

Climate Pollution Reduction Grants Program Priority Climate Action Plan

for New York State

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Introduction

The New York State Department of Environmental Conservation (NYS DEC), the New York State Energy Research and Development Authority (NYSERDA), and the New York State Department of State (NYS DOS) have partnered to develop this Priority Climate Action Plan pursuant to the United States Environmental Protection Agency (EPA) Climate Pollution Reduction Grants Program. The measures contained herein should be construed as broadly available to any entity in the State eligible for receiving implementation funding under the Climate Pollution Reduction Grants Program and other funding streams, as applicable.

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Acknowledgements

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First and foremost, we appreciate the contributions and feedback from the local government and community representatives that participated in the stakeholder engagement webinars hosted by New York State.

In addition, we are grateful for the collaborative partnerships we developed with the individuals and organizations in the metropolitan statistical areas in New York State that are also participating in this EPA program.

We also thank Energy + Environmental Economics (E3) for their work to support the analyses contained within this report.

Lastly, we would like to thank the overwhelming number of New York State staff that contributed to this effort. Their work ensured that New York State is prepared to pursue important opportunities from the EPA.

Acronyms and Abbreviations

CCAP	Comprehensive Climate Action Plan
CEJST	Climate and Economic Justice Screening Tool
Climate Act	Climate Leadership and Community Protection Act
CH ₄	methane
CO ₂	carbon dioxide
CO ₂ e	carbon dioxide equivalent
CPRG	Climate Pollution Reduction Grants
ECL	Environmental Conservation Law
EPA	United States Environmental Protection Agency
EPC	energy performance contractor
ESD	Empire State Development
FSC	Founding Steering Committee
GHG	greenhouse gas
GWP	global warming potential
HFC	hydrofluorocarbon
IRA	Inflation Reduction Act
LIDAC	low-income and disadvantaged community
MMT	million metric ton
MSA	metropolitan statistical area
N ₂ O	nitrous oxide
NF ₃	nitrogen trifluoride
NH ₃	ammonia
NO _x	nitrogen oxides
NYS DEC	New York State Department of Environmental Conservation
NYSERDA	New York State Energy Research and Development Authority
NYS DOS	New York State Department of State
NYS HCR	New York State Homes and Community Renewal
NYS OGS	New York State Office of General Services
OJT	on-the-job training
PCAP	Priority Climate Action Plan
PFC	perfluorocarbon
PM _{2.5}	fine particulate matter
SF ₆	sulfur hexafluoride
SO ₂	sulfur dioxide
SO _x	sulfur oxides
The Council	New York State Climate Action Council
UNFCCC	United Nations Framework Convention on Climate Change
WRRF	water resource recovery facility
VMT	vehicle miles traveled
VOC	volatile organic compound

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1 The Climate Pollution Reduction Grant Process

In March 2023, the U.S. Environmental Protection Agency (EPA) announced the Climate Pollution Reduction Grants (CPRG) program, a \$5 billion grant program for states, local governments, tribes, and territories to develop and implement climate action plans for reducing greenhouse gas (GHG) emissions and harmful air pollutants (co-pollutants) from all sectors of the economy. This two-phase program was authorized under the Inflation Reduction Act (IRA) of 2022 and includes a non-competitive planning grant phase and a competitive implementation grant phase. In order to be eligible to compete in the \$4.6 billion implementation grant phase, applicants must fall within a jurisdiction that has been awarded a planning grant and completed the applicable deliverables.

The New York State Department of Environmental Conservation (NYS DEC), in close coordination with the New York State Energy Research and Development Authority (NYSERDA) and the New York State Department of State (NYS DOS), applied for and received a \$3 million planning grant under the first phase of the CPRG program in September 2023. NYS DEC, NYSEERDA, and NYS DOS immediately began work to complete the first deliverable required under the planning grant, this Priority Climate Action Plan (PCAP). The following sections will describe the State's process for developing the PCAP and the overall context of climate action in New York State.

1.1 CPRG Overview

The CPRG planning grant requires that grantees develop three deliverables: a PCAP; a Comprehensive Climate Action Plan (CCAP) due in 2025; and a Status Report due in 2027 at the end of the award period.

The submission of this document serves to fulfill the PCAP deliverable requirement and will serve as the basis of New York State's application(s) to the implementation grant phase of the program. It is also available to any entity in the State eligible for receiving implementation funding under the CPRG or other federal grant program, as applicable.

1.2 PCAP Overview and Scope

The core of the New York State PCAP is a list of high-priority, implementation-ready GHG emission reduction measures that will have a transformative impact in the near-term. These measures are intended to cover the entire geographic boundary of the State but may be implemented statewide or regionally. This PCAP contains several elements that provide context and background for the selection of those measures, the measures themselves, and several analyses of those measures. The elements of this PCAP are listed below.

- GHG Emissions Inventory
- GHG Reduction Targets
- Priority GHG Reduction Measures
 - Estimated Emissions Reductions
 - Review of Authority to Implement Measures
 - Other Funding Sources¹

¹ Other funding sources include State and federal sources. State programming is subject to availability of funds and is based on factors such as annual budget appropriations or regulatory proceedings of the Public Service Commission.

- Direct Jobs Created
 - Co-Benefits
- Low-Income and Disadvantaged Communities (LIDAC) Benefits Analysis
- Workforce Planning Analysis

2 The New York Context

New York has and continues to set international precedent for action to address climate change. For many years, New York has recognized the complexity of an economywide transition and the imperative need to act to mitigate the worst impacts of climate change. Through legislative, regulatory, and programmatic actions, New York has developed a path forward to realize the transformation to a green economy. New York also recognizes the well-established fact that to address climate change in a meaningful way, partners need to work together toward a common goal. Several strategies critical to New York’s plan involve leveraging opportunities that arise from the federal government, including grant programs such as CPRG.

2.1 New York’s Climate Leadership

In January 2020, the nation-leading Climate Leadership and Community Protection Act (Climate Act) took effect in New York. The Climate Act built upon existing policies, codifying actions to meet ambitious clean energy targets and reduce GHG emissions, as seen in the call-out box below. The Climate Act also requires that New York-designated disadvantaged communities² receive at least 35% of the overall benefits of spending on clean energy and energy efficiency programs, with a goal of 40%.

Implementation of the Climate Act necessitates an all-hands-on-deck approach across State government, with input from a broad array of stakeholders, advisors, and experts. It also requires significant regulatory action by NYS DEC, the New York State Public Service Commission, and many other State agencies and authorities.

Climate Act Directives

- 40% reduction in GHG emissions by 2030
- 85% reduction in GHG emissions by 2050
- 70% renewable energy by 2030
- 100% zero-emission electricity by 2040
- 6,000 MW of solar by 2025
- 3,000 MW of energy storage by 2030
- 9,000 MW of offshore wind by 2035
- 185 trillion Btu of end-use energy savings

The Climate Act required New York State to establish a 22-member Climate Action Council (Council), consisting of the heads of 12 State agencies, as well as members appointed by the Governor and the New York State Legislature. The Council was charged with the development of a Scoping Plan, finalized in December 2022, that recommended actions the State should take to achieve its emission reduction directives. The Council established several Advisory Panels to inform the Council on particular sectors, including waste, transportation, energy-intensive and trade-exposed industries, land use and local government, energy efficiency and housing, agriculture, and forestry. The Scoping Plan was built upon contributions from the Advisory Panels, as well as a Just Transition Working Group and a Climate Justice Working Group. More than 90 public meetings were held by the Advisory Panels to develop recommendations to meet the State’s ambitious climate requirements and goals. These recommendations informed the analysis of mitigation strategy scenarios, which provided data on the emissions reductions and societal costs and benefits expected from different strategy options. The process included the issuance

² As required by the Climate Act, the Climate Justice Working Group developed criteria to identify disadvantaged communities in New York State. Final criteria were adopted in March 2023. EPA requires that implementation grant applicants use EPA’s definition of disadvantaged communities as described in the Notice of Funding Opportunity when discussing the benefits to such communities. More information can be found in the *Low-Income and Disadvantaged Communities Benefits Analysis* section.

of a draft Scoping Plan on December 30, 2021, much of which was informed by the recommendations developed by the Advisory Panels. The release of the draft plan initiated a six-month public comment period. To ensure New Yorkers had the opportunity to provide input on the draft plan, NYS DEC and NYSERDA launched an ambitious public engagement process. After hearing testimony at 11 public hearings across the State and receiving more than 35,000 written comments, the Council considered this feedback, collected further analytical information, and consulted with the Climate Justice Working Group in the development of the final Scoping Plan.

2.2 Leveraging the Scoping Plan

The Scoping Plan provides nearly 600 recommendations for both sector-specific and economywide actions to achieve the Climate Act's goals and requirements, including GHG emission reduction requirements. New York's climate action strategy is fundamentally driven by the need to deliver on climate mitigation, social justice, economic opportunity, and long-term job opportunities for New Yorkers. This includes prioritizing reductions of both GHGs and co-pollutant emissions in disadvantaged communities. The Scoping Plan also includes a comprehensive, science-based Integration Analysis of the benefits and costs of the recommendations that the Advisory Panels provided during the process. The Integration Analysis examined several pathways, or scenarios, New York State could take to achieve the GHG emission limits required pursuant to the Climate Act, governed by foundational principles of ensuring reliability of the energy system as fundamental to New Yorkers' welfare, safety, and prosperity and the overall cost-effectiveness of the approaches.

The CPRG program requires grantees to develop both priority and comprehensive climate action plans that will result in significant GHG emission reductions, provide new workforce opportunities, and effectively address environmental injustices in disadvantaged communities. New York's existing Scoping Plan served as the foundation for specific measures that have been analyzed and included in this PCAP.

As the Scoping Plan and the climate action plans that will be developed through the CPRG program are aligned in many ways, New York is in a position to leverage much of the work it has already undertaken over the past several years. As discussed in the *Coordination and Engagement* section below, the Scoping Plan process brought together key New York State agencies and stakeholders to work collaboratively on achieving the Climate Act requirements. NYS DEC utilized this existing interagency coordination and leveraged existing bodies, including an Executive Steering Committee, to discuss measure-selection collaboratively across multiple State agencies. Using the guidance for both the CPRG planning grants and the subsequently released Notice of Funding Opportunity for CPRG implementation grants, agencies made strategic decisions on what to include in this PCAP to ensure the measures best align with the CPRG program and overall State objectives. Additional detail on the selection process is included in the *Priority GHG Reduction Measures* section below.

2.3 Coordination and Engagement

As mentioned in the *Introduction*, NYS DEC, NYSERDA, and NYS DOS partnered to develop this PCAP. This interagency group met on a weekly basis at a minimum and collaborated on all materials and deliverables required to complete this report.

The CPRG planning grant and this PCAP require several additional levels of coordination and engagement. NYS DEC, NYSERDA, and NYS DOS all conducted coordination and

engagement with various stakeholders, including intergovernmental coordination among State entities, metropolitan statistical areas (MSAs), local governments, and Indigenous Nations, as well as engagement with representatives of LIDACs in New York.

