experience? High-need compared to non-high-need schools?</li> <li>• Has the program been able to address any of these barriers? How?</li> </ul>	N/A
Assess the impact of COVID-19 on schools' ability to participate in clean energy related activities and the program	<ul style="list-style-type: none"> <li>• How, if at all, has COVID-19 affected time and budget priorities for schools?</li> <li>• How, if at all, has COVID-19 affected staffing and availability of maintenance and facilities staff?</li> <li>• How, if at all, has COVID-19 affected the ability to prioritize clean energy related activities?</li> </ul>	N/A

## 2.4.2 Evaluation Methodology Overview

The evaluation team conducted four activities for this evaluation: participant interviews, a nonparticipant survey, nonparticipant interviews, and an indirect benefits calculation. Response rates for the primary research activities are summarized in Table 3 below.

**Table 3: Evaluation Sample Overview**

Evaluation Activity	Sample	Responses	Response Rate
Participant interview	118	30	25%
Nonparticipant survey	1748	70	4%
Nonparticipant interview	65	4	6%

Detailed methodology can be found in Section 5.

## 3 Detailed Findings

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This section presents the results and detailed findings of the market evaluation of the NYSERDA P12 Schools Initiative. It begins with an overview of market change results based on the six indicators included in this evaluation, then describes findings related to COVID-19 impacts and under-resourced schools.

### 3.1 Market Change

Market change broadly refers to changes in the NYS P12 school landscape related to the adoption of clean energy or energy efficient products, services, or practices. It encompasses changes in customer behavior, decision-making practices, infrastructure, and technologies that result in increased energy project implementation outside of P12 Schools Initiative-related efforts. The evaluation team gathered and analyzed data to answer the following market change research questions:

- What is awareness and use of utility programs among P-12 schools?
- Are schools receiving recognition for clean energy activities through the Green Ribbon Schools program or other organizations or municipalities? Is this recognition motivating for completing more energy activities?
- Do schools report a greater understanding of the benefits of clean energy, benchmarking, energy master plans, and efficient operation at their school because of the program they participated in?
- Either through NYSERDA or otherwise, have P-12 schools utilized benchmarking data and energy master plans to make informed decisions towards future clean energy projects? If they have, how have they made use of the benchmarking results?
- Either through NYSERDA or otherwise, have P-12 schools implemented any clean energy projects after using benchmarking data or energy master plans?
- What value do participating schools see in clean energy projects? How do schools demonstrate that value?
- Does receiving recognition for a clean energy project motivate a school to do more clean energy projects?

The section below reviews progress made on the market output and outcome indicators outlined in the CIP.

#### 3.1.1 Market Progress Indicators

Table 4 documents the indicators associated with the P12 Schools Initiative's outputs and outcomes, which are intended to measure the progress of the P12 Schools Initiative. Since this is the first time the P12 Schools Initiative has gone through a market evaluation, the table below

contains the original baseline value, the target for 2022 (as noted in the CEF CIP) and the actual values found during this research.

**Table 4: P12 Schools Initiative Indicators and Progress Made (as of June 2023)**

	Indicators	Baseline (2017)	2022 Progress	
			Target	Actual
Outputs	Number of schools utilizing NYSERDA funding for student and faculty engagement (i.e., workforce development efforts)	0	25	0 (participants only)
	Number of projects implemented because of P12 Schools Initiative funding	0	4	16 (participants only)
Outcomes	Number of schools receiving recognition	0	3	5 (participants) 2 (nonparticipants)
	Number of schools utilizing benchmarking data and energy master plans to make informed decisions towards future clean energy projects	0	75	20 (participants) 8 (nonparticipants)
	Number of schools reporting a greater understanding of the benefits of clean energy at their school	0	800	20 (participants only)
	Number of schools utilizing clean energy case studies to make informed decisions towards future clean energy projects	0	150	0 (participants) 0 (nonparticipants)

It is important to note that NYSERDA set indicator targets in the early design phase of the P12 Initiative, before defining, designing, and implementing individual programs. Additionally, COVID-19 impacted participation. Due to these limitations, the indicator targets set were not realistic.

### **3.1.1.1 Research Limitations**

It is important to note that the evaluation team was only able to interview a small portion of P12 Schools Initiative participants and an even smaller portion of nonparticipating schools. This is primarily due to the small participant population size and the varied contact information for nonparticipating schools, which is further described in Section 5.2. In addition, while this evaluation aimed to assess all four programs under the P12 Schools Initiative, the interview sample was primarily limited to Benchmarking participants based on the criteria outlined in Section 5.1. The evaluation team anticipates further market adoption in 2024 as the Clean Green Schools Initiative continues to gain traction and other P12 participants complete projects in the sunsetting P12 Schools Initiative programs: Benchmarking and Green and Clean Energy

Solutions. The data presented in Table 4 should be interpreted with this context in mind. Detail on how the evaluation team quantified each indicator is provided throughout the following sections.

### **3.1.2 Awareness of Clean Energy Programs**

Awareness of clean energy and energy efficiency programs is a vital first step to pushing market change; schools must be aware of what programs and resources exist to support energy projects. The evaluation team asked both participating and nonparticipating schools if they were aware of programs (including NYSERDA programs) that provided funding for clean energy and energy efficiency projects and if they had participated in these programs. Overall, participants were not only more aware of other programs than nonparticipants, but they participated in higher rates as well.

About one third (34%, n=10) of participant respondents said they were aware of programs other than NYSERDA that provide funding for clean energy, energy efficiency or decarbonization projects. Of those that said they were aware, 50% (n=5) mentioned utility programs or rebates that they knew of. Thirty-eight percent (n=11) of interview respondents said that they had participated in other NYSERDA programs outside of the P12 Schools Initiative, but none could remember the name of the program in which they had participated. Though 82% (n=9) of these respondents did recall what they had done under the program.

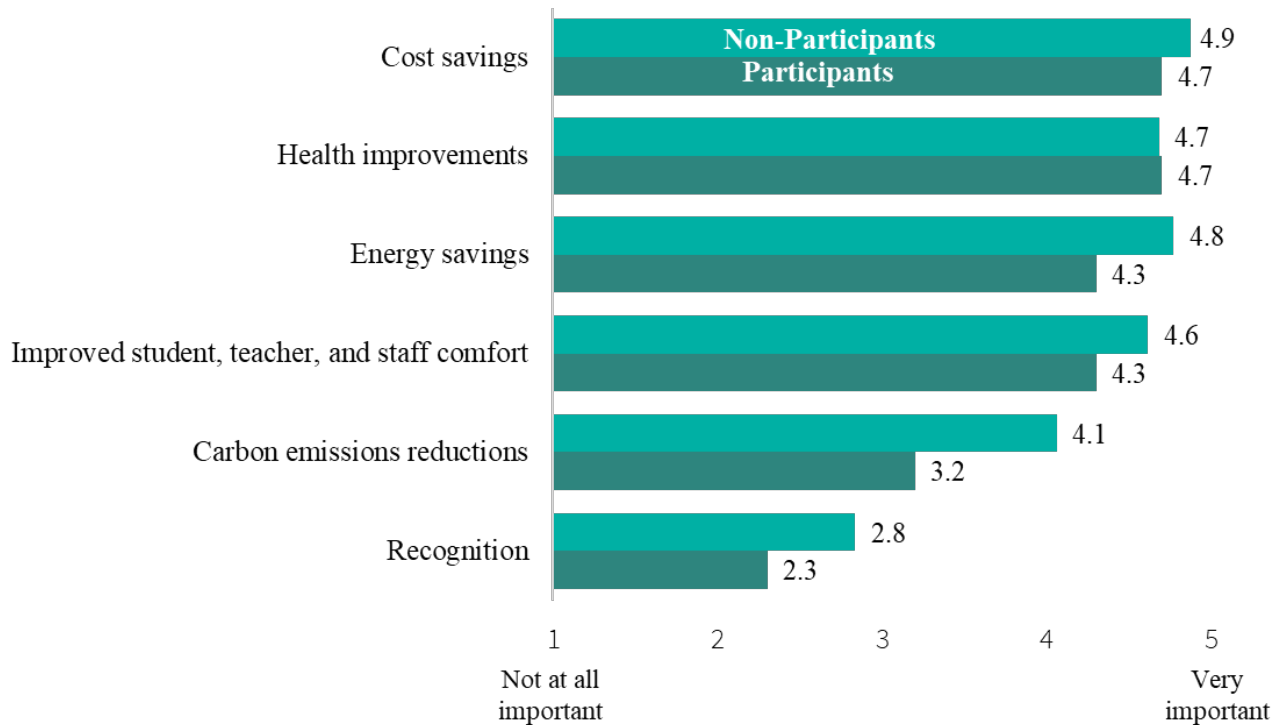
In surveys, about 33% (n=23) of nonparticipating schools said they had heard of the P12 Schools Initiative. Of those that had heard of the P12 Schools Initiative, 44% (n=10) had heard about it directly from NYSERDA communications, and 22% (n=5) from another school or school district. Sixty-five percent (n=15) of those schools had considered participating and those that did *not* consider participating did not because they did not understand the program requirements (40%, n=4) or experienced school or district funding constraints (25%, n=2).

Just 7% (n=5) of nonparticipating schools had participated in another NYSERDA program, though 20% (n=14) were not sure. The high numbers of respondents that were not sure may stem from respondents being new to their position and not having historical knowledge of their schools' participation. When asked about awareness of other programs besides NYSERDA that provide funding for clean energy, energy efficiency, or decarbonization, just 18% (n=13) said they knew of any. The few mentioned were utility initiatives (n=4). The prominent level of unawareness further indicates the need for outreach on available funding opportunities.

### 3.1.3 Value Seen in Clean Energy Projects

The evaluation team also sought to characterize the value schools place on clean energy projects. The evaluation team asked both participants and nonparticipants to rate the importance of several energy project outcomes to their school or district; findings are summarized in Figure 2 below. In general, both participating and nonparticipating schools were aligned on the most important outcomes of energy projects: cost savings and health improvements.

**Figure 2: Importance of Energy Project Outcomes**



*Survey/Interview question: Please characterize how important the following outcomes of energy projects are to your district from “not at all important” to “very important.”*

Cost savings are a top priority and valued outcome for all schools – public, private, under-resourced and non-under-resourced alike. It is overwhelmingly the most important aspect of energy projects to schools. The following quotes demonstrate this value.