State Entities

Climate change, and the policy development required to address it, present a unique need and opportunity for interagency collaboration at the State level. The Council that was established as part of the Climate Act was co-chaired by NYS DEC and NYSERDA, and included agency heads from NYS DOS, New York State Departments of Agriculture and Markets, Transportation, Labor, and Health, as well as agency heads from the New York State Public Service Commission, New York Power Authority, Empire State Development (ESD), New York State Homes and Community Renewal (NYS HCR), and Long Island Power Authority. NYS DEC leveraged the ongoing collaborative efforts at the State level to conduct one-on-one outreach with each of these agencies. The timeline and pace of the CPRG program made it necessary to begin engagement before there was a clear understanding of the full scope of the program. New York was able to meet this challenge by using the Scoping Plan as a starting point to develop a series of potential measures. As the scope of the program became clearer, particularly with the release of the implementation grant opportunity, measures were refined and filtered to best align with the program. Additional detail on how the measures for this program were selected is discussed in *Priority GHG Reduction Measures* below.

Metropolitan-Statistical Areas

Coordination and collaboration with the CPRG planning grant recipients representing the MSAs was essential to ensure that all entities develop complementary PCAPs that would ultimately achieve the goal of reducing climate pollution in communities across New York State. The MSA planning grant recipients in New York State are the Rochester, Buffalo-Cheektowaga, Albany-Schenectady-Troy, and New York-Newark-Jersey City MSAs, led by the Genesee/Finger Lakes Regional Planning Council, Greater Buffalo Niagara Regional Transportation Council, Capital District Regional Planning Commission, and New York City Economic Development Corporation, respectively. Though not awarded a CPRG planning grant, representatives from the Syracuse MSA were also engaged to ensure that the planning efforts were coordinated and that the State's PCAP included measures that would align with the priorities of the major metropolitan areas in New York State.

The multi-agency State team met monthly with the lead agencies for the MSAs beginning in April 2023 and then with greater frequency starting in December 2023 as the priority measures became further developed. These meetings ensured that all parties shared information, provided mutual support where possible, and collaborated on outreach to local governments and the public.

Local Governments

The PCAP is built on the substantial community engagement conducted during the development of the Scoping Plan to implement the Climate Act, as described in *New York's Climate Leadership* above. The recommendations in the Scoping Plan, informed by vast community and stakeholder engagement, strongly positioned New York to begin developing the PCAP.

In November 2023, the State facilitated a series of webinars for local government stakeholders, primarily municipal leaders and staff, as municipalities are potential applicants under CPRG. The State utilized existing municipal climate action networks, such as the Climate Smart Communities and Clean Energy Communities, to solicit input of the development of the State PCAP. Each webinar was region-specific and coordinated with the CPRG planning grant recipients leading the development of the MSA PCAPs, if applicable. The webinars included an overview of New York's previous climate planning work, including the Scoping Plan, an introduction to the CPRG program and the PCAP, a live poll, and a post-webinar survey that asked attendees to gauge the importance of potential PCAP measures on reducing GHG emissions in the attendees' respective communities. Attendees were asked about 22 different measures across multiple sectors, including Transportation, Electric Power, Buildings, Waste and Materials Management, Agriculture, and Natural and Working Lands, all of which were linked to a Scoping Plan recommendation. Across the six webinars, there were 128 attendees and more than 80 survey participants.

The State used feedback from these webinars to help prioritize the 22 measures and determine which best aligned with the PCAP guidance for near-term, high-priority, and implementation-ready measures. This process resulted in the identification of nine measures from the Transportation, Waste and Materials Management, Natural and Working Lands, and Buildings sectors. These measures and the preliminary analysis regarding GHG emissions reduction, benefits to LIDACs, environmental benefits, and cost-effectiveness were presented to local government stakeholders at a series of webinars in January 2024. Like the November 2023 webinars, these webinars were region-specific and coordinated with the CPRG planning grant recipients leading the development of the MSA PCAPs. Municipal officials and staff then provided feedback on the State's proposed PCAP measures, municipal interest in the measures, and the impact of those measures on LIDACs in a survey sent to all webinar registrants.

Indigenous Nations

There are eight federally recognized tribes in New York State, and nine New York State recognized Nations. NYS DEC recognizes that New York State has a unique relationship with each of these Nations, and how and when NYS DEC interacts with these Nations on subjects related to natural resources, cultural resources, and subsistence resources is described in agencywide Commissioner Policy 42: Contact, Cooperation, and Consultation with Indian Nations. This policy, in part, formally recognizes that relations between NYS DEC and Indian Nations will be conducted on a government-to-government basis.

NYS DEC also established its first-ever Office of Indian Nation Affairs to lead efforts on government-to-government consultation. Office of Indian Nation Affairs staff was engaged in the CPRG process to ensure that the appropriate consultation was being conducted in relation to this PCAP. NYS DEC staff leveraged an existing Indian Nation leadership meeting in November 2023 to present and open discussion on the CPRG program for any Nation that may be interested in utilizing the State PCAP for implementation funds.

Disadvantaged Communities

The multi-year Scoping Plan development process sought input from disadvantaged communities and related stakeholders in a variety of ways, including through the Climate Justice Working Group. This input was incorporated into the recommendations in the Scoping Plan,

which form the basis of the measures discussed in this PCAP. In addition to this previous stakeholder input, New York State conducted its CPRG engagement with existing, compensated stakeholder groups that represent and/or serve disadvantaged communities. The State engaged with the NYSERDA Energy Equity Collaborative Founding Steering Committee (FSC) on three occasions between October 2023 and January 2024. The Energy Equity Collaborative FSC provides a coordinated forum for community-based organizations that are representative of or principally serve historically marginalized communities and the State to work together to address energy equity and climate justice issues and develop equitable programs. The Collaborative includes participation from other New York State agencies and representatives from LIDAC Community-Based Organizations in urban, suburban, and rural areas; organized labor; environmental groups; and indigenous nations.

The first meeting introduced the Energy Equity Collaborative FSC to the CPRG opportunity (October 2023). The second meeting (November 2023) sought Energy Equity Collaborative FSC input on which measures they might like to see in New York State's PCAP. The third meeting (January 2024) focused on sharing initial results of the PCAP analyses and ensuring the specific scopes of measures would result in meaningful benefits to disadvantaged communities. Following the January meeting, attendees were invited to participate in an online survey to provide additional input beyond what was possible during the meeting, including specifics on how measures may be scoped to ensure that benefits accrue to LIDACs. Energy Equity Collaborative FSC members were eligible for compensation for all time spent reviewing materials, attending meetings, and filling out surveys.

2.4 GHG Inventory

NYS DEC is required to release an annual report on statewide GHG emissions from all sources in the State, including the relative contribution of each type of source to the statewide total, as a measure of progress toward reaching the Climate Act's emission reduction directives. The most recent report was released in December 2023 and covers the years 1990 through 2021 and is being utilized for this element of the PCAP. Details on the data, methods, and historical trends are provided in the report.³

The Climate Act requirements for GHG emissions accounting differ in two important ways from the conventional format developed for parties to the United Nations Framework Convention on Climate Change (UNFCCC). First, GHG emissions must be measured in terms of carbon dioxide equivalent (CO₂e) using a 20-year global warming potential (GWP) rather than a 100-year GWP. This results in a higher numeric value for some gases, such as methane (CH₄), even if the emission rate is the same. Secondly, the Climate Act requires the inventory to include out-of-state GHG emissions associated with imported electricity and the extraction and transmission of imported fuels. This expands the scope of GHG emission sources typically included in governmental GHG reduction goals and inventories. The UNFCCC format typically used by governments accounts only for in-state emission sources, uses a 100-year GWP, and does not include biogenic carbon dioxide (CO₂) emissions. A comparison of these formats is shown in Table 1.

³ New York State Department of Environmental Conservation. 2023. 2023 Statewide GHG Emissions Report. Albany, NY. Accessed at: <https://dec.ny.gov/environmental-protection/climate-change/greenhouse-gas-emissions-report>.

Table 1. Comparison of GHG Emission Accounting Formats

	Climate Act Format	UNFCCC Format
Emissions Scope	In-state sources, imported electricity and fossil fuels, exported waste	In-state sources only
Gross versus Net	Gross and Net totals	Net totals are used, but gross emissions are also reported
Global Warming Potential	20-year GWP	100-year GWP

NYS DEC hosts a complete dataset with detailed emissions totals on the [Open NY Data Portal](#). The inventory provided in this section (Table 2) includes economywide GHG emissions and sinks⁴ for CO₂, CH₄, nitrous oxide (N₂O), hydrofluorocarbons (HFC), perfluorocarbons (PFC), sulfur hexafluoride (SF₆), and nitrogen trifluoride (NF₃), and is presented in the UNFCCC format.

Table 2. 2021 New York State Emissions by Economic Sector (MMT CO₂e 100-year GWP)

Economic Sector	CO₂	CH₄	N₂O	HFCs	PFCs	SF₆	NF₃	Total
Agriculture	0.18	6.65	2.20	-	-	-	-	9.04
Livestock	-	6.65	0.37	-	-	-	-	7.02
Soil Management	0.18	-	1.83	-	-	-	-	2.02
Buildings	54.34	0.48	0.09	8.23	-	-	-	63.13
Fuel Combustion	54.34	0.48	0.09	-	-	-	-	54.91
Product Use	-	-	-	8.23	-	-	-	8.23
Electricity	25.00	0.02	0.05	-	-	0.20	-	25.27
Electricity Transmission	-	-	-	-	-	0.20	-	0.20
Fuel Combustion	25.00	0.02	0.05	-	-	-	-	25.07
Industry	11.61	4.95	0.28	0.00	0.13	0.00	0.02	16.99
Electronics Industry	-	-	0.02	0.00	0.11	0.00	0.02	0.15
Fuel Combustion	8.50	0.02	0.03	-	-	-	-	8.55
Fugitive Emissions	0.10	4.93	0.00	-	-	-	-	5.03
Metals	0.32	0.00	-	-	0.03	-	-	0.35
Minerals	1.82	-	-	-	-	-	-	1.82
Other Fossil Fuel Use	0.87	-	-	-	-	-	-	0.87
Product Use	-	-	0.22	-	-	-	-	0.22
Net Emissions	(33.17)	0.70	-	-	-	-	-	(32.47)
Aggregated Sources	(1.45)	-	-	-	-	-	-	(1.45)
Land	(31.72)	0.70	-	-	-	-	-	(31.03)
Transportation	61.71	0.15	0.42	1.22	-	-	-	63.50
Fuel Combustion	61.71	0.15	0.42	-	-	-	-	62.28
Product Use	-	-	-	1.22	-	-	-	1.22
Waste	1.53	7.37	0.55	-	-	-	-	9.45
Solid Waste Management	-	6.49	-	-	-	-	-	6.49
Waste Combustion	1.53	0.02	0.03	-	-	-	-	1.59
Wastewater	-	0.85	0.52	-	-	-	-	1.37
Total	121.21	20.32	3.59	9.45	0.13	0.20	0.02	154.91

⁴ Carbon “sinks” are resources that absorb or sequester carbon dioxide from the atmosphere and are reflected in the Net Emissions category in Table 2. Net Emissions also include a small amount of CH₄ and N₂O from forest fire.

2.5 GHG Reduction Targets

The Climate Act established statewide GHG emission limits, requiring a 40% reduction in statewide GHG emissions from 1990 levels by 2030 and an 85% reduction in statewide GHG emissions from 1990 levels by 2050. The Climate Act also establishes a goal of net zero emissions across all sectors of the economy by 2050. As required by the Climate Act, NYS DEC promulgated 6 NYCRR Part 496 to translate these percentage reduction requirements into two statewide limits for 2030 and 2050, expressed in CO₂e. Using a 20-year GWP and including out-of-state GHG emissions associated with imported electricity and the extraction and transmission of imported fuels as required by the Climate Act, the statewide GHG emission limit is 245.87 million metric tons (MMT) of CO₂e for 2030 and 61.47 MMT CO₂e for 2050.

3 Priority GHG Reduction Measures

New York State is positioned to act quickly on GHG emission reduction measures. With a strong legislative and regulatory framework from the Climate Act and other climate-related programs and policy, the CPRG and other relevant programs provide an opportunity to leverage the unprecedented levels of federal funding available to support climate action and the realization of a just transition in New York.

The Scoping Plan is one of the most ambitious climate change mitigation plans in the world and distinguishes New York as a climate leader. It outlines a variety of regulatory and legal changes, market mechanisms, and technologies essential to achieving the goals and requirements of the Climate Act. It pairs all of these recommendations with various outreach and education initiatives and lays a foundation for action.

This is built upon decades of climate leadership. The implementation of these recommendations and strategies have been guided by past successes and informed by lessons learned in New York as well as in other jurisdictions. New York has identified key priorities to achieve the requirements laid out in the Climate Act and has been taking steps to implement those priorities.

The priority GHG emission reduction measures identified in this PCAP do not reflect the entire scope of climate priorities that New York State has identified and is implementing. The measures selected here have been strategically chosen based on the requirements of the CPRG program and the feedback from stakeholder engagement processes related to the CPRG program. The measures were selected for the purpose of applying for federal implementation grant funding.

The analyses included in this PCAP are based upon EPA requirements and guidelines, which in some cases differ from New York State requirements established pursuant to the Climate Act. This includes New York State requirements regarding the accounting methodology used for GHG emissions. Readers are advised that because of this, certain results and recommended strategies for the CPRG program will differ from the strategies recommended in the existing Climate Action Council Scoping Plan.

The selection process for the priority GHG reduction measures contained in this plan was based on a number of factors, including alignment with the goals of the CPRG program:

- Recommendations in the 2022 final Scoping Plan
- Measures that would achieve the highest impact in the near-term (before 2030)
- Implementation readiness
- Local government and disadvantaged community stakeholder input
- Greatest GHG emissions contributions by sector
 - Buildings, transportation, and waste sectors make up 68% of statewide emissions under New York State accounting and 73% under UNFCCC accounting⁵
- Most significant funding gaps

⁵ New York State Department of Environmental Conservation. 2023. 2023 Statewide GHG Emissions Report. Albany, NY. Accessed at: <https://dec.ny.gov/environmental-protection/climate-change/greenhouse-gas-emissions-report>.

Each of the measures detailed in this section would achieve significant GHG and co-pollutant emissions reductions in the near-term and provide benefits to LIDACs. Each measure is applicable statewide but may be implemented on a statewide or regional basis.

The following sections describe the nine priority GHG emission reduction measures selected for this PCAP. Pursuant to the CPRG planning grant requirements, the State scoped specific example programs that align with these measures and conducted quantitative and qualitative analyses for each. The scopes, analyses, and outcomes discussed below are illustrative of types of programs or projects that align with the PCAP measures. However, these measures should be interpreted broadly by eligible applicants under the CPRG program or other relevant federal grant programs to allow for other programs or projects that may have different scopes and outcomes. Similarly, the quantified impacts of each measure were derived based on a variety of assumptions, including assumptions about the scale and scope of an example program. Certain assumptions, such as those used in GHG emissions accounting and the disadvantaged community geographies, were developed according to requirements of the CPRG program and do not align with New York State’s Climate Act methodology and definition. In addition, the assumptions used in this document may not align with assumptions used in the CPRG Implementation Grants submitted by New York State or other eligible entities that reference this PCAP. For more information on key assumptions behind the calculations provided in *Section 3. Priority GHG Reduction Measures*, see *Appendix A. PCAP Analysis Assumptions*.

3.1 Electrify Public Sector Medium- and Heavy-Duty Vehicles and Off-Road Equipment

This measure would support the electrification of public sector fleets, with a particular focus on medium- and heavy-duty vehicles and offroad equipment, such as landscaping and construction equipment. This measure would prioritize vehicles that are housed and primarily used in disadvantaged communities census tracts to reduce air and noise pollution. In addition, the State will evaluate opportunities to pair investment in public fleets in areas that are developing smart growth land use processes to ensure that as vehicle miles traveled (VMT) are reduced, the remaining vehicles on the road are clean, electric, and serve public purposes. Table 3 provides the sector, implementing agency, GHG and co-pollutant emission impacts, jobs impacts, and related funding for this measure.

Table 3. Municipal Fleet Measure Specifics

Sector	Transportation	
Implementing Agency	NYSERDA, New York State Office of General Services	
GHG Emission Reductions (MMT CO ₂ e 100-year GWP)	2025-2030: 0.10	2025-2050: 2.29
Co-Pollutant Emission Reductions (Metric tons)	Overall: <ul style="list-style-type: none"> • 68.5 NH₃ • 2319.6 NO_x • 73.1 PM_{2.5} • 29.8 SO₂ • 100.1 VOC 	LIDAC: <ul style="list-style-type: none"> • 28.1 NH₃ • 950.6 NO_x • 30 PM_{2.5} • 12.2 SO₂ • 41 VOC
Direct Jobs Created	Overall: 105	LIDAC: 43

<p>Other Funding Sources</p>	<p>Direct Federal Funding</p> <ul style="list-style-type: none"> • Qualified Clean Commercial Vehicle Tax Credits (45W) • EV Charging/Alternative Fuel Tax Credit (30C) <p>Direct State Funding</p> <ul style="list-style-type: none"> • Charge Ready NY 2.0 <p>In addition to the federal funding sources identified above, New York will explore funding as a part of the IRA Clean Heavy Duty Vehicle Program. Additional information on that program is expected in Spring 2024.</p> <p>Although the State’s existing medium- and heavy-duty funding programs will expire before the start of the implementation grant, the funding provided by New York’s Truck Voucher Incentive Program and Medium- and Heavy-Duty EV Make-Ready Pilot will further the State’s vehicle electrification goals in the near-term.</p>
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Municipalities own a broad variety of vehicles, many of which are not well represented in other fleet owners’ portfolios, such as street sweepers. Therefore, a concerted push to electrify these municipal vehicles may further build the market for more niche equipment.

Based on previous municipal fleet inventories, municipalities own vehicles as varied as shuttle buses, garbage trucks, vacuum trucks, bucket trucks, snow mobiles, and plows. Equipment is equally varied, from leaf blowers and trail vehicles to ice rink resurfacers and excavators.

In year 1, this measure would initiate an incentive program for local governments to replace their fossil fuel-powered vehicles and equipment with electric models. To ensure sufficient distribution of benefits, this measure may impose a cap on the total incentive amount that a given municipality of a given size may receive. The measure would also prioritize funding for areas designated as disadvantaged.

Communities that receive funding through this measure for electrified fleets would also commit to participating in a statewide working group taking place throughout 2025 to establish medium- and heavy-duty and offroad bid specifications in partnership with the New York State Office of General Services (NYS OGS). Municipalities would be encouraged to adopt these bid specifications into their own future procurements of vehicle purchases or leases. This measure would also explore the feasibility of an additional set of bid specifications that spurs the adoption of electrified construction equipment owned by private firms that bid on public works projects.

Providing initial funding for electric vehicles can help municipalities identify whether there are operational changes that they need to make to accommodate an electrified fleet before adopting a strong procurement policy. By aligning both State and local public sector procurements, this measure sends a strong and consistent signal to the market to provide more options and competitive pricing for electrified public sector vehicles while reducing air pollution and operational costs for public services.

Authority to implement: NYSERDA’s enabling statute is Title 9 of the New York State Public Authorities Law § 1850 *et seq.* NYSERDA is an administrator of programs both to serve local governments (i.e., Clean Energy Communities) and to provide incentives for fleet electrification. In addition, NYS OGS has previously worked on bid specifications such as environmentally preferable purchasing and has engaged local governments to align in such efforts. Adding a

fleet specification can grow the impact of the existing NYS OGS bid specification program. This new program will merge these three initiatives to scale impact and drive near-term and long-term impacts.

Schedule and Milestones:

- Early Year 1: Confer with local governments in New York State to inform incentive program design
- Late Year 1: Launch fleet incentive program for local government, municipalities begin purchasing vehicles
- Early Year 2: New York State and municipalities co-develop bid specifications for future vehicle/equipment procurements
- Year 3: Bid specs adopted at State and local levels
- Year 5: All incentivized vehicles must be purchased and operational
- All five-years: NYSERDA provides technical assistance to help municipalities address challenges related to electrification, such as changes of standard operating procedures, routes, staff training needs, etc.

Co-Benefits:

- Improved outdoor air quality and resulting health benefits, particularly in LIDACs and other neighborhoods that have been overburdened with polluting heavy-duty diesel vehicles
- Reduced noise pollution, similarly likely to benefit LIDACs given the overburdening of LIDACs with heavy duty industry and fleets
- Reduced fuel and maintenance costs for municipalities, particularly those resource-constrained local governments that serve LIDACs

3.2 Support Zero-Emission Public Transit Fleets and Infrastructure

Electrifying transit fleets offers a prime opportunity for reducing emissions, protecting public health, and creating focused economic development opportunities. The Metropolitan Transportation Authority has already committed to purchase only zero-emission buses after 2029 and to fully decarbonize its fleet by 2040. Other transit authorities in the State that currently operate over 1,400 transit buses may also follow suit. Two large fleets outside New York City have made substantial investments in compressed natural gas buses, which are materially cleaner than traditional buses. These fleets will take advantage of the full useful life of these buses prior to transitioning to fully zero-emission buses.

Public transit bus fleets can be ideal candidates for transitioning the transportation sector from fossil fuels. These bus fleets have dedicated routes and schedules and often run on noisy, polluting diesel fuel, impacting the health and quality of life of many low- and moderate-income individuals and others who may rely on public transit.