*“As a non-profit, every penny is rubbed”  
– P12 participant*

*“That is the nature of public schools: You’re limited to your budget.”  
– P12 participant*

*“The biggest benefit is it keeps cash that I can use for teachers for my students, I mean, energy cost is going to naturally go up every year, but if we don’t pay attention to those variable cost, where do I get the money from?”  
– Nonparticipating school*



Respondents said health improvements grew as a priority during the height of the COVID-19 pandemic, though the focus remains. Many schools now report cleanliness and health procedures adopted during this time have continued to define their operating procedures. The quote below highlights this, and further impacts of COVID-19 are discussed in Section 3.3.

*"Since the pandemic [health improvements] have been talked about more."*

– P12 Participant

While these were the most important aspects of energy projects, both energy savings and improved student, teacher and staff comfort were not far behind. However, respondents did not value recognition as much, which is discussed more in the following section.

### **3.1.4 Impact of Recognition on Energy Projects**

<i>Indicator assessed:</i> Number of schools receiving recognition	N=7
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As part of this evaluation, NYSERDA wanted to learn if recognition for clean energy or energy efficiency projects was a motivating factor for schools to pursue additional projects. The evaluation team asked respondents to share whether they had received recognition for clean energy activities, and how (if at all) that recognition motivated them to complete additional energy projects. While most respondents had not received recognition for energy projects and were not interested in pursuing it, those that had received some kind of recognition found it to be motivating for completing additional energy projects.

Most participants (83%, n=24) had not received recognition for energy-related projects or activities. Five said that they had, but just one said it motivated their school to complete further energy projects. A similar proportion of nonparticipant respondents – 86% (n=60) – did not receive any recognition. The two that reported they had received some form of recognition said that it *somewhat* motivated them to complete further energy-related activities.

However, overall, recognition was the lowest ranked outcome of energy projects for both nonparticipants and participants, as seen previously in Figure 2. Some respondents interpreted this as personal recognition, which may have influenced their response. For participants that did value recognition, a few (14%, n=4) highlighted how it would be helpful for marketing and public relations; two of these respondents were private schools, where marketing may play a bigger role. Two nonparticipants—also private schools—echoed this in interviews. The quotes below highlight these sentiments.

*“It would serve us by being recognized for advertising. Most people don’t know we exist” – P12 private school participant*

*“Getting our name in the paper and getting a mention somewhere where we can say ‘hey, we did this’, those are always good things because they bring in donors” – Nonparticipating private school*

### 3.1.5 Impact of Benchmarking and Energy Master Plans

*Indicator assessed:* Number of schools utilizing benchmarking data and energy master plans to make informed decisions towards future clean energy projects N=28

The evaluation team asked both participants and nonparticipants to characterize their experiences implementing energy projects and to reflect on the role that previous benchmarking or energy master plans had played in their decision to implement them. Nearly all participating respondents had participated in benchmarking—either through NYSERDA or another entity—and said it led to changes in their energy practices or systems. Less nonparticipants conducted benchmarking.

Most participants the evaluation team interviewed (90%, n=26) had participated in the Benchmarking Program. Of the three that had not participated in the NYSERDA Benchmarking Program, one had completed benchmarking as part of an energy performance contract (EPC), and another did annual mandatory benchmarking for their New York City school. Of the respondents that had completed some form of benchmarking (n=28), the majority (72%, n=20) said that it had led to changes in their districts’ energy systems. Half (n=10) of those participants said benchmarking guided conversations about existing and future energy projects. As quoted below, some felt it led to an organizational shift.

*“It’s guiding us as far as the next building project. Knowing where we can gain efficiency.”  
– P12 participant*

*“It started conversations on how to proceed with getting some other projects going.”  
– P12 participant*

#### 3.1.5.1 Projects Implemented

*Indicator assessed:* Number of projects implemented because of P12 Schools Initiative funding N=16

The evaluation team asked participants what projects they were able to implement because of their participation in the P12 Schools Initiative. Given that this research primarily included Benchmarking program participants, the evaluation team was only able to gain an understanding of projects implemented because of that program. However, the Benchmarking program did not directly fund project implementation, so the projects the evaluation team included for this indicator are those that participants said that benchmarking directly led to the implementation of. In total, participants described 16 projects that were a product of their participation in the Benchmarking program. These projects included LED conversion (n=9), HVAC projects (n=3), rooftop equipment replacement (n=1), thermostat installation (n=1), solar panel installation (n=1), and upgraded windows (n=1).

Far fewer nonparticipants reported they had participated in benchmarking activities. Just 10% (n=7) conducted benchmarking and 20% (n=14) had initiated an energy study or capital facilities plan which included energy efficiency projects. Eight of these respondents said that the energy study had led to project implementation, which included LED lighting projects (n=6) and HVAC projects (n=3).

### **3.1.6 Program Satisfaction and Impact**

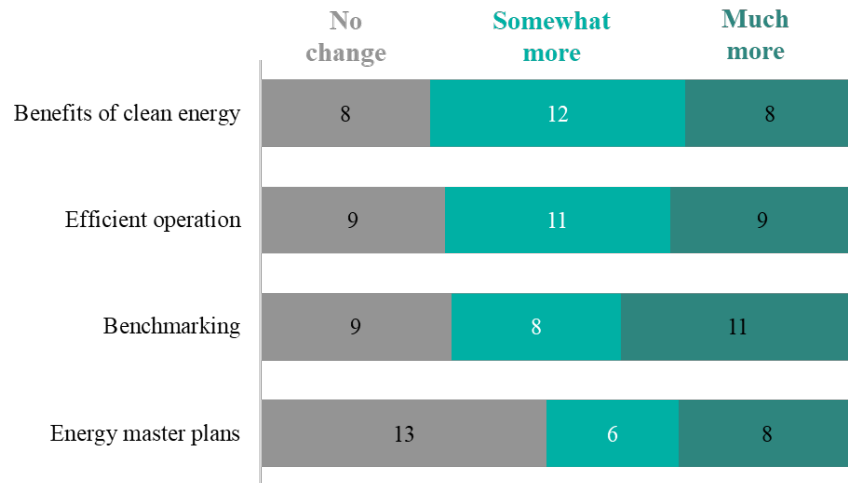
This section examines participant satisfaction and the NYSERDA P12 Schools Initiative’s impact on participant understanding of clean energy and what projects participants implemented.

#### **3.1.6.1 Understanding of Clean Energy**

<i>Indicator assessed:</i>	Number of schools reporting a greater understanding of the benefits of clean energy at their school	N=20
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The evaluation team asked participants if the P12 Schools Initiative increased their understanding of clean energy benefits, benchmarking, energy master plans, and efficient operation. Though most participants reported gaining an understanding of some concepts, others reported already having a good baseline understanding. As Figure 3 illustrates, participants gained the most understanding in the benefits of clean energy and efficient operation.

**Figure 3: Increases in Participant Understanding of Energy Concepts**



*Interview Question: How has your understanding of <CONCEPT> changed as a direct result of participating in the P12 Schools Initiative?*

Some participants expressed how the knowledge gained through participating in the P12 Schools Initiative empowered them to be more effective communicators, as the quotes below demonstrate.

*“I gained a lot through the process and become more of a political advocate as well. I’m going to be the president of facilities association. I think about things differently.”*  
 – P12 participant

*“[P12] ramped up my ability to lead the charge in all of this. Without NYSERDA it was just me pushing my dreams. It was nice to have the bigger picture of everything.”*  
 – P12 participant

As Figure 3 illustrates, many respondents did not feel their understanding of energy-related topics changed because of P12 Schools Initiative participation, primarily because their job or career experience provided them with a baseline understanding. The quotes below illustrate this perspective:

*“That’s my background. I’m always looking at efficiency and quality of life. I’m always creating the balance of what can we have and how much is it going to take away from our school and quality.”* – P12 participant

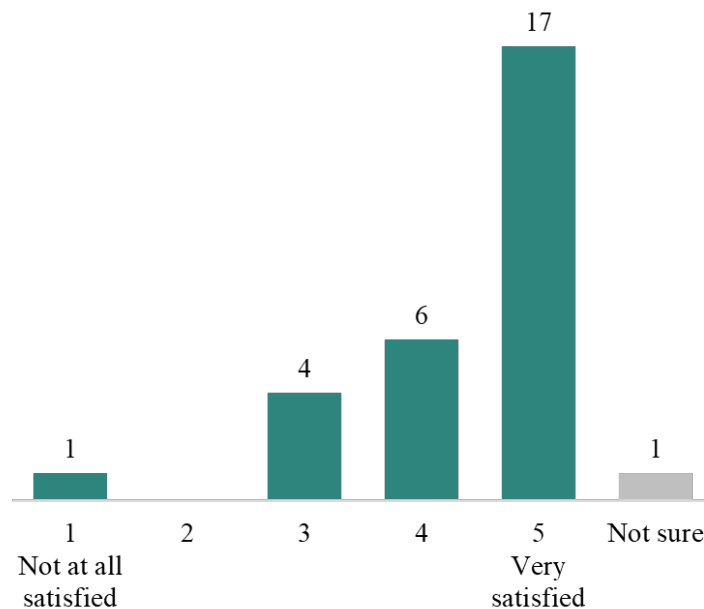
*“I’m a bit of an HVAC geek so I’m aware of what’s going on.”* – P12 participant

The progress reported on this indicator may be conservative given that the evaluation team primarily interviewed Benchmarking Program participants (not participants in the other three programs nested under the P12 Schools Initiative). The proportion of interview respondents that reported increased understanding was high (69%, n=20), and the evaluation team anticipates that as more schools continue to participate in remaining P12 Schools Initiative programs, these numbers will increase.

### 3.1.6.2 Satisfaction

Overall, P12 Schools Initiative participants were satisfied with the program. The evaluation team asked interview respondents to rate their satisfaction on a scale from one (“not at all satisfied”) to five (“very satisfied”) and 79% (n=23) gave a rating of 4 or above. The distribution of responses is documented in Figure 4.

**Figure 4: Participant Satisfaction with the P12 Schools Initiative**



*Interview Question: B.18 How satisfied are you overall with the P12 Schools Initiative, on a scale from one to five where one means “not at all satisfied” and five means “very satisfied”?*

Respondents noted specific program benefits: the data was a helpful tool to share with decisionmakers (n=5), the program helped them identify future energy projects (n=4), and they had a good experience with their contractor and with NYSERDA (n=3).