The transition to electric and green hydrogen-powered vehicles will require investment in new infrastructure but also changes in operations to accommodate new ways of charging or fueling, different ranges and performance abilities, and other resources. Addressing these challenges is critical to rapidly scaling up clean public transit fleets. Table 4 provides the sector, implementing agency, GHG and co-pollutant emission impacts, jobs impacts, and related funding for this measure.

Table 4. Public Transit Measure Specifics

Sector	Transportation	
Implementing Agency	Various, implemented regionally	
GHG Emission Reductions (MMT CO ₂ e 100-year GWP)	2025-2030: 0.11	2025-2050: 0.54
Co-Pollutant Emission Reductions (Metric tons)	Overall: <ul style="list-style-type: none"> • 1.6 NH₃ • 60 NO_x • 1.8 PM_{2.5} • 0.8 SO₂ • 2.3 VOC 	LIDAC: <ul style="list-style-type: none"> • 0.6 NH₃ • 24.6 NO_x • 0.8 PM_{2.5} • 0.3 SO₂ • 0.9 VOC
Direct Jobs Created	Overall: 547	LIDAC: 224
Other Funding Sources	No direct funding sources were identified for this measure. New York State has been awarded \$28 million through the IRA Low-and-No-Emissions Grant program. This funding will be leveraged to accelerate zero-emission bus adoption ahead of CPRG funding. In addition, New York’s Utility Make-Ready, Truck Voucher Incentive, and Accelerated Transit Capital Programs will support near-term incremental zero-emission bus adoption.	

This measure would focus on funding electric bus charging infrastructure, green hydrogen bus fueling infrastructure, zero-emission vehicle purchases, and technical assistance to modifying operations to facilitate the transition to clean fleets. Efforts may include retrofitting and/or redesigning bus depots to accommodate new charging or fueling infrastructure, upgrading electric distribution lines to accommodate charging, and other activities. This measure could also support investments in the workforce, helping to train current and new transit workers to repair and operate zero-emission fleets, which will also help with developing long-term work opportunities that do not leave the current workforce behind in the transition.

Authority to Implement: Regional transportation authorities and other appropriate lead entities have the authority and ability to implement this with technical and other support provided by the State.

Schedule and Milestones:

- Year 1: Design fueling/charging infrastructure
- Year 2: Install fueling/charging infrastructure
- All 5 Years: Replace fossil fuel-powered vehicles with zero-emission vehicles at the end of useful life

Co-Benefits:

- Reduced noise pollution from diesel vehicles
- Improved air quality, particularly in neighborhoods that have been overburdened with polluting heavy-duty diesel vehicles
- Reduced operational costs for transit authorities for electrification

3.3 Support the Implementation of Smart Growth Measures

Land use and development patterns directly affect the State’s ability to reduce GHG emissions and sequester and store CO₂. Changing current land use planning and zoning practices that

enable low-density, single use, suburban sprawl is an essential component to reducing GHG emissions. The pursuit of Smart Growth land use patterns through planning, zoning, and predevelopment activities such as environmental review paired with investments in alternative transportation modes (e.g., shared mobility, micromobility) will enable compact, mixed-use, and spatially interconnected land use configurations that are proximate and accessible to one another, effecting the reduction of transportation based GHG emissions as automobile travel and VMT will decline. Development patterns implemented following Smart Growth land use principles would also create opportunities for multiple modes of transportation; housing diversity and affordability; sustainable and energy-efficient mixed-use development; and safe and accessible public spaces. Further, the implementation of Smart Growth land use patterns could help address the negative impacts of suburban sprawl, direct development into areas more suitable for development, and maintain natural lands that help improve air quality, reduce urban heat islands, and which contribute to carbon sequestration and storage.

Furthermore, Smart Growth zoning practices, including increased density allotments, enables additional development in and near existing dense areas, such as downtowns, crossroads, and transit hubs. These practices allow additional development opportunities that were not possible before implementation of Smart Growth planning and zoning principles. Table 5 provides the sector, implementing agency, GHG and co-pollutant emission impacts, jobs impacts, and related funding for this measure.

Table 5. Smart Growth Measure Specifics

Sector	Transportation	
Implementing Agency	NYS DOS	
GHG Emission Reductions (MMT CO _{2e} 100-year GWP)	2025-2030: 0.05	2025-2050: 2.07
Co-Pollutant Emission Reductions (Metric tons)	Overall: <ul style="list-style-type: none"> • 80.8 NH₃ • 61.5 NO_x • 20.2 PM_{2.5} • 12.9 SO₂ • 21.2 VOC 	LIDAC: <ul style="list-style-type: none"> • 72.7 NH₃ • 55.4 NO_x • 18.2 PM_{2.5} • 11.6 SO₂ • 19.1 VOC
Direct Jobs Created	Overall: 31	LIDAC: 13
Other Funding Sources	No direct funding sources were identified for this measure. CPRG funds are expected to drive incremental smart growth initiatives across the State. However, New York will explore how the State's existing Smart Growth Comprehensive Planning Program can be leveraged to support this measure.	

As a home rule state, the State has little ability to directly affect local land use and regulatory processes. To incentivize communities to pursue Smart Growth land use and regulatory processes, this measure would provide funding to enable communities to undergo an often expensive and complex planning, zoning, and environmental review or predevelopment process that would further enable Smart Growth development in appropriate areas.

The measure would also fund mode-shift implementation projects that will complement the changes in land use configurations and enable the desired result of reduced automobile use, VMT, and GHG emissions reductions. Mode-shift implementation projects may include projects

that promote shared mobility such as carshare, micro-mobility such as e-bikes or scooters, and active transit modes like walking or cycling.

Authority to Implement: NYS DOS is the statutorily designated State planning entity.⁶ As such, NYS DOS administers programs that provide limited planning and zoning grant funds as well as grant funds for the improvement of the public realm to local governments and not-for-profit entities. NYS DOS has strong and long-term partnerships with other State agencies, including ESD, NYS HCR, and NYSEDA, which facilitate providing funds and technical assistance to private entities for building projects or offering funding alternative clean transportation modes. Implementation funds for this proposed program, coupled with successful, existing frameworks for NYS DOS programs, will grow our Smart Growth planning, zoning, and environmental review capacity for achieving near-term GHG emission reductions, long-term reduction targets, and other community benefits. The proposed program will enable communities to fund more expansive environmental review in the form of a complete GEIS and facilitate the expeditious completion of those projects while supporting lower-capacity, historically marginalized, and disadvantaged communities in attaining their Smart Growth goals through continued provision of Smart Growth planning and zoning funds.

Schedule and Milestones:

- Early Year 1: Develop separate program guidance for (1) planning, zoning, and environmental review funding and (2) mode shift grant implementation funding
- Late Year 1: Launch competitive grant competition for (1) planning, zoning, and environmental review assistance and (2) mode shift grant implementation funding
- Early Year 2: Award competitive grants for (1) planning, zoning, and environmental review assistance and (2) mode shift grant implementation funding
- Late Year 2: If additional funds for either component remains, another competitive grant competition would be launched
- Year 4: All awarded planning, zoning, and environmental review projects are complete and adopted by the local governments; mode shift implementation projects are in progress
- Year 5: All mode shift implementation projects are complete

Co-Benefits:

- Enhanced equity in planning and development as the Smart Growth program will help disadvantaged communities overcome some of the exclusionary and inequitable land use barriers confronted by these communities in the past
- Reduced transportation costs as Smart Growth land use patterns and mode shift implementation grants promote access to transit and other forms of mobility, which may reduce household transportation costs and inequities, as well as the inordinate time lower-income households spend commuting and accomplishing essential daily tasks, such as shopping and health care visits
- Improved health and safety as walkable, bikeable infrastructure and safe, accessible public spaces will pave the way for greater physical activity and social interaction, which will yield both physical and mental health benefits

⁶ See generally, New York Executive Law § 152; see also Chapter 464 of the Laws of 1975 §§ 48-57.

- Reduced displacement, gentrification, and concentration of low-income housing and poverty in segregated and usually undesirable areas as smart growth emphasizes in-town mixed-income and affordable housing, which allows people and households of all incomes to reside together
- Improved air and water quality resulting from the reduction in VMT

3.4 Implement Large-Scale Afforestation and Reforestation

Afforestation and reforestation have the potential to greatly increase the carbon sequestration and storage capacity in New York State and are critical to reaching the State’s 2050 net zero goal. Beginning during European settlement and continuing throughout the Industrial Revolution, New York underwent severe deforestation. By the 1880s, less than 20% of New York was forested. Due to agricultural abandonment as well as widespread planting efforts and a continued focus on reforestation efforts, the State is now 63% forested, but opportunities remain for additional afforestation and reforestation efforts to improve carbon sequestration, carbon storage, and all the other benefits that forests provide, especially on New York’s 1.6 million acres of marginal agricultural lands and areas otherwise lacking sufficient natural regeneration. The Scoping Plan recommends tree planting, assisted regeneration, and tree maintenance programs to establish and maintain at least 1.7 million acres (or approximately 680 million trees). New York State Governor Kathy Hochul has jumpstarted this effort by establishing a state led goal of planting 25 million trees by 2033. Table 6 provides the sector, implementing agency, GHG and co-pollutant emission impacts, jobs impacts, and related funding for this measure.

Table 6. Forestry Measure Specifics

Sector	Natural and Working Lands	
Implementing Agency	NYS DEC	
GHG Emission Reductions (MMT CO _{2e} 100-year GWP)	2025-2030: 0.15	2025-2050: 1.11
Co-Pollutant Emission Reductions (Metric tons)	Overall: measure not anticipated to result in significant co-pollutant reductions	LIDAC: measure not anticipated to result in significant co-pollutant reductions
Direct Jobs Created	Overall: 107	LIDAC: 44
Other Funding Sources	No direct funding sources were identified for this measure. CPRG funds would drive incremental afforestation and reforestation on marginal land, whereas existing federal and State funding supports planting in urban areas and communities. New York communities and organizations recently received \$73 million in IRA-funded USDA Urban and Community Forestry Grants, and NYS DEC received \$13 million.	

This measure involves many key strategies. Infrastructure improvements at New York’s only State-run tree nursery would support large-scale afforestation and reforestation efforts, including expanding tree species offerings to meet adaptation and resiliency challenges and implementing upgrades to enhance seed collection, seed storage, seedling production, workforce development, and pre- and post-planting practices. Support for afforestation and reforestation may also include expanding or creating new free tree seedling programs, similar to New York’s Trees for Tribes and Buffer in a Bag programs. These programs currently work to improve water quality by planting trees and shrubs in riparian areas along State waterways. It is

also important to partner with and support local governments and regional organizations to help scale up these programs. Reforestation efforts can focus on improving tree stocks in existing or degraded forestland, as is currently underway in New York's landowner cost-sharing Regenerate NY Program. To facilitate afforestation on underutilized or marginal lands, New York could establish statewide programs for seed collection and storage, establish regional supply and reforestation hubs, and create a database to track reforestation efforts for metric reporting and process improvement. NYS DEC's urban and community forest efforts including ReLeaf or Tree City programs which engage municipalities on the local level could also be expanded. Increasing forest protection and management in local and urban communities will increase carbon sequestration and storage and climate resilience. In addition, trees in urban areas reduce overall energy use (such as through the reduced use of air conditioning) and therefore reduce GHG emissions. Other restoration initiatives Regenerate NY or the New York State PRISMs (Partnerships for Regional Invasive Species Management) could be adjusted to include a focus on tree-planting as well. Natural and working lands critical for ongoing and enhanced carbon sequestration, as is avoiding conversion of such lands.

Authority to Implement: NYS DEC cares for and manages nearly five million acres of land including the Adirondack and Catskill Forest Preserve, State Forests, Unique Areas and the State Nature and Historic Preserve, and Conservation Easements pursuant to New York State Environmental Conservation Law (ECL) § 9-0105. It also manages several grant programs related to public and private forest management. Further, NYS DEC has authority to provide technical assistance to forest landowners with all phases of forest management, including plantation establishment and care and assisting communities with reforesting and wildlife habitat improvement work, including furnishing trees and shrubs for planting on publicly owned land free of charge.

Schedule and Milestones:

- 2024-2025: Design and begin construction of tree nursery upgrades
- 2025: Begin tree planting and assisted regeneration
- 2025: Begin seed sourcing
- 2026-2030: Scale up planting, seed sourcing, to plant 1 million trees per year with CPRG funds

Metrics for Tracking Progress:

- Number of trees planted
- Acres reforested or afforested
- Associated infrastructure upgrades completed

Co-Benefits:

- Improved air quality
- Increased water quality protection
- Extreme heat mitigation from tree planting in urban and suburban areas
- Reduced overall energy use in urban areas with tree coverage

3.5 Create Resilient and Green Public Facilities

This measure would support the development of decarbonized, resilient public buildings, weaving together funding streams to support holistic services for residents of disadvantaged

communities in New York. The measure would fund emissions reductions measures such as envelope improvements, solar photovoltaics, and heat pumps at public sites that provide a resiliency function. Facilities that are located in and serve disadvantaged communities will be prioritized for funding to ensure air quality, health, and other benefits accrue to those populations, and may include food banks, shelters, heating/cooling centers, and facilities that the public may access during emergencies. Grantees would develop case studies to share learnings with other municipalities in New York. Table 7 provides the sector, implementing agency, GHG and co-pollutant emission impacts, jobs impacts, and related funding for this measure.

Table 7. Resilient Buildings Measure Specifics

Sector	Buildings	
Implementing Agency	NYSERDA	
GHG Emission Reductions (MMT CO ₂ e 100-year GWP)	2025-2030: 0.02	2025-2050: 0.14
Co-Pollutant Emission Reductions (Metric tons)	Overall: <ul style="list-style-type: none"> • 2 NH₃ • 79.8 NO_x • 0.2 PM_{2.5} • 0.7 SO₂ • 2.6 VOC 	LIDAC: <ul style="list-style-type: none"> • 2 NH₃ • 79.8 NO_x • 0.2 PM_{2.5} • 0.7 SO₂ • 2.6 VOC
Direct Jobs Created	Overall: 11	LIDAC: 5
Other Funding Sources	Direct Federal Funding <ul style="list-style-type: none"> • Commercial Energy Efficiency Credit (179D) • Solar Investment Tax Credit (48E) Direct State Funding <ul style="list-style-type: none"> • NY Clean Heat Program • NY-Sun 	

This measure would assist local governments in working with energy performance contractors (EPCs) to greatly expand the number of public facilities that receive emissions reductions upgrades. Support will include prequalification of one or more EPC financing providers with standardized financing terms. Municipalities and EPCs may find external financing providers only if the terms are more favorable than the NYSERDA-qualified provider, ensuring the lowest possible financing cost. In addition, this measure would support for engineering, project scoping, development and de-risking of innovative models, and technical assistance to defray predevelopment costs and shorten the learning curve for municipalities who are unfamiliar with the process of engaging in EPCs. This will ensure municipalities have the knowledge and experience to continue leveraging EPCs in the future and enable retrofits to proceed in situations where there are limited capital funds available for improvements.

Authority to implement: NYSERDA's enabling statute is Title 9 of the New York State Public Authorities Law § 1850 *et seq.* NYSERDA offers many incentive and technical assistance services to local governments in the buildings sector, including net zero retrofit competitions, local government recognition programs, and in-depth technical assistance to local governments and buildings decisionmakers.

Schedule and Milestones:

- Early Year 1: Prequalify energy performance contracting financier(s) and procure technical assistance provider
- Mid Year 1: Launch competitive grant competition for resilient community facility upgrades; begin offering EPC services to local governments
- Late Year 1: Award competitive grants for resilient community facilities
- Year 3: All upgrades supported by competitive grants are completed or in construction
- Year 5: All upgrades and case studies supported by competitive grants are completed; All EPC technical assistance services are complete

Co-Benefits:

- Food resiliency, shelter resiliency, and/or other resilient public services, which are particularly important for low-income and medically vulnerable individuals who may make greater use of public services like food banks, shelters, community centers, and cooling centers
- Reduced pollution from combustion of fuels for heating and improved indoor air quality
- Improved envelope performance will reduce operational costs and hold more consistent temperatures in case of a heating or cooling outage, allowing for greater resilience during extreme weather events
- Availability of safe places for people to shelter in case of emergencies
- Reduced energy costs for municipalities, particularly important for local governments that serve LIDACs, who may have limited tax revenue and therefore overstretched public funds needed to provide essential services

3.6 Phase Out Hydrofluorocarbons and Support Natural Refrigerants

Supermarkets are the largest source of GHG emissions from refrigeration. As New York and the U.S. transition away from harmful refrigerants, particularly HFCs with high GWPs, supermarkets will need to replace current technologies with low or zero GWP alternatives. Natural alternatives, like CO₂, are the optimal choice for minimizing environmental impacts and are starting to be adopted by major U.S. supermarkets. Supporting the transition to natural refrigerants, specifically in commercial food stores in disadvantaged communities, will help ensure food security and significantly reduce GHG emissions in the buildings sector, the largest source of emissions in New York. Support for this transition is crucial especially for smaller businesses and facilities in communities disproportionately impacted by the impacts of climate change. Table 8 provides the sector, implementing agency, GHG and co-pollutant emission impacts, jobs impacts, and related funding for this measure.

Table 8. Hydrofluorocarbon Phase-Out Measure Specifics

Sector	Buildings	
Implementing Agency	NYS DEC	
GHG Emission Reductions (MMT CO ₂ e 100-year GWP)	2025-2030: 0.30	2025-2050: 1.48
Co-Pollutant Emission Reductions (Metric tons)	Overall: measure not anticipated to result in significant co-pollutant reductions	LIDAC: measure not anticipated to result in significant co-pollutant reductions
Direct Jobs Created	Overall: 41	LIDAC: 17

Other Funding Sources	No direct funding sources were identified for this measure. The New York State Environmental Protection Fund supported a one-time pilot program to replace refrigeration equipment in supermarkets that uses high-GWP substances with equipment that uses natural refrigerants.
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This measure would offer funding to a not-for-profit entity to administer a competitive grant program to install refrigeration systems that contain natural refrigerants for food retail stores, food banks, and food hubs located in disadvantaged communities. Projects would need to demonstrate financial need and a commitment to food security in the community.

It is critical to phase out high-GWP HFCs generally. Both NYS DEC and the federal government have taken regulatory action to establish GWP thresholds and, over time, require the use of lower-GWP alternatives. The Scoping Plan recommends a managed and just transition from reliance on HFC use, including through updated regulations; codes, and standards; investments in research and development; and education, training, and outreach.

Authority to Implement: NYS DEC has the authority under ECL to enter into contracts to carry out its functions, powers, and duties (ECL § 3-0301(2)(b)), promote management of air resources (ECL § 3-0301(1)(b)), and provide for the abatement of all air pollution (ECL § 3-0301(1)(i)). In addition, NYS DEC has adopted 6 NYCRR Part 494, Hydrofluorocarbon Standards and Reporting, which establishes prohibitions on certain HFC substances in certain end-uses as previously included in the EPA Significant New Alternatives Policy program. NYS DEC recently proposed amendments to Part 494 to include prohibitions, reporting, and other requirements regarding the sale, use, and supply of HFCs and new products and systems that contain HFCs in line with the U.S. American Innovation and Manufacturing (AIM) Act and related EPA regulations.

Schedule and Milestones:

- Year 1: Procure not-for-profit organization to administer grant program
- Year 2: Launch competitive program to fund equipment replacements
- All 5 Years: Select and award funds for installation of new refrigeration equipment at a rate of at least 10 facilities per year

Metrics for Tracking Progress:

- Number of projects selected for funding
- New equipment installations
- Supplemental training and outreach events held

Co-Benefits:

- All projects would be located at a facility that serves a disadvantaged community
- Projects would be required to demonstrate commitment to food security, ensuring residents of disadvantaged communities have access to fresh food
- Projects may present opportunities to provide on-site workforce training and/or outreach

3.7 Support Organics Recycling

Food waste makes up 17% of the total municipal solid waste generated in New York, and yard trimmings represent an additional 7%.⁷ Additionally, NYS DEC estimates that 4.1 million tons of organic material enters New York’s municipal solid waste stream each year and that less than 10% is diverted from landfilling. Through the expansion of food and organic waste recycling programs, New York can significantly reduce the landfilling of organic waste. This would lead to reduced CH₄ emissions generated from the anaerobic degradation of these materials and support the State’s emission reduction directives. However, developing infrastructure for additional organics recycling capacity is costly and the relatively low cost of landfilling in much of New York makes organics recycling less attractive to both the private and municipal sectors. Table 9 provides the sector, implementing agency, GHG and co-pollutant emission impacts, jobs impacts, and related funding for this measure.

Table 9. Organics Measure Specifics

Sector	Waste and Materials Management	
Implementing Agency	NYS DEC	
GHG Emission Reductions (MMT CO _{2e} 100-year GWP)	2025-2030: 0.22	2025-2050: 1.20
Co-Pollutant Emission Reductions (Metric tons)	Overall: measure not anticipated to result in significant co-pollutant reductions	LIDAC: measure not anticipated to result in significant co-pollutant reductions
Direct Jobs Created	Overall: 148	LIDAC: 61
Other Funding Sources	NYS DEC supports municipal food scraps recycling initiatives and funding levels depend on annual budget appropriations. In addition, governments in New York have been awarded \$434,000 in federal funding through USDA Composting and Food Waste Reduction Agreements and Chemung County was recently awarded a \$1.7 million State Water Infrastructure for Recycling grant from EPA.	