About a third of respondents (34%, n=10) discussed some level of dissatisfaction with their experience, which all related to a desire for increased support and assistance with implementation. Specifically, respondents noted:

- Not knowing how to or needing support on implementing recommendations (n= 6)
- Not feeling like the program provided value (n=2)
- Difficulties with collecting data (n=1)
- Benchmarking reports did not feel accurate/helpful (n=1)

The quotes below characterize how some participants felt they could use more support to implement projects that were identified through the Benchmarking Program.

*“I felt left out on the recommendations and now I needed to find money. We needed a lot of handholding.” – P12 participant*

*“I didn’t feel like there was a clear path on some of the projects. I wasn’t comfortable with it.” – P12 participant*

### **3.1.7 Barriers to Implementing Clean Energy Projects**

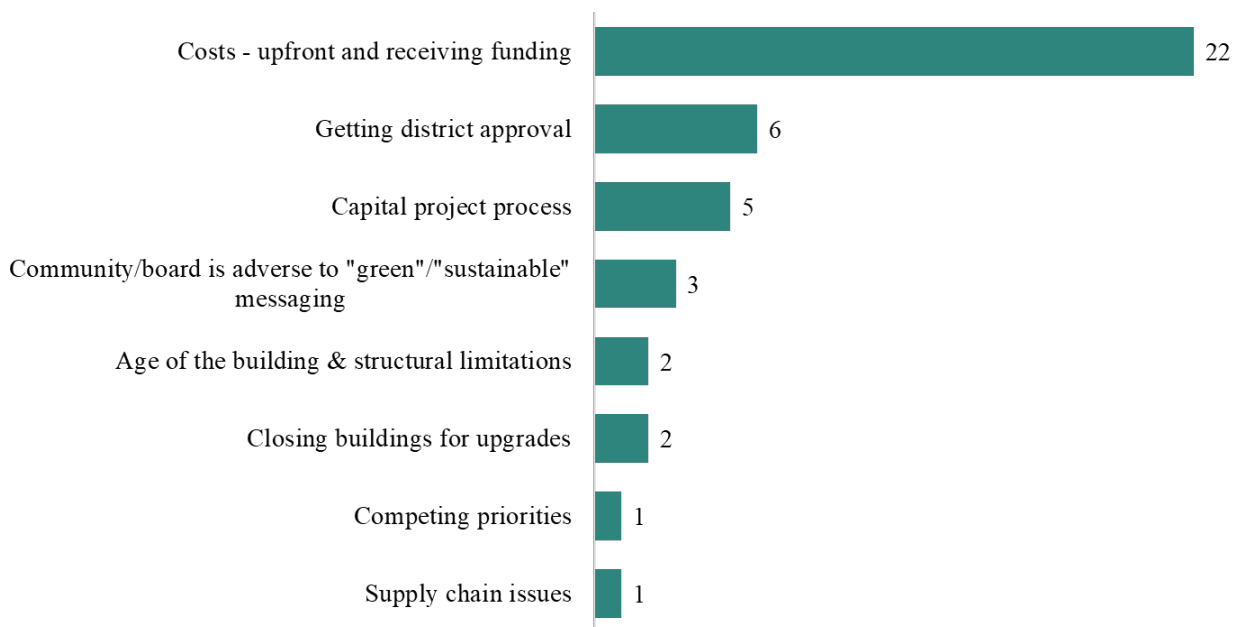
The evaluation team also investigated barriers to both participation in the P12 Schools Initiative and the implementation of clean energy projects in general. One of the most common themes seen between both nonparticipant and participant schools is the impact of the local community and politics. Many of the participating and nonparticipating interview respondents discussed the impact that their board has on whether energy projects get support or are approved. For some, their conservative community plays a role in opposing anything labeled as “green” or “sustainable.” For others, their rural community impacts what kinds of heating fuels are available to them and what kinds of projects they can undertake. Another school discussed how shutting down their school buildings for projects would have an impact on the broader community because the school buildings are used for many community events.

When the evaluation team asked about barriers to P12 Schools Initiative participation, most participant respondents (72%, n=21) did not report any barriers. Many respondents praised NYSERDA’s helpful staff and easy communication channels. Those that did report barriers (28%, n=8) primarily mentioned difficulties collecting the appropriate data (n=7). One school said:

*“We work with multiple utility companies. We are in two service areas and get bills from all. It would be great NYSERDA could just get our bills. It would save a lot of time.” – P12 participant*

The evaluation team also asked about general barriers to implementing clean energy and energy efficiency projects. The top barriers reported were upfront costs and finding funding, followed by district approval and the capital project process, as seen below in Figure 5. These barriers are often interrelated, as receiving funding depends on district approval and navigating the slow capital funding process.

**Figure 5: Participant Barriers to Energy Projects**



*Interview Question: What barriers, if any, do you encounter with adopting energy efficient or clean energy technologies within your district, more generally?*

Multiple participants (n=5) expressed frustration with NYS’s lengthy capital project process, noting that it hinders timely project completion. Participants felt this arduous process impeded their ability to implement projects. For example, one school had costs dramatically increase during the approval timeline, forcing them to re-request public funds. This sentiment is illustrated with a quote below:

*“The market has changed so quickly and so drastically that I’m in a position now we have to go back to the taxpayers and say ‘hey, we asked you for \$65 million, well now I need \$90 million so I need another \$20 or \$25 million to complete the work that we committed to doing.’” – P12 participant*

Obtaining decisionmaker buy-in also relates to funding barriers, as capital projects and budgets require board approval. Many respondents noted their local culture and community impacts whether projects and funding pass, as discussed previously. The evaluation team found that some schools were successful in implementing energy projects because they had a supportive board. Others had a staff member that championed projects, and thus were more successful in implementation. Respondents commonly acknowledged the time and energy it took to prepare for and present to decision-makers (i.e., boards) on energy projects. Understanding—and addressing—this context is vital to develop engagement best practices and increase project uptake.

Respondents were mixed on whether P12 Schools Initiative participation helped to address barriers they faced. About half (48%, n=14) said the program helped address their barriers to energy projects.

Respondents specifically mentioned the benefit of:

- Having the data is helpful and makes it easier to propose a project (n=3)
- Clarifying the cost savings and ROI potential (n=3)
- Having access to unbiased data (n=3)
- Helping them understand what energy projects they should focus on (n=3)

The participants that said that participating in the P12 Schools Initiative did *not* help to address barriers reported it helped them in other ways (n=5) or discussed how the program did not help them overcome the cost barrier to energy projects (n=3).

In addition, the evaluation team found that the P12 Schools Initiative engages school employees in diverse roles with varying decision-making power. To illustrate, participant respondents included facilities managers or directors (n=18), business officials or administrators (n=5), superintendents (n=4), custodial staff (n=1), and a director of instructional services and special projects (n=1). The BOCES Energy Management Coordinator the evaluation team interviewed summarized why this presents a challenge, noting they must tailor engagement tactics based on who they interact with:

*“Every district is different and sometimes there are certain folks that have certain titles and responsibilities in one district that that that, that that particular title doesn't exist in another... so [some] will have a lot more resources. So, I go in and identify what particular model they have.” – BOCES Energy Management Coordinator*

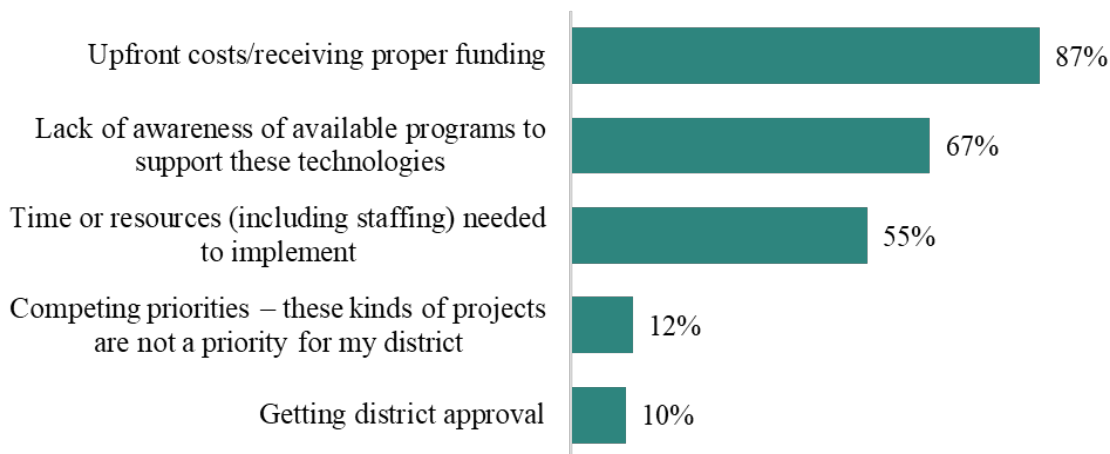
The inconsistent engagement may contribute to limited buy-in from some boards and staff, depending on their involvement. For example, facilities staff may be more receptive or bought in than superintendents or business officials. The following quote describes how some staff positions, like those in facilities, may be more successful to engage with than superintendents or business officials.

*“When you're looking at a superintendent or business official level, these folks are extremely bogged down with the running of day-to-day operations. So, for them to engage on something to this effect, I lose them and their eyes glaze over and they have 50,000 other things that they need to do” – BOCES Energy Management Coordinator*

When the evaluation team asked nonparticipating schools and districts about barriers they experienced to implementing energy projects, respondents reported a similar cost barrier than participants did. However, the second most common response was a lack of awareness of available programs. Figure 6 below shows the top five barriers that nonparticipating schools highlighted.