NYS DEC currently implements several strategies to prioritize wasted food reduction, food donation, and food scraps recycling programs and initiatives in the commercial, industrial, agricultural, and institutional sectors. NYS DEC’s ongoing and future initiatives aim to support the continued development of the organics recycling industry in New York State and empower residents to properly manage excess food, reduce wasted food, and recycle their food scraps. This measure would support those efforts by providing funding to grow the public and private infrastructure to recycle food scraps through composting or other acceptable organics recycling methods. This could include starting or expanding a food scraps composting facility, expanding a yard trimmings composting facility to accept food scraps, starting a food scraps drop-off program, purchasing equipment needed to process food scraps, or purchasing equipment to transport food scraps.

NYS DEC regulates approximately 60 composting facilities to compost food scraps, approximately one-third of which are operated by a municipality, and the remaining two-thirds

⁷ New York State Department of Environmental Conservation. 2023. New York State Solid Waste Management Plan: Building the Circular Economy Through Sustainable Materials Management (2023-2032). Albany, NY. Accessed at: <https://dec.ny.gov/environmental-protection/waste-management/solid-waste-management-planning/nys>.

are privately owned and operated. Additionally, there is a larger group of municipalities and non-profits that operate food scraps drop-off programs and curbside collection programs to recycle food scraps at a nearby composting operation.

Since 2010, NYS DEC has provided more than \$11 million in funding for food donation and food scraps recycling. NYS DEC anticipates a steady need for additional funding as the organics recycling industry continues to develop both in the public and private sectors. Through NYS DEC's existing programs, funding may be used to provide an additional 20 grants by the end of 2025 and an additional 20 grants by the end of 2030. Sustainable materials management policies support the creation of jobs and new opportunities for economic growth by retaining the value of materials, keeping that value within the supply chain, and presenting new business models where the value of resources is maintained within a circular economy.

Authority to Implement: NYS DEC regulates composting facilities and manages municipal grants to help establish or expand food scrap recycling programs and facilities. NYS DEC has the authority under ECL § 3-0301(2)(b) to enter into contracts to carry out its functions, powers, and duties as well as authority under ECL § 3-0301(1)(o) to encourage recycling and reuse of products to conserve resources and reduce waste products. In addition, the New York State Food Donation and Food Scraps Recycling Law became effective in 2022 and requires businesses and institutions that generate an annual average of two tons of wasted food per week or more to donate excess edible food and recycle all remaining food scraps if they are within 25 miles of an organics recycler. Over 1,000 businesses across the State are required to donate, and nearly 400 businesses are required to recycle their food scraps.

Schedule and Milestones:

- Years 1 and 2: 20 grants provided
- Years 2 through 5: Additional 20 grants provided

Metrics for Tracking Progress:

- Pounds of food waste diverted
- Facilities constructed
- Programs implemented

Co-Benefits:

- Reduced landfill volume from diverted material decreases CH₄ emissions
- Food waste programs can support food security and food relief organizations by diverting excess edible food

3.8 Reduce Fugitive Methane and Co-Pollutant Emissions from Landfills

Landfills are the largest source of emissions in New York's waste sector, accounting for 78% of emissions in this sector, largely from uncaptured CH₄.⁸ As organic material breaks down in a landfill's anaerobic environment, it generates CH₄, a GHG 28 times more potent than CO₂ over a 100-year time interval, and 84 times more potent over a 20-year time interval. Many municipal solid waste landfills in New York have gas collection systems in place that greatly reduce

⁸ New York State Department of Environmental Conservation. 2023. 2023 Statewide GHG Emissions Report. Albany, NY. Accessed at: <https://dec.ny.gov/environmental-protection/climate-change/greenhouse-gas-emissions-report>.

emissions, but gases still escape through the landfill cap and leak during the active placement of waste. Additionally, although anaerobic digestion is recognized as a method for recycling organic waste, if there are leaks from the gas-handling system, CH₄ can be lost to the atmosphere. Table 10 provides the sector, implementing agency, GHG and co-pollutant emission impacts, jobs impacts, and related funding for this measure.

Table 10. Landfills Measure Specifics

Sector	Waste and Materials Management	
Implementing Agency	NYS DEC	
GHG Emission Reductions (MMT CO ₂ e 100-year GWP)	2025-2030: 0.63	2025-2050: 7.16
Co-Pollutant Emission Reductions (Metric tons)	Overall: <ul style="list-style-type: none"> • 665.1 NO_x • 10.1 CO • 76.6 VOC • 511.9 SO_x 	LIDAC: <ul style="list-style-type: none"> • 272.6 NO_x • 4.1 CO • 31.4 VOC • 209.8 SO_x
Direct Jobs Created	Overall: 37	LIDAC: 15
Other Funding Sources	Direct Federal Funding <ul style="list-style-type: none"> • Investment Tax Credit for Energy Property (48) New York may seek to leverage the structure of its existing grant programs for Municipal Landfill Closure Projects and Municipal Landfill Gas Management Projects to support the implementation of this measure.	

NYS DEC currently administers programs to manage landfill gas and landfill closures and has realized that the need exceeds available funding levels. This measure would allow NYS DEC to enhance landfill gas management by installing gas collection systems sooner after waste placement, installing specialty landfill gas collectors for difficult to access areas, or enhancing gas dewatering systems to increase collection efficiency. This measure could also include other CH₄ monitoring or CH₄ mitigation measures at landfills as appropriate. NYS DEC will also prioritize driving down emissions of co-pollutants associated with solid waste management facilities.

In addition to these approaches, waste prevention, reuse, and recycling can significantly reduce GHG emissions and prevent materials from being disposed of and sent to landfills in the first place. Waste reduction focuses on the prevention or reduction of solid waste generation through changes in consumer and business behavior; changes in products, packaging, and purchasing; repair; and reuse. Reuse and recycling should be maximized when the generation of waste cannot be prevented or reduced. The New York State Solid Waste Management Plan incorporates many actions that municipalities and other partners can take to support waste reduction, reuse, and recycling.

Authority to Implement: NYS DEC has the authority under the ECL to enter into contracts to carry out its functions, powers, and duties (ECL § 3-0301(2)(b)), promote management of air resources (ECL § 3-0301(1)(b)), and provide for the abatement of all air pollution (ECL § 3-0301(1)(i)). In addition, NYS DEC regulates active and inactive landfills under 6 NYCRR Part 363. It also manages grant programs related to landfill management and landfill closures.

Schedule and Milestones:

- Year 1: Engage with local governments to discuss program elements and potential project locations
- Years 2 and 3: Select project locations and begin planning and design
- Years 3 through 5: Complete at least 10 projects

Co-Benefits:

- Capturing CH₄ reduces odors and GHG and co-pollutant emissions

3.9 Reduce Fugitive Methane and Co-Pollutant Emissions from Water Resource Recovery Facilities

Wastewater resource recovery facilities (WRRFs) produce GHG emissions through wastewater processing systems and from anaerobic digesters (if present), accounting for approximately 15% of waste sector emissions. Municipally owned WRRFs (also known as wastewater treatment plants) perform a critical function in protecting water quality. There are 612 publicly owned WRRFs in New York that serve 1,610 municipalities. WRRFs represent a significant portion of the organic waste composition in New York and present tremendous opportunity for reducing GHG emissions. However, the funding for WRRFs is tied to municipal water and sewer rates, is generally constrained, and is largely dedicated to improving water quality, making it difficult to self-fund beneficial reuse projects. Table 11 provides the sector, implementing agency, GHG and co-pollutant emission impacts, jobs impacts, and related funding for this measure.

Table 11. Wastewater Facility Measure Specifics

Sector	Waste and Materials Management	
Implementing Agency	NYS DEC	
GHG Emission Reductions (MMT CO _{2e} 100-year GWP)	2025-2030: 0.06	2025-2050: 0.21
Co-Pollutant Emission Reductions (Metric tons)	Overall: <ul style="list-style-type: none"> • 45.9 NO_x • 32.1 CO • 9.3 PM_{2.5} • -1.6 VOC • 33.9 SO_x 	LIDAC: <ul style="list-style-type: none"> • 18.8 NO_x • 13.1 CO • 3.8 PM_{2.5} • -0.7 VOC • 13.9 SO_x
Direct Jobs Created	Overall: 62	LIDAC: 25
Other Funding Sources	Direct Federal Funding <ul style="list-style-type: none"> • Investment Tax Credit for Energy Property (48) 	

To reduce GHG emissions from these facilities, this measure would provide planning and implementation funding for projects that recover CH₄ at WRRF facilities and result in on-site CH₄ capture and energy production using non-combustion methods such as fuel cells. Supporting local governments in this manner will help WRRF facilities self-supply energy and result in reduced operating costs. In addition to the GHG benefits, these projects can support overall resilience of essential wastewater functions in the event of grid outages, which could increase in frequency as the State sees worsening impacts from climate change. By prioritizing large

candidate WRRF digesters in need of repair, the State can realize significant GHG and co-pollutant emission reductions by 2030 for New York's residents.

Authority to Implement: NYS DEC has authority to implement planning and implementation grant programs. In particular, NYS DEC has the authority under the ECL to enter into contracts to carry out its functions, powers, and duties (ECL § 3-0301(2)(b)), promote management of air resources (ECL § 3-0301(1)(b)), and provide for the abatement of all air pollution (ECL § 3-0301(1)(i)). In addition, 6 NYCRR Part 650, Qualifications of Operators of Wastewater Treatment Plants, establishes specific requirements for wastewater treatment plant certification in New York and 6 NYCRR Part 750, State Pollutant Discharge Elimination System Permits, contains provisions for permitting and operating of WRRFs primarily intended to address discharges.

Schedule and Milestones:

- 2024: Engage with local governments to discuss program elements and potential project locations
- 2025-2027: Select project locations and complete at least 3 projects
- 2028-2030: Complete at least 7 projects

Metrics for Tracking Progress:

- Number of projects selected for funding
- Facility designs completed
- Installations completed

Co-Benefits:

- Capturing CH₄ reduces odors and GHG and co-pollutant emissions
- Beneficial reuse would focus on increasing electric system capacity for electrification in LIDACs and reducing grid constraints by increasing self-supply of energy needs

4 Low-Income and Disadvantaged Communities Benefits Analysis

The CPRG planning grant requires grantees to identify disadvantaged communities in the jurisdiction covered by the plan, how the grantee meaningfully engaged with such communities in the development of the plan, and how engagement will continue in the future.

To identify disadvantaged communities, EPA strongly encourages grantees to use the Climate and Economic Justice Screening Tool (CEJST). As this PCAP intends to cover the entire geography of New York State, a list of communities statewide was identified using the CEJST, which was used for the measure-specific quantitative and qualitative analyses. A discussion of how the State engaged with disadvantaged communities for the purposes of this planning grant is included in the *Coordination and Engagement* section. Engagement moving forward will be based on a number of factors, including the specific GHG emission reduction measure, and responses received from current surveys and outreach requesting information on how communities would like to be engaged. New York will also leverage existing community networks, such as the NYS DEC Climate Smart Communities program, to engage with disadvantaged communities on the CCAP development.

In addition, it is critically important to consider the commitments and statutory requirements already in place in New York. The Climate Act defines disadvantaged communities as “communities that bear burdens of negative public health effects, environmental pollution, impacts of climate change, and possess certain socioeconomic criteria, or comprise high concentrations of low- and moderate-income households.” It requires all State agencies, offices, authorities, and divisions to prioritize reductions of GHG and co-pollutant emissions in disadvantaged communities and to not disproportionately burden disadvantaged communities when issuing administrative approvals and decisions. The Climate Act also requires that disadvantaged communities receive a minimum of 35%, with a goal of 40%, of the benefits of spending on clean energy and energy efficiency programs. This aligns with the federal government’s Justice40 Initiative, which sets a goal that 40% of the overall benefits of certain Federal climate, clean energy, affordable and sustainable housing, and other investments flow to disadvantaged communities. The Climate Act established a Climate Justice Working Group that, in part, was required to establish criteria to define and identify disadvantaged communities in New York. Final criteria were published in March 2023. The Climate Justice Working Group used 45 indicators in establishing criteria to identify 35% of New York as disadvantaged communities pursuant to the Climate Act. The criteria, which differ from federal criteria, include multiple indicators that represent the environmental burdens or climate change risks within a community, or population characteristics and health vulnerabilities that can contribute to more severe adverse effects of climate change. More information, including a list and map of New York-designated disadvantaged communities, can be found at climate.ny.gov/Resources/Disadvantaged-Communities-Criteria.

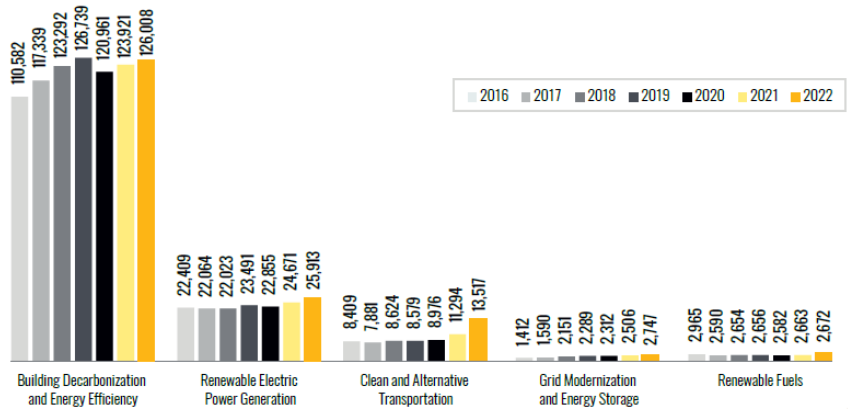
As required by the CPRG program, this PCAP includes a qualitative discussion of the expected benefits to LIDACs associated with each GHG emission reduction measure according to federal guidance and definitions. Those benefits are included in the description of each measure in *Priority GHG Reduction Measures*. This section also includes a breakdown of estimated co-pollutant emission reductions overall and specifically in LIDACs, as defined by EPA for the purposes of CPRG, as well as a breakdown of direct job impacts overall and in LIDACs.

New York remains committed to ensuring that the transition to a clean economy addresses health, environmental, and energy burdens that have disproportionately impacted disadvantaged communities and seeks to remedy the structural causes that underpin those burdens.

5 Workforce Planning Analysis

5.1 State of the Current Climate Workforce

Each year, NYSERDA develops a Clean Energy Industry Report based on economic data and survey results from employers, employees, and others. This report only captures energy-related industry trends and does not address other sectors addressed by the CPRG program, such as Waste and Materials or Natural and Working Lands.



Clean Energy Jobs in New York

The 2023 report found that there are nearly 171,000 clean energy workers in New York State as of the last quarter of 2022. Between 2021 and 2022, clean energy employment saw an increase of 5,800 jobs, representing a 3.5% growth during this period. This rise marks the third largest year-over-year increase since the State began tracking clean energy employment in 2015. Employment in building decarbonization and energy efficiency accounted for about 74% of all clean energy employment in New York in 2022 and for 36% of all job growth between 2021 and 2022.

Figure 1. Clean Energy Employment by Technology Sector 2016-2022

Installation workers consistently comprise more than half of the clean energy establishments in New York since 2016 and have witnessed steady expansion in recent years. Employment in the Installation segment increased from 96,409 jobs in 2021 to 100,703 jobs in 2022, surpassing pre-pandemic levels. This segment accounted for 74% of the new jobs in the clean energy value chain, though Professional Services and Manufacturing are also experiencing growth.

Ensuring Inclusive, High-Quality Careers in Clean Energy Industries

Unions and Benefits

Roughly one-in-eight clean energy workers in New York are members of a union or are covered by a union, which is a higher rate than the national average in clean energy. These rates differ substantially by value chain segment. About one-in-five (21%) public or private utility workers are covered under a union compared to only 3% of workers in the sales and distribution segment. Given the incentives available for union construction work under the IRA, the share of this workforce may increase in future years.

Many clean energy occupations have higher rates of health insurance and retirement benefits than the overall economy but tend to have lower rates of health insurance and retirement benefits than unionized positions.

Disadvantaged Communities and Demographics

NYSERDA developed a series of metrics that capture geographic aspects of where clean energy workers live and where clean energy jobs are, so as to better understand the current clean energy employment landscape within New York State-designated disadvantaged communities. The analysis uses county-level clean energy employment data proportioned to the census-tract level, the geography at which disadvantaged communities are defined, to ensure

sufficient datapoints for robust analysis. Therefore, the following results should still be treated as estimations.

Of the 170,857 clean energy jobs in New York State in 2022, 52,749 (31%) of these jobs can be found within New York State-designated disadvantaged communities, compared to approximately 36% of the State’s total population living in a New York State-designated disadvantaged community. Twenty-three of the 52 counties with disadvantaged communities have a higher concentration of clean energy jobs in disadvantaged communities than the statewide concentration of clean energy jobs. This means that many disadvantaged communities within counties around the State have a high proportion of clean energy employment opportunities. However, most disadvantaged communities have a lower share of clean energy workers living within them. In fact, only 37% of counties with disadvantaged communities have a greater concentration of residents with clean energy jobs than the overall average concentration for the State.

The clean energy workforce in New York became more diverse between 2021 and 2022, but there is still progress to be made. The share of women in clean energy increased by 3% between 2021 and 2022.

	NY Clean Energy Industry				New York State's Labor Force
	Overall Clean Energy, 2021	Overall Clean Energy, 2022	Renewable Electric Power Generation	Building Decarbonization and Energy Efficiency	
Female	25%	26%	28%	26%	48%
Male	75%	74%	72%	74%	53%
White	72%	72%	71%	72%	70%
Hispanic/Latin/a/x	15%	15%	16%	15%	17%
Black	8%	9%	10%	9%	17%
Asian	7%	8%	9%	8%	9%
Native American	2%	1%	1%	1%	1%
Pacific Islander	1%	1%	1%	1%	<1%

Figure 2. Clean Energy Demographics, 2022

However, women

account for just over a quarter of clean energy workers despite comprising nearly half of the State’s workforce. Similarly, Hispanic/Latin/a/x, Black, and Asian workers saw significant increases in representation in clean energy (4%, 11%, and 9% respectively), but are still slightly underrepresented in clean energy relative to the broader labor force (Figure 2). It will be critical to continue to monitor, fund, and support New York’s investments and programs that support diversification within the clean energy workforce.

Hiring Challenges

More than nine in ten clean energy employers stated it was at least somewhat difficult to hire clean energy workers, with 45% reporting that it was ‘very difficult’ to hire clean energy workers. Hiring challenges were severe across all technology sectors, but renewable fuels employers reported the greatest levels of hiring difficulty. Though hiring in clean and alternative transportation was challenging for most employers, one in five reported having little difficulty. This heightened and growing need for workers emphasizes the need for more investment in workforce training and pipeline development, ensuring that New York residents of all backgrounds have access to clean energy related jobs and skills training that connects them with local employers looking to hire talent.

5.2 Projected Workforce Needs through 2050

As part of the Climate Act, the Council’s Just Transition Working Group guided the development of a study in 2021, with an update in 2023, that would:

- Estimate “the number of jobs created to counter climate change, which shall include but not be limited to the energy sector, building sector, and working lands sector”

- Examine the “projection of the inventory of jobs needed and skills and training required to meet the demand of jobs to counter climate change” as well as the “workforce disruption due to community transitions from a low carbon economy”
- “Advise the Council on issues and opportunities for workforce development and training related to energy efficiency measures, and renewable energy and other clean energy technologies, with specific focus on training and workforce opportunity for disadvantaged communities, and segments of the population that may be underrepresented in the clean energy workforce such as Veterans, women, and formerly incarcerated persons”

The 2023 update estimated the quantity of job changes from 2019 to 2025, 2030, 2035, 2040, 2045, and 2050 under two scenarios from the Integration Analysis. It also assessed how the type, location, and quality of jobs—specifically employment by sustaining wage tier—will change from 2019 to 2030 under two investment scenarios. Key findings include:

1. From 2019 to 2030, under both modeled scenarios, the number of jobs added from growing subsectors exceeded the number of jobs lost in displaced subsectors by a ratio of approximately ten to one. In the 20 growing sub-sectors, total employment would increase by more than 60% from 2019 to 2030, adding at least 211,000 new jobs in New York State. The eight displaced sub-sectors saw total jobs decline by about 14% from 2019 to 2030, losing approximately 22,000 jobs. This finding indicates that expanding the pipeline for the growing workforce will require considerably more people than simply transitioning over those that have lost employment opportunities in displaced subsectors.
2. The buildings sector accounted for well over half of all the jobs added in growing subsectors from 2019 to 2030, with the most sizeable increases in added jobs found in the residential HVAC and residential shell subsectors. This finding indicates the need to expand the residential building workforce considerably before 2030 to meet the expected need from either modeled scenario.
3. Conventional fueling stations (gas stations) account for more than 40% of all displaced jobs in the primary sectors from 2019 to 2030. This finding indicates that traditional fueling stations will likely need to adapt, beyond providing gasoline for cars, or face diminishing opportunities for revenue and employment.
4. In the electricity sector, more mature subsectors like transmission, distribution, and solar will see strong growth between 2019 and 2040, while more nascent subsectors like offshore wind, storage, and hydrogen are expected to experience exponential growth. This finding indicates that parts of the growing electricity sector will be able to build upon their current established workforce, while other parts of this sector will almost need to start from the beginning as these subsectors have little, if any, workforce development infrastructure.
5. In the buildings sector, employment could be significantly impacted under different scenarios where domestic manufacturing within New York State was increased. If domestic manufacturing was increased to 50% produced within New York State by 2030, an additional 17,000 to 18,000 jobs would be added under two modeled scenarios. If domestic manufacturing was increased to 100% produced within New York State by 2030, an additional 42,000 to 44,000 jobs would be added under two modeled scenarios.