**Figure 6: Nonparticipant Barriers to Energy Projects**



*Survey Question: What barriers, if any, do you see with adopting energy efficient or clean energy technologies within your school district?*

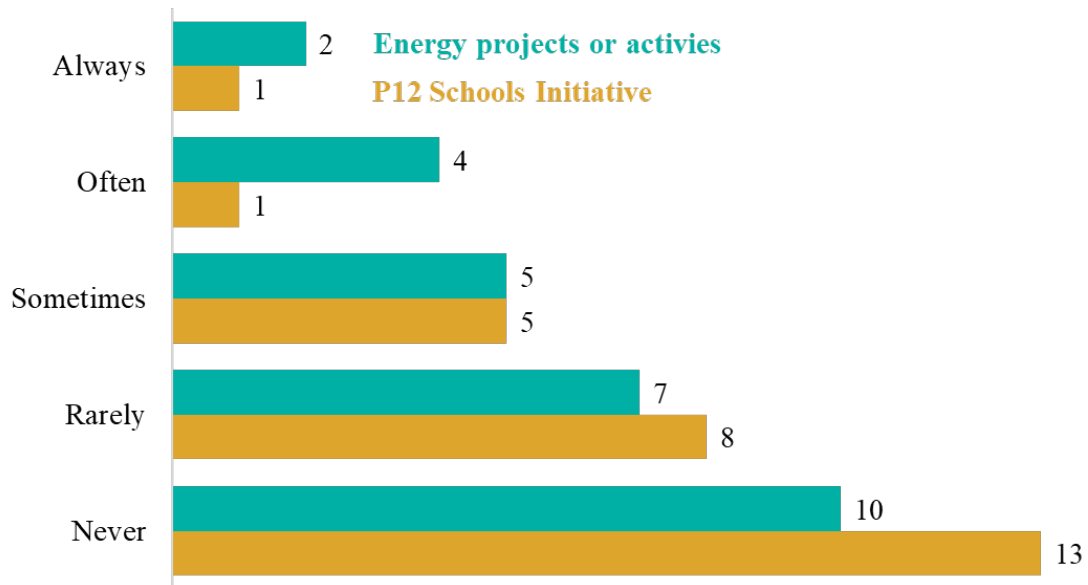
Under-resourced nonparticipating schools shared similar barriers; upfront costs and finding funding were still highlighted as the biggest challenges. Section 3.4 further explores the unique experiences of under-resourced schools.

### **3.1.8 Peer Networking**

The evaluation team wanted to understand whether schools engaged in peer networking and if it helped increase the uptake of energy projects. Overall, schools—particularly private schools—do not participate in peer networking.

Some private schools the evaluation team interviewed said they did not have a local network to engage with and/or felt isolated in their energy efforts. All but one of the private and charter schools said they *rarely or never* peer network on the topics illustrated in Figure 7 below. Public schools network with peers about their participation in the P12 Schools Initiative and energy efficiency more than private schools. However, overall engagement is lacking across both groups. Just 13% (n=9) of nonparticipants reported related networking. Notably, one third of the few respondents who did network said that it led to project implementation. This demonstrates the potential impact of peer engagement.

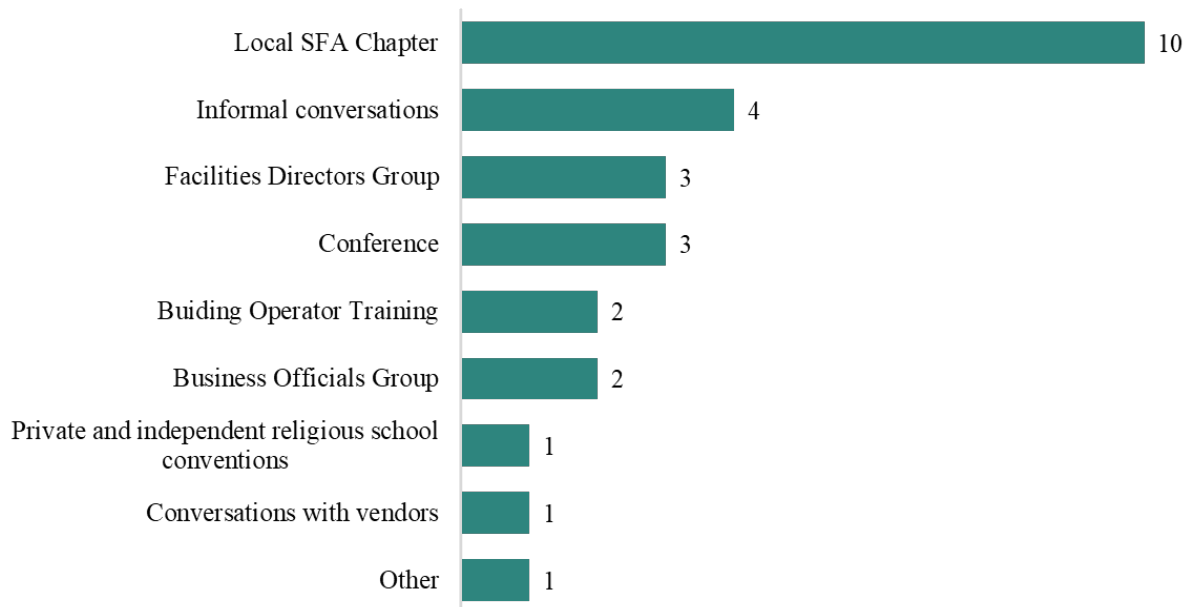
**Figure 7: Frequency of Participant Peer Networking on P12 Schools Initiative and Energy Projects or Activities**



*Interview Question: How often, if at all, do you discuss your participation in NYSERDA's P12 Schools Initiative/specific energy projects or activities with peer school districts?*

Those who did engage in peer networking most mentioned local NYS Schools Facilities Associations (SFA) chapter meetings. Figure 8 illustrates other common peer networking sources.

**Figure 8: Respondent (Participating and Nonparticipating) Peer Networking Locations**



*Interview/Survey question: What was the name of the peer networking conference, event, or meeting that you attended?*

Though many schools are not engaging with their peers on energy efficiency and clean energy, locations like those in Figure 8 provide useful insight into where schools are sharing information.

### 3.2 Funding

*Indicator assessed:* Number of schools utilizing NYSERDA funding for student and faculty engagement N=0

The evaluation team asked respondents about funding they may have received for clean energy and energy efficiency projects. Participants had received more funding than nonparticipants, but none that had received NYSERDA funding used it for student and faculty engagement.

About half (55%, n=16) of participant respondents said they received funding for energy projects outside of the P12 Schools Initiative. This funding was primarily state program funding (n=6), utility program funding (n=5), and federal funding (n=3). Most (n=2) of the federal funding was COVID-19 relief funds that respondents chose to spend on energy upgrades like HEPA filters. One respondent said that the COVID-19 funds went into their general fund which in turn funded energy projects. Most (69%, n=11) said that the funding worked well within their procurement and financial planning policies.

The primary ways that participants used this funding included:

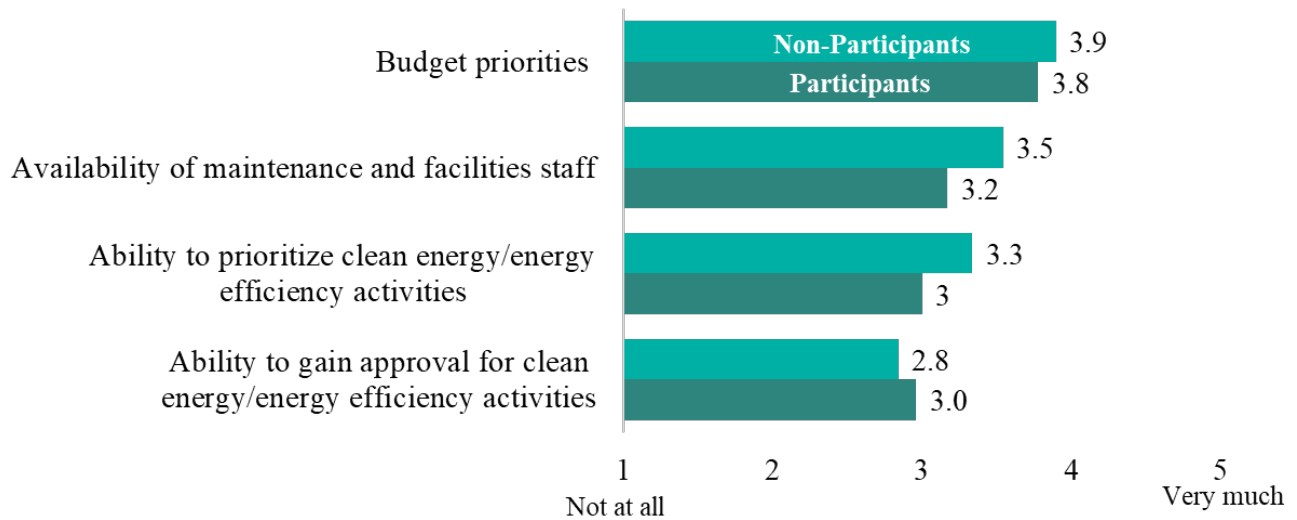
- LED lighting projects (n=8)
- Energy Performance Contracts (n=4)

Just 6% (n=4) of nonparticipant respondents said their school received funding for energy projects, and about one third (n=23) were not sure. Two respondents said they received federal funding for an HVAC replacement and a donation to install solar panels.

### 3.3 Impacts of COVID-19

The evaluation team also investigated the impacts of the COVID-19 pandemic on schools and school districts. While schools and districts were heavily impacted by COVID-19, they reported recovery progress, particularly around filling vacant positions. The evaluation team asked respondents to characterize the impact of COVID-19 on several elements on a scale from one (“not at all”) to five (“very much”). As Figure 9 illustrates, respondents noted significant impacts on budget priorities and the availability of maintenance and facilities staff.

**Figure 9: Factors Affected by COVID-19**



*Interview/Survey Question: How much has the COVID-19 pandemic affected the following in your school district on a scale from one to five where one means “not at all” and five means “very much”.*

The quotes below highlight how budget priorities and the availability of maintenance and facilities staff were affected:

*“Once the pandemic came, everything changed. We did get money from the state and grant money, but everything was getting dumped into the cleaning. We were the most efficient we’ve ever been. Now, not so much.”*  
 – P12 participant

*“Lack of maintenance [staff] over the previous 2-3 years has caused a backlog of projects that require attention with very little funding.”*  
 – Nonparticipating school

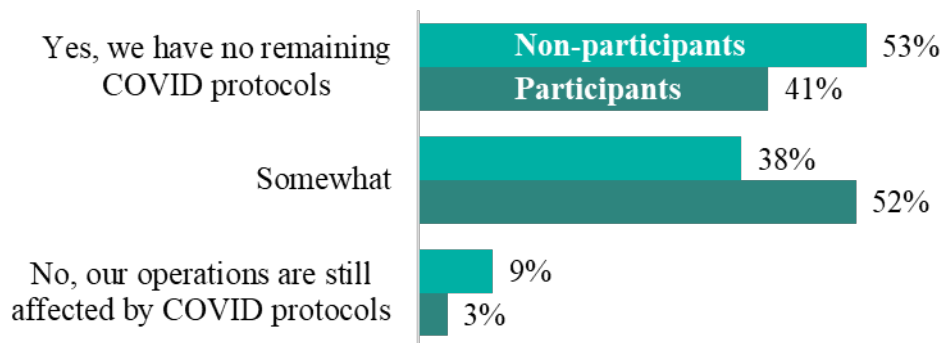
Issues related to COVID-19 seem to be easing up. This is especially true regarding filling vacant positions and retaining maintenance and facilities staff. Twenty-one percent (n=6) of participant respondents noted that their staffing has improved from prior years with COVID-19. The quotes below demonstrate this sentiment.

*“It has greatly improved recently, but a year ago I would have said a 5 (on a scale from 1 to 5)”* – P12 participant

*“During COVID it was a real challenge. It was very difficult at times. I think people are back to work and things are pretty much back to normal.”* – P12 participant

Respondents were split on whether they had entirely removed COVID-19 protocols or whether those protocols were still in place, as highlighted in Figure 10.

**Figure 10: Schools and Remaining COVID protocols**



*Interview/Survey Question: Have school district operations returned to pre-COVID levels?*

While the impacts from COVID-19 appear to have normalized, respondents continued to emphasize the importance of creating healthy and safe learning environments. This may be a key motivator for schools as they decide whether to pursue energy projects.

### 3.4 Impacts on Under-Resourced Schools

The most recent program under the P12 Schools Initiative, the Clean Green Schools Initiative, is only open to under-resourced schools. In addition, the primary focus of the P12 Schools Initiative overall is to target resources towards schools in DACs. Under-resourced schools, as described in Section 2, include schools located in DACs and schools that are designated high need. To better understand this group of schools, the evaluation team examined if under-resourced schools faced different barriers to energy projects, specifically around approvals and funding. For participants, the evaluation team also assessed if the program addressed any unique challenges. In total, the evaluation team engaged 36 (out of 103 respondents) under-resourced schools in this research effort across interviews and surveys. Table 5 shows the distribution across evaluation tasks.

**Table 5: Under-Resourced Respondents by Research Task**

Task	Number of under-resourced schools	Total number of respondents	Percent
Participant interviews ( <i>not including BOCES interview</i> )	7	29	24%
Nonparticipant surveys	25	70	36%
Nonparticipant interviews	4	4	100%
<b>Total</b>	<b>36</b>	<b>103</b>	<b>35%</b>

#### 3.4.1 Unique Barriers to Energy Projects

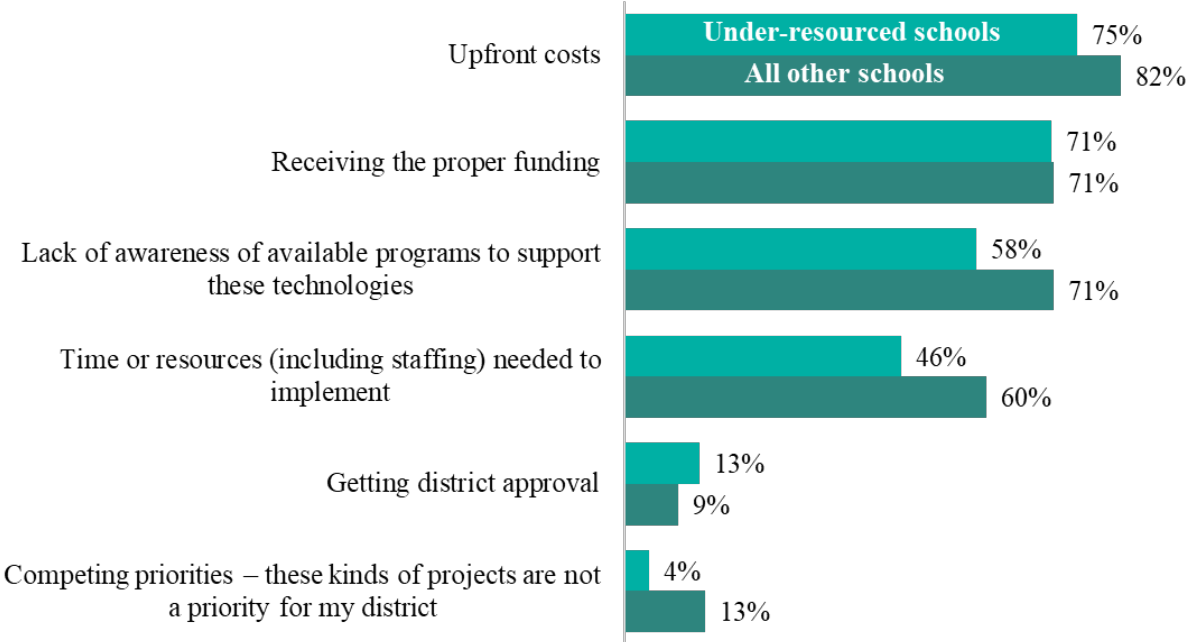
Participating under-resourced schools did not encounter unique barriers to participating in the P12 Schools Initiative, energy projects, or accessing funding compared to other schools and districts. Almost three-quarters (71%, n=5) of participating under-resourced schools did not encounter any barriers to participating in the P12 Schools Initiative, which aligns with the proportion of non-under-resourced schools that did not encounter barriers to program participation (73%, n=16). The evaluation team also found that both under-resourced and non-under-resourced schools experienced similar barriers to energy projects. Of the seven under-resourced participating schools, 43% (n=3) credited the P12 Schools Initiative with helping to address energy project barriers; 47% (n=8) of non-under-resourced schools expressed the same sentiment.

When the evaluation team compared reported barriers between nonparticipating under-resourced and non-under-resourced schools, no significant differences emerged. However, examining high-need schools and DAC schools separately revealed some distinctions. More high-need schools (86%, n=6) faced challenges in securing proper funding for energy projects, compared to non-high-need schools (69%, n=43). Additionally, 86% (n=6) of high-need schools identified time and resource constraints as barriers to implementing energy projects, while only 52%

(n=32) of non-high-needs schools reported the same. These trends, however, did not hold when comparing DAC schools to non-DAC schools.

Refer to Figure 11 for reported barriers among both under-resourced and non-under-resourced schools.

**Figure 11: Nonparticipant Barriers to Energy Projects (Under-resourced vs. All Other Schools)**



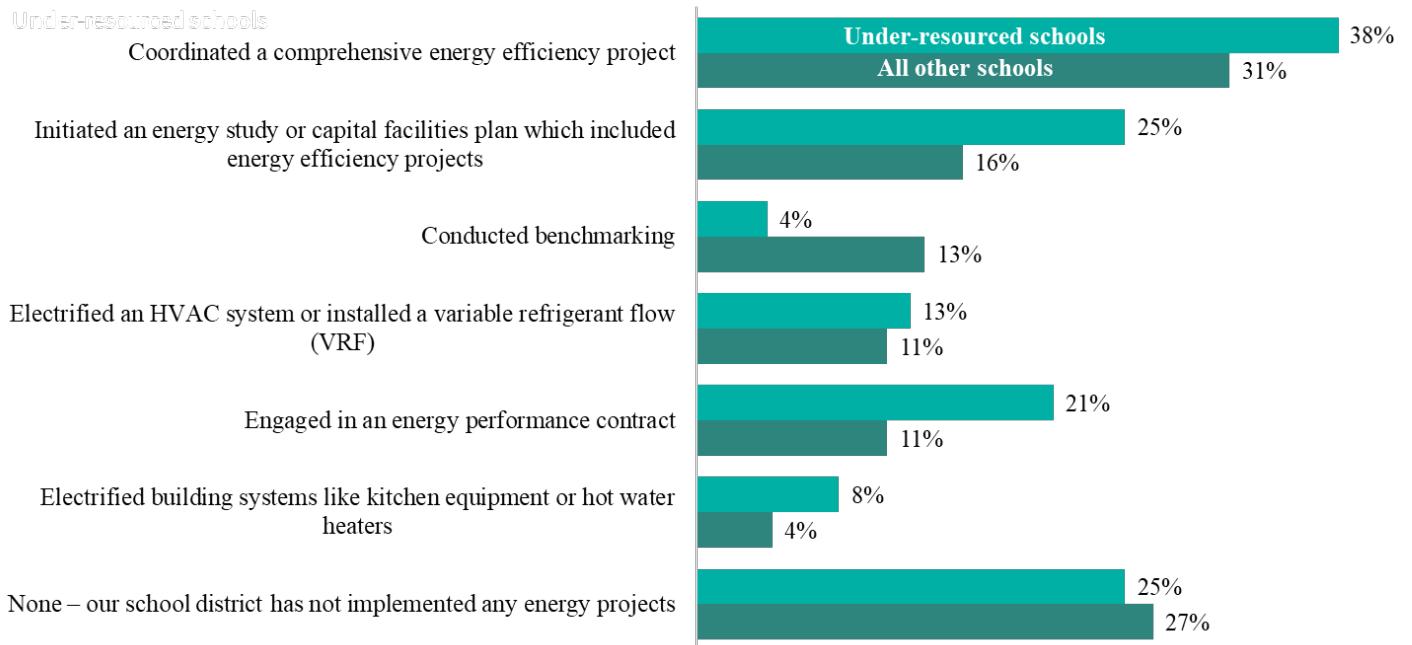
*Survey Question: What barriers, if any, do you encounter with adopting energy efficient or clean energy technologies within your district, more generally?*

**3.4.2 Energy Project & Funding Experience**

Among the seven under-resourced participant schools, 57% (n=4) indicated they did not receive any additional funding, whereas only 22% (n=6) of non-under-resourced schools reported the same. The evaluation team observed no disparities in funding between under-resourced and non-under-resourced schools among nonparticipant survey respondents. The evaluation team did not observe any discernable differences between project completion in under-resourced schools and non-under-resourced schools. The only notable difference was that 25% (n=6) of under-resourced schools expressed uncertainty about their completed projects, compared to 9% (n=4) of non-under-resourced schools.

Under-resourced schools implemented energy projects more often than all other schools, except when it came to conducting benchmarking. Figure 12 below shows the differences between nonparticipating under-resourced schools and those that are not and what energy projects they reported pursuing.

**Figure 12: Nonparticipant Energy Projects Implemented by Under-resourced Schools Compared to All Other Schools**



*Survey Question: Has your school district conducted or implemented any of the following energy projects?*

The evaluation team also looked at the differences in peer networking between under-resourced schools and those that were not and found that there were no significant differences for either participants or nonparticipants.

However, the sample size for under-resourced schools was small across all three research tasks, and therefore all these results should be interpreted with caution. Additional research is needed to fully understand the nuance of under-resourced schools' challenges and unique needs.