6. Geographically, net job growth from 2019 to 2030 is evenly distributed as each of the five regions across the State sees an increase of at least 10,000 net new jobs. This finding indicates that job growth will occur across the New York State and each of the regions should consider workforce development efforts and training to supply a well-prepared labor force for these growing positions.
7. Occupationally, in the growth sub-sectors, the largest job increases from 2019 to 2030 will be found in installation and repair positions. They are expected to account for over half of added jobs in this time period. This finding indicates that additional research should likely be done to understand the education and training resources that lead into these positions and the different career pathways that can be found in this category of occupations.
8. The wage profile of jobs in the four sectors shows the largest increase from 2019 to 2030 in middle wage positions (\$28 to \$37 an hour), while high wage (>\$37 an hour) and low wage positions (<\$28 an hour) experienced a net increase in jobs but make up a smaller portion of the four-sector workforce in 2030. This finding goes against national and statewide trends that have seen middle wage positions decline over the last decade. It is also important to note that these wage projections are based on current Bureau of Labor Statistics data but could change depending on the addition of transition policies that include high road labor standards and practices, such as those envisioned in the Climate Act.

5.3 Workforce Programming to Address Gaps

NYSERDA administers multiple programs that support activities as diverse as:

- Training for building and operations staff to properly operate and maintain building systems;
- On-the-job training for new clean energy staff;
- Internships for students seeking hands-on experience at a clean energy company;
- Curriculum development to meet the demands of clean energy employers;
- Creation of a sustainable talent pipeline that can reduce the costs and risks of hiring new employees; and
- Career pathways training for new clean energy workers.

NYSERDA's [Building Operations and Maintenance \(O&M\) Training Program](#) supports training projects that create the educational strategy, on-site training framework, and tools needed to advance the skills of building operations and maintenance workers, and to prepare new workers beyond conventional classroom training. To date, 69 projects have been launched to train and upskill more than 8,000 building O&M workers. Approximately 40% of program expenditures to date have gone to train operators at buildings located in New York State-designated disadvantaged communities.

NYSERDA provides funding for energy efficiency and clean technology training for new and existing workers focusing on energy efficiency, building electrification, renewables, energy storage and electric vehicle charging station infrastructure. Projects supported through this program are intended to develop and/or deliver clean energy technical training and relevant education, hands-on experience and apprenticeships, full-time jobs, or advanced formal training. The goal is to ensure that both new and existing workers, apprentices, journeypersons,

and students, as applicable, have the skills, experience, and qualifications required to meet industry demand. To date, the program has supported a total of 50 projects to train and upskill nearly 16,000 individuals.

NYSERDA offers a program as part of [New York's Offshore Wind Training Institute](#) to advance workforce training and skills development for New York's offshore wind industry. The program offers two categories: (1) Training for disadvantaged communities/NYSERDA-defined priority populations, and (2) Training to support offshore wind supply chain development, focusing on preparing new and existing workers for high-growth offshore wind jobs via technical training.

NYSERDA's [On-the-Job Training Program for Energy Efficiency and Clean Technology](#) ("OJT Program") is a cornerstone of New York State's support for industry employers to grow its workforce. In partnership with the NYS Department of Labor, NYSERDA provides up to 75% of the wages for a new hire at a clean energy business for a four to six month "on-the-job training period." The program offers higher incentives, favorable participation paths, and certain requirements for ensuring a substantial portion of program funding goes toward the hiring of disadvantaged community residents and diverse business enterprises. As of December 2023, 187 businesses have participated in NYSERDA's OJT Program, having hired 1,685 new workers to date since the program launch in 2018. Thirty-four percent of these individuals are residents of New York State-designated disadvantaged communities or members of NYSERDA-defined priority populations.

Complementing NYSERDA's OJT Program is the New York State [Clean Energy Internship Program](#), which funds internships for students and graduates at New York State's clean energy businesses. Depending on the size of the employer, the program reimburses up to 90% of an intern's wages up to \$17/hour. Three hundred seven businesses, municipalities, and community organizations have participated in NYSERDA's Clean Energy Internship Program, having hired 1,925 interns as of December 2023.

Similarly, [NYSERDA's Climate Justice Fellowship Program](#) partners with community-based organizations, universities, municipalities, climate tech start-ups, venture development organizations, and clean energy businesses to provide year-long fellowships to individuals from NYSERDA-defined priority populations to advance climate justice and clean energy priorities in disadvantaged communities. Fellowships are subsidized at \$40,000 per year of which up to \$3,000 may be used to support wraparound services and professional development opportunities. Twenty-two employers have participated in NYSERDA's Climate Justice Fellowship to date with 20-30 more expected in the coming year. At the end of their fellowship, fellows can be hired full-time for a permanent job under the OJT program.

Additionally, NYSERDA recently launched a new program for Apprenticeship and Pre-Apprenticeship Clean Energy Training. Through this opportunity, and in working with union and Direct Entry pre-apprenticeship programs across the State, NYSERDA seeks to grow a diverse, equitable, and inclusive pipeline of skilled talent for the clean energy labor market. Program participants may create and/or expand the capacity of Direct Entry Pre-apprenticeship and Registered Apprenticeship programs as a pathway to high-quality, family-supporting jobs. A minimum of 50% of training participants must be from New York State-designated disadvantaged communities and/or NYSERDA-defined priority populations. For projects that include a K-12 career awareness and outreach plan, at least 50% of participating schools must

be located in a disadvantaged communities or serve a majority of students from disadvantaged communities.

5.4 New York State Office of Just Energy Transition

New York State recently established an Office of Just Energy Transition to connect workers to opportunities for quality jobs, upskilling, and training with a focus on serving those who are traditionally underrepresented, especially within disadvantaged communities. The Office will also assist businesses by upskilling their workers and connecting them to a trained workforce while helping navigate eligible hiring incentives and available funding.

6 Next Steps

This PCAP was developed pursuant to the CPRG planning grant to identify near-term, high-priority, implementation-ready measures that New York may implement to reduce climate pollution. It is structured to meet the requirements set forth in the under the CPRG planning grant and includes, in part, an analysis of GHG and co-pollutant emission reductions that each measure may achieve if implemented. As discussed, this PCAP is also a pre-requisite for competing under the CPRG implementation grant opportunity. New York intends to submit an application or applications to compete under the general competition. As stated in the *Introduction*, the measures in this PCAP should be construed as broadly available to any entity in the State eligible for receiving implementation funding under the CPRG program and other funding streams, as applicable.

This PCAP will be followed by a CCAP, to be released in summer 2025. New York will leverage the robust engagement completed prior to and during the development of the Scoping Plan and PCAP and will continue to engage stakeholders to inform a comprehensive list of statewide GHG emission reduction measures for the CCAP.

New York will also release a Status Report in 2027 which will provide measure-level status updates on implementation progress for each measure of the CCAP.

Appendix A. PCAP Analysis Assumptions

Pursuant to the CPRG planning grant requirements, the State scoped example programs that align with the measures included in this PCAP and conducted quantitative and qualitative analyses for each. The scopes, analyses, and outcomes are illustrative of types of programs or projects that align with the PCAP measures. However, these measures should be interpreted broadly by eligible applicants under the CPRG program or other relevant federal grant programs to allow for other programs or projects that may have different scopes and outcomes. Similarly, the quantified impacts of each measure were derived based on a variety of assumptions, including assumptions about the scale and scope of an example program. These assumptions may not align with assumptions used in CPRG Implementation Grant applications as submitted by New York State or other eligible entities that reference this PCAP.

General Assumptions

The following assumptions apply to all measures contained in this PCAP.

- GHG, co-pollutant, and jobs impacts were prorated by an assumed level of potential CPRG funding, per the “cost effectiveness metric” specific to the CPRG Implementation Grant Notice of Funding Opportunity and Frequently Asked Questions
 - For example, if an existing tax credit covers 20% of implementation costs of a given program scope, the resulting GHG, co-pollutant, and impacts would be scaled down by 20%
- Electric grid emissions projections assume that New York State achieves its Climate Act clean electricity targets
- Fuel emissions factors are based on the 2023 [EPA GHG Emission Factors Hub](#)
- GWP are based on the [IPCC Fifth Assessment Report](#)
- LIDAC benefits are based on the assumed percentage of activity taking place in CJEST LIDAC-designated census tracts or census block groups at or above the 90th percentile for New York State within EJ Screen’s supplemental indices

Measure-Specific Assumptions

Table 12 describes the measure-specific assumptions.

Table 12. Measure-Specific Assumptions

Measure	Number of Projects	Location	Other
3.1 Electrify Public Sector Medium- and Heavy-Duty Vehicles and Off-Road Equipment	Incentives for 50 heavy-duty, 120 medium-duty, and 450 offroad vehicles; Bid specifications spur adoption of additional 200 vehicles per year	Not specified	n/a
3.2 Support Zero-Emission Public Transit Fleets and Infrastructure	Diesel buses replaced at end of useful life with hydrogen or electric models (70 buses per year)	Regional, not specified	Measure includes both vehicles and charging/fueling infrastructure

3.3 Support the Implementation of Smart Growth Measures	Program supports 50 communities with planning grants	Funding prioritized for disadvantaged communities	Rezoning results in increased building density and drives reductions in transportation and building sector emissions on a per capita basis
3.4 Implement Large-Scale Afforestation and Reforestation	Program supports 26 million trees planted by 2050	Plantings take place on marginal agricultural land	Investments in nursery modernization extends impact of CPRG beyond 2050; other funding needed to support continued planting
3.5 Create Resilient and Green Public Facilities	Support 10 community facilities and 25 EPC portfolios	Community facilities located in disadvantaged communities; EPC support prioritized for local governments with disadvantaged communities	n/a
3.6 Phase Out Hydrofluorocarbons and Support Natural Refrigerants	Program supports conversion of 100 commercial refrigeration systems from R507-A to R-744	Funding prioritized for disadvantaged communities	Systems are based on commercial food stores (supermarkets) and include full and partial replacements; supermarket conversions reduce refrigerant GWP by ~4000x
3.7 Support Organics Recycling	Grants to support 40 new organics programs	Funding prioritized for disadvantaged communities	Program focuses on diverting food scraps from landfill disposal; could include composting or other infrastructure
3.8 Reduce Fugitive Methane and Co-Pollutant Emissions from Landfills	Program supports 10 landfill projects; 5 flaring landfill gas and 5 generating electricity from landfill gas	Funding prioritized for disadvantaged communities	Landfill flare projects capture and compost fugitive CH ₄ ; landfill generation projects reroute CH ₄ from flare to gas turbine
3.9 Reduce Fugitive Methane and Co-Pollutant Emissions from Water Resource Recovery Facilities	Program supports 20 fuel cell systems to provide electricity and heat installed at WRRFs	Funding targeted for WRRFs with existing anaerobic digesters	Electricity and heat production offset grid electricity and natural gas usage; fugitive CH ₄ reduced through infrastructure improvements