## 4 Indirect Benefits Estimation

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<i>Indicator assessed:</i> Number of schools utilizing clean energy case studies to make informed decisions towards future clean energy projects	N=0
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As part of this market evaluation, the market evaluation team assessed the indirect benefits of the suite of NYSERDA P12 Schools Initiative programs. Indirect benefits are savings that can be attributed to the P12 Schools Initiative but are not a direct result of participants and measures they implemented during participation. Indirect benefits are calculated through a combination of direct influence participant adoption, nonparticipant adoption and naturally occurring market adoption. NYSERDA defines these in the Indirect Benefits Evaluation Framework, and these definitions are provided below:<sup>6</sup>

**Direct influence participant adoption:** additional units of adoption by participant end users not associated with the incentives or direct support from NYSERDA.

**Nonparticipant Adoption:** units of adoption by targeted end users who have adopted the technology or practice but have not engaged directly with NYSERDA.

**Naturally Occurring Market Adoption (NOMAD):** market adoption that would have occurred in the absence of a market transformation program. Per the NYSERDA Indirect Benefits Evaluation Framework, the evaluation team used the following formula:

$$NOMAD = (\% \text{ of NY nonparticipating school districts that implemented a measure with no NYSERDA influence} / 2) * \text{total NY nonparticipating school districts}$$

In addition, as part of the indirect benefits assessment and to assess progress on the indicator “number of schools utilizing clean energy case studies to make informed decisions towards future clean energy projects,” the evaluation team asked both participating and nonparticipating schools if they had used clean energy case studies in their decision to pursue energy projects; none said they had.

The results of this process are discussed below, and the full methodology is provided in Section 5.3.

### 4.1 Direct Influence Participant Adoption

Just three participating schools reported installing any additional measures or adopting any practices outside of what was recommended as part of their program participation. These included: energy saving outlet boxes (n=1), adding or unifying controls (n=2), and completing a commissioning report (n=1).

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<sup>6</sup> <https://portal.nyserdera.ny.gov/servlet/servlet.FileDownload?file=00Pt000000HIyBmEAL>

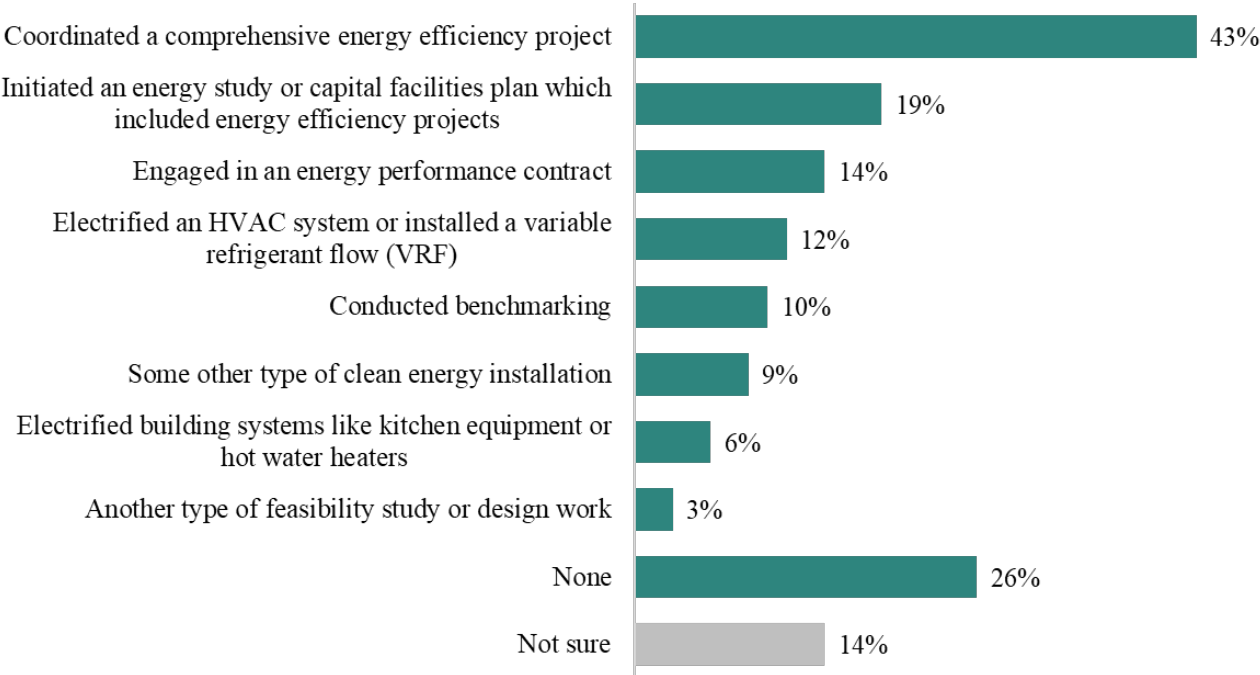
After reviewing the data, the evaluation team determined that one of the interviewed schools had completed a qualifying project: the school that completed a commissioning report. They reported that participating in the P12 Schools Initiative was a “very important” influence in their decision to pursue this action.

**Direct Influence Participant Adoption: n=1**

**4.2 Nonparticipant Adoption**

Of the 70 survey respondents, 60% (n=42) had conducted or implemented some kind of qualifying measure or activity. Again, none had used clean energy case studies as part of their decision-making process to complete these projects. Figure 13 below shows the projects that respondents reported completing at their school or district, the most common responses being coordinating a comprehensive energy efficiency project or initiating an energy study, or capital facilities plan which included energy efficiency projects.

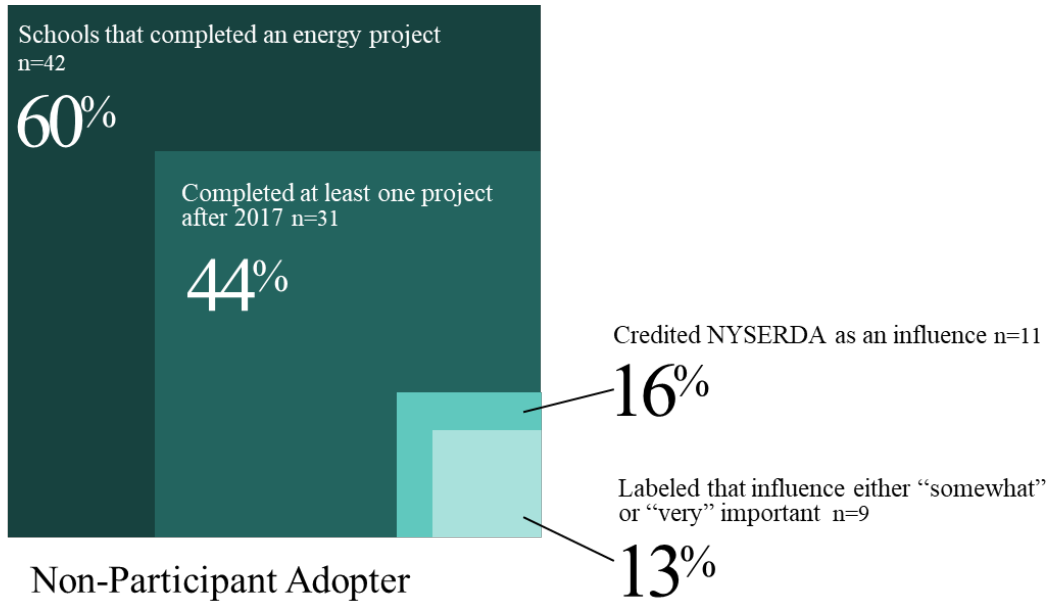
**Figure 13: Nonparticipant Energy Projects**



*Survey Question: Has your school district conducted or implemented any of the following energy projects?*

Next, the evaluation team continued to assess the activities that each nonparticipant completed and determined that nine respondents had completed at least one qualifying action. Figure 14 below shows the numbers and steps associated with that process.

**Figure 14: Nonparticipant Adoption Process**



**Nonparticipant Adoption: n=9**

### 4.3 Naturally Occurring Market Adoption

There were 32 nonparticipating schools out of the 70 respondents that had implemented a measure with no noted NYSERDA influence. Therefore, naturally occurring market adoption was high for both MMBtu and MWh savings. Table 6 below contains descriptions of who was considered a NOMAD.

**Table 6: Naturally Occurring Market Adoption**

Naturally Occurring Determination Factor	Number of Schools
Adopted a practice or implemented a measure prior to 2017	11
Did not list NYSERDA as an influence	19
NYSERDA listed as influence but not labeled as "important"	2
<b>TOTAL NOMAD</b>	<b>32</b>

**NOMAD: n=32**

Other influences (outside of influences associated with NYSERDA) reported by NOMADS included:

- TBC Controls, Inc.
- Viking Solar
- Green Street Power Partners
- Dr Freeze, Inc.
- Agudah
- Wiedersum Architecture
- Siemens
- C&S Companies
- Integra LED
- Local utilities
- New York City regulations that require benchmarking

### 4.4 Unit Energy Benefit (UEB)

To calculate the UEB, the evaluation team applied the UEB developed as part of this evaluation and applied it to the results of the direct influence participant adoption, nonparticipant adoption, and NOMAD estimations.

Table 7 below shows the UEB for both MMBtu and MWh savings.

**Table 7: Unit Energy Benefit Values**

	<b>MMBtu Savings</b>	<b>MWh Savings</b>
UEB (average savings per “unit”)	10,136.66	589.64

Further details on the UEB methodology are in Section 5.3

### 4.5 Results

Due to high naturally occurring market adoption (NOMAD) and minimal influenced adoption from those undertaking projects, the evaluation team determined there are currently no indirect benefits for the P12 Schools Initiative. This section contains a few key conclusions and considerations that provide additional context for this finding.

First, as noted in the P12 Schools Initiative Budgets and Benefits table in the Compiled Investment Plan, indirect benefits are not expected for this program until 2024.<sup>7</sup>

Through mid-2022 (the time period for this evaluation), the P12 Schools Initiative consisted of two separate programs (Benchmarking, Green and Clean Energy Solutions) with unique designs and goals; now, it consists of one program – Clean Green Schools – and the FlexTech funding mechanism. This shifting structure will impact indirect benefits calculations in future evaluations and additional thought work should go into how to account for these changes.

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<sup>7</sup> <https://www.nyscrda.ny.gov/-/media/Project/Nyserda/Files/About/Clean-Energy-Fund/2023-11-01-Clean-Energy-Fund-Compiled-Investment-Plans.pdf>

Additionally, the structure of the programs under the P12 Schools Initiative and the inherent differences between school sizes made applying the established methodology imperfect. NYSERDA is often a hidden actor in this market, and within the P12 Schools Initiative. The current methodology for calculating indirect benefits only allows NYSERDA to claim influence if respondents directly name NYSERDA or specific NYSERDA-affiliated market actors. Therefore, it is likely that this calculation is under-attributing NYSERDA's influence in the market. Reworking the influence constraints in future indirect benefits calculations may more accurately reflect NYSERDA's true role in the market.

In October of 2023, NYSERDA released updated guidelines for calculating indirect benefits. While this was released too far into the evaluation for the evaluation team to take into consideration, the updated guidelines include several changes that will better support indirect benefits calculations for the P12 Schools Initiative in future years.

The full indirect benefits calculation is available in Appendix A.

# 5 Methodology

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This study consisted of four research tasks: participant interviews, nonparticipant surveys, nonparticipant interviews, and an indirect benefits calculation. The data the evaluation team collected in the participant and nonparticipant research tasks informed the indirect benefits calculation. This section contains details on methods for each of these tasks.

## 5.1 Participant Interviews

The market evaluation team conducted interviews with 29 participating schools/districts, and one Boards of Cooperative Educational Services (BOCES). The evaluation team conducted these interviews virtually over Microsoft Teams meetings between April and May 2023. Interviews lasted about 30 minutes and respondents were compensated with a \$50 gift card for their time.

While the evaluation team initially planned to field this research activity as a survey, the team pivoted to in-depth interviews due to two factors: the smaller-than-anticipated sample size and the complexity of individual participation. Many schools or districts had participated in more than one P12 Schools Initiative program, and it was possible for each school/district to have done something different in each program as well. In addition, the evaluation team and NYSERDA were unsure if participants would know NYSERDA or the P12 Schools Initiative by name during recruitment. For these reasons, the evaluation team and NYSERDA decided that in-depth interviews would provide helpful context for understanding each school’s unique participation experience.

Because many participants had not gone through their full program experience yet, the evaluation team, in concert with the P12 Schools Initiative program staff, opted to only include participants that had completed the majority of their program participation cycle – in other words, that had enough experience with the program to speak to it in their participant interview. The final sample for recruitment is below in Table 8.

**Table 8: Participant Sample**

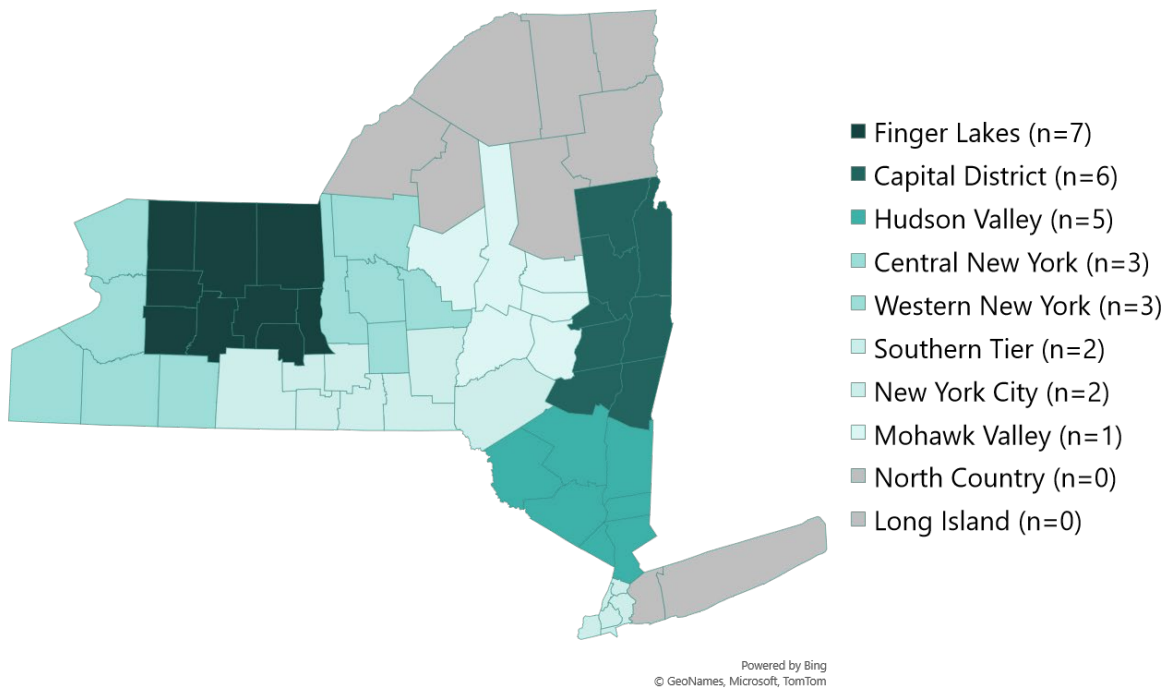
<b>Program Name</b>	<b>Participation Criteria</b>	<b>Sample Size</b>
Benchmarking Program	Participants that have received two or more reports (been enrolled for at least one year)	102
Green and Clean Energy Solutions	Participants that have received a final report	24
FlexTech Participants	Participants that have received a final report	7
Clean Green Schools	Participants that have received a final report	0

The evaluation team completed 30 interviews, which included:

- 22 public school districts
- 5 private schools
- 2 charter schools
- 1 BOCES

Figure 15 below maps interview respondents by region across NYS. As seen in the map, the evaluation team was able to interview participants primarily in central NYS but was unable to reach as many participants in the North Country and downstate.

**Figure 15: Map of Participant Interview Respondents Location by State Region**



The evaluation team also interviewed the Energy Management Coordinator of a BOCES, who worked with multiple participating and nonparticipating schools.

Of the 29 participating schools that the evaluation team interviewed, three were within a DAC and were high need schools. Four of the schools interviewed were high-need schools but were not located within a DAC.

See Appendix A for the interview guide and a table of targeted research objectives, topics, and indicators mapped to interview questions.

## 5.2 Nonparticipant Surveys & Interviews

The market evaluation team fielded a survey to nonparticipating schools and districts between May and June 2023. The survey was fielded online using Qualtrics and took respondents about 15 minutes to complete. Respondents received a \$50 gift card upon survey completion. The evaluation team generated the sample from public contact information in the New York State Education Department database.<sup>8</sup> This sample was a combination of both facilities contacts and superintendent/CEO contacts. Facilities contacts were not available for every school; if available, the evaluation team prioritized the facilities contact for each school or district. However, the disjointed contact data led to inefficient recruitment, and so the evaluation team decided to expand recruitment through three different approaches. The evaluation team 1) emailed contacts with a link to complete the survey, 2) generated an anonymous survey link that was distributed to the New York State Schools Facilities Association email list, and 3) provided the NYSERDA P12 program staff with a QR code to share while tabling at the Association of School Business Officials NYS conference.

The evaluation team received a total of 70 valid completes, which included:

- 25 public school districts
- 38 private schools
- 5 charter schools
- 2 BOCES

Of the 70 nonparticipant respondents, 27% (n=19) were located in a DAC and 13% (n=9) were designated as high need, and one was both located in a DAC and high need.

See Appendix D for the survey guide and a table of targeted research questions, topics, and indicators mapped to survey questions.

To supplement the nonparticipant research effort, the market evaluation team conducted targeted interviews with nonparticipating schools and school districts located in DACs. These interviews, which took place in October 2023, were conducted virtually via Microsoft Teams and lasted 30-45 minutes. Respondents received a \$100 gift card for their time. The evaluation team conducted four interviews, which included:

- 2 private schools
- 2 public school districts

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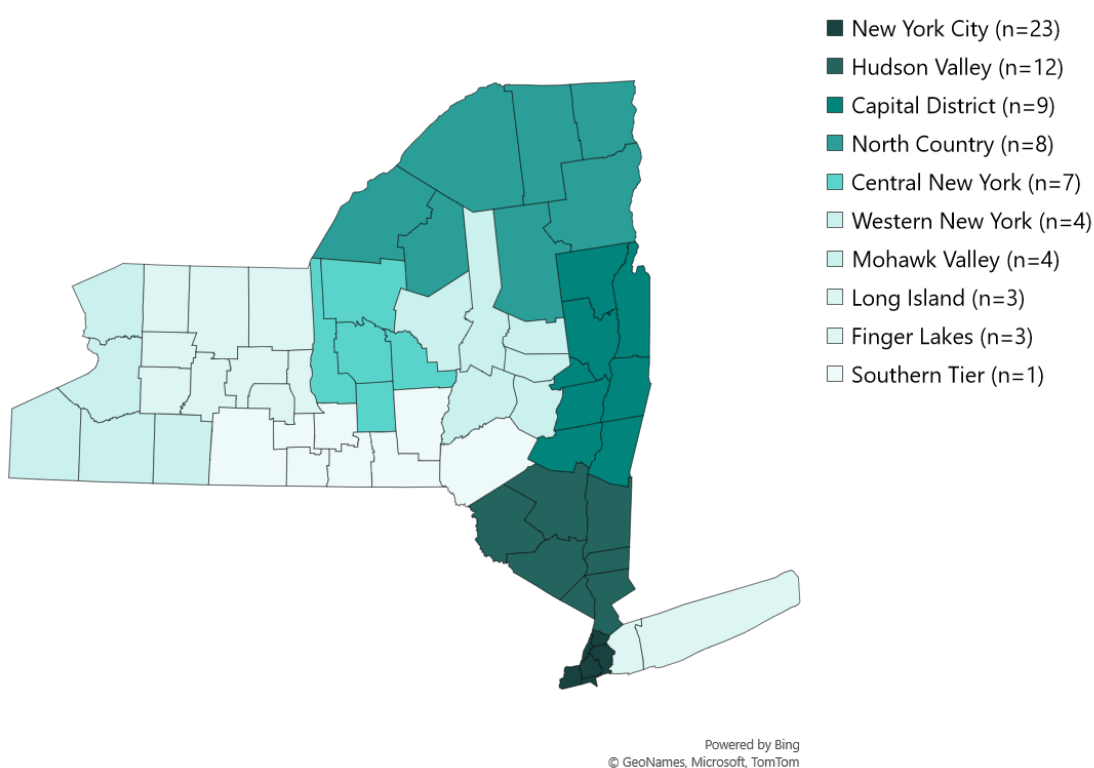
<sup>8</sup> <https://eservices.nysed.gov/sedreports/list?id=1>



See Appendix D for the interview guide and a table of targeted research questions, topics, and indicators mapped to interview questions.

Figure 16 below highlights the geographic distribution of nonparticipant survey and interview respondents by region across New York State. Compared to the geographic distribution of participant respondents, New York City and the Hudson Valley regions are more represented, and the Finger Lakes less so.

**Figure 16: Map of Nonparticipant Respondents Location by State Region**



### 5.3 Indirect Benefits Methodology

To develop a methodology to determine indirect benefits, the market evaluation team used the NYSERDA Indirect Benefits framework and reviewed six published NYSERDA market evaluations to assess how similar programs built their methodology.<sup>9</sup> The evaluation team used these sources as the foundation to create the calculation for indirect benefits.

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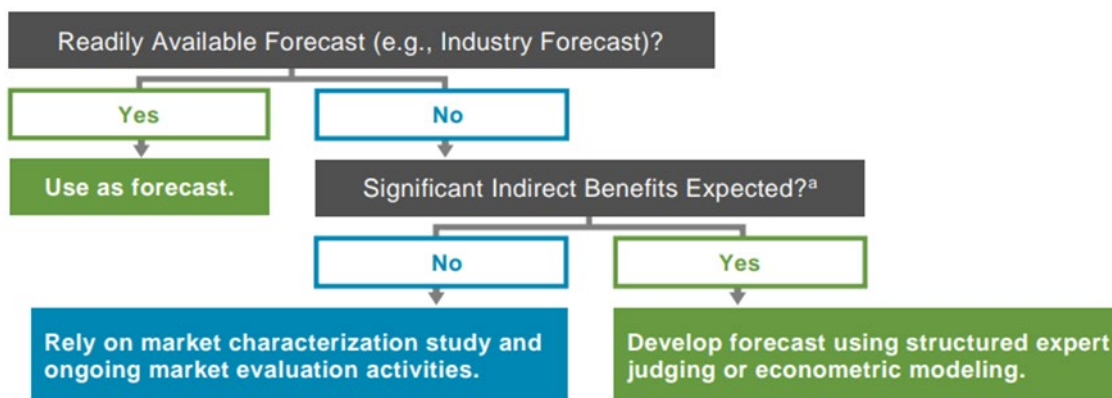
<sup>9</sup> <https://portal.nyscrda.ny.gov/servlet/servlet.FileDownload?file=00Pt000000HIyBmEAL>

The methodology for this calculation aligns with the indirect benefits framework produced by NYSERDA.<sup>10</sup> Below is an outline of steps taken to calculate indirect benefits followed by the overall findings presented by each component of the calculation.

**Step 1: Define measure values:** First, the evaluation team used the NYSERDA Indirect Benefits Framework and prior market evaluations as a foundation for the P12 Evaluation indirect benefits approach. Since the indirect benefits framework provides guidance for multiple initiative structures, the evaluation team adapted the framework to fit the structure of the P12 Schools Initiative. As part of that exploratory process, the evaluation team and the P12 Schools Initiative program staff collaborated to determine appropriate savings values for each measure or action associated with the program.

**Step 2: Estimate baseline conditions:** Per the guidance in the NYSERDA Decision-Making Tree (Figure 17), because there was no readily available forecast and significant indirect benefits were not expected until 2023, the evaluation team will use the results of this study as the baseline.<sup>11</sup>

**Figure 17: NYSERDA Indirect Benefits Framework Baseline Conditions Decision Making Tree<sup>12</sup>**



<sup>a</sup>"Significant" is used here in the context of the total expected benefits for the portfolio.

**Step 3: Assess market adoption and causal influence:** The four components of the indirect benefits calculation—direct influence participant adoption, nonparticipant adoption, naturally occurring market adoption, and unit energy benefits—are defined below:

- **Direct influence participant adoption:** For a participant to have direct adoption outside of direct program involvement, the participant will have to credit NYSERDA and adopt these

<sup>10</sup> <https://portal.nyserdera.ny.gov/servlet/servlet.FileDownload?file=00Pt000000HIyBmEAL>

<sup>11</sup> <https://www.nyserdera.ny.gov/About/Funding/Clean-Energy-Fund>

<sup>12</sup> <https://portal.nyserdera.ny.gov/servlet/servlet.FileDownload?file=00Pt000000HIyBmEAL>

additional units outside of the direct program involvement and adopt them after program involvement has begun.

- **Influenced nonparticipant adoption:** units of adoption by targeted end users (schools) who have adopted the technology or practice but have not engaged directly with NYSERDA. However, these nonparticipants must credit NYSERDA as an important influence in their decision to adopt the technology or practice.
- **Naturally occurring market adoption (NOMAD):** These are nonparticipants that do not meet the criteria for influenced indirect adoption (i.e., nonparticipant adoption).
- **Unit Energy Benefit (UEB):** This value will be derived from the Budgets and Benefits table (BAB) provided to use by NYSERDA. Because the P12 Schools Initiative includes many different measures and practices, the goal is to determine an individual UEB for each measure or practice included in the P12 Schools Initiative programs. The market evaluation team worked with NYSERDA to determine which measures/practices to include in this calculation.

To calculate each component, the evaluation team developed and used the following formulas:

- *Direct Influence Participant adoption* = # of school districts that implemented additional measures after involvement with P12 Schools Initiative.
- *Nonparticipant market adoption* = % NY nonparticipating school districts that implemented an influenced measure \* total NY nonparticipating school districts.
- *NOMAD* = (% of NY nonparticipating school districts that implemented a measure with no NYSERDA influence / 2) \* total NY nonparticipating school districts.

**Step 4: Estimate indirect benefits:** The final formula used to determine indirect benefits is below in Figure 18.

**Figure 18: Indirect Benefits Formula**

$$\begin{aligned}
 & \textit{Indirect benefits} \\
 &= \sum [( \textit{Nonparticipant Adoption} - \textit{NOMAD} ) \\
 &+ \textit{Direct Influence Participant Adoption}]_t * \textit{UEB}
 \end{aligned}$$

The evaluation team first calculated each individual component of the indirect benefits calculation and then decided on overall indirect benefits, described in Section 4.

### **Direct Influence Participant Adoption**

To calculate the direct influence participant adoption, the evaluation team asked participants what additional measures or projects that had been completed outside of the scope of their P12 Program participation. For a measure or action to be considered:

- Must be an installed measure or adopted practice outside of what was a result of program participation.
- Additional measure/action must have been implemented after participating in the P12 Schools Initiative.
- Include their participation in NYSERDA’s P12 Schools Initiative as either a “somewhat” or “very important” factor in their decision to pursuing the additional project.

### **Nonparticipant Adoption**

For a nonparticipant measure or action to count as an indirect impact, it must have included the following:

- A measure or action included as a P12 measure or action.
- Implemented after the start of the P12 Schools Initiative (2017).
- NYSERDA or NYSERDA affiliated consultant credited as an influence on their decision to implement the measure or action.<sup>13</sup>
- Influence is ranked as either “somewhat” or “very” important.

### **Naturally Occurring Market Adoption (NOMAD)**

Naturally occurring market adoption (NOMAD) is any adoption that occurs from nonparticipants that implemented a measure with no NYSERDA influence. The evaluation team calculated this value by looking at schools that had implemented a qualifying measure, but had also:

- Adopted the measure prior to the start of the P12 Schools Initiative (2017).
- Said they were not influenced by NYSERDA or a NYSERDA affiliated consultant.
- Said they were influence by NYSERDA or a NYSERDA affiliated consultant but did not say that it was an important influence.

### **Unit Energy Benefit (UEB)**

To calculate indirect savings, the evaluation team needed to determine a savings value associated with each “unit of adoption.” The unit energy benefit (UEB) is the “energy savings per end user resulting from the adoption of the measure.”<sup>14</sup> The evaluation team worked with P12 Schools Initiative staff to determine a savings value associated with each measure or action incentivized by the P12 Schools Initiative Programs. P12 Schools Initiative staff proposed these savings values, and Table 9 below shows the savings values associated with each measure or action incentivized by P12 Schools Initiative Programs. A full description of the methodology behind determining these values is seen in G.

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<sup>13</sup> A list of NYSERDA affiliated consultants and firms is in Appendix F.

<sup>14</sup> <https://portal.nyserda.ny.gov/servlet/servlet.FileDownload?file=00Pt000000HIyBmEAL>

**Table 9: Measure/actions Included in Indirect Benefits Calculation and Corresponding Savings Values**

<b>Measure/Action</b>	<b>MMBtu Savings</b>	<b>MWh Savings</b>
Conducted Benchmarking	n/a	98.6
Initiated an energy study or capital facilities plan which included energy efficiency projects	6,650.93	471.71
Coordinated a comprehensive energy efficiency project, such as a LED lighting, building envelope, efficient HVAC, controls and/or air sealing project.	6,650.93	471.71
Engaged in an energy performance contract	6,650.93	471.71
Electrified an HVAC system, such as installing a heat pump (either ground source or air source) or installing a variable refrigerant flow (VRF)	6,505	n/a
Electrified building systems like kitchen equipment or hot water heaters	1,574	n/a
Some other type of clean energy installation, feasibility study, or design work	6,650.93	471.71

After compiling the data and collaborating with P12 Schools Initiative staff to determine savings values for each measure/action, the evaluation team decided to calculate the overall indirect benefits based on each school or district as the “unit of adoption”, rather than individual measures. This decision was made because the P12 Schools Initiative does not target specific measures to be installed, but rather is a market transformation program designed to raise school awareness of utility programs, implement projects overall, access information, increase NYSERDA program participation, and overall reduce energy use, costs, and carbon emission sector wide.

To calculate the UEB, the evaluation team took an average of savings across nonparticipating schools that had implemented a measure or action that was influenced by NYSERDA to be the “per unit” savings. Table 10 below shows the average savings the evaluation team determined to be associated with each unit.

**Table 10: Unit Energy Benefit Values**

	<b>MMBtu Savings</b>	<b>MWh Savings</b>
UEB (average savings per “unit”)	10,136.66	589.64

However, due to the varying sizes and numbers of buildings in different schools and districts as well as the numerous measures and actions incentivized by the program, it was difficult to determine a universally applicable UEB. The evaluation team believes that a re-evaluation of this methodology for initiatives like the P12 Schools Initiative is needed to more accurately represent the indirect benefits associated with the relevant programs. This is discussed this more in the Section 4.5.