

1. OVERALL PROJECT SUMMARY AND APPROACH

a. Description of GHG Reduction Measures

GHG Reduction Measures: The Hudson Valley Regional Council (HVRC) is submitting a coalition application, titled Mid-Hudson Municipal Building Electrification Coalition, for 10 municipalities in the Mid-Hudson Region of New York. This application requests support for the upgrading of older municipal buildings' HVAC systems to install and/or retrofit of energy efficient heat pump HVAC systems to reduce government operation building emissions. Additional measures that are part of this project include: LED lighting, programmable thermostats, and variable frequency drives (VFD). Three municipalities have also earmarked funds for energy audits in buildings they are researching for future energy upgrades or have planned retrofits.

The municipalities from Dutchess and Westchester Counties participating in the coalition application appear below. More detailed information on the individual decarbonization improvements is available in the GHGcalcs_HVRC-HP workbook.

1. City of Peekskill, Westchester: heat pumps for City's police station and courthouse building, along with a refrigerant flow (VRF or VRV) heat recovery system to make the new heat pumps more efficient.
2. City of White Plains, Westchester: ground source heat pumps and drilling geothermal wells for the City's library, along with necessary building HVAC renovations.
3. Town of Amenia, Dutchess: heat pumps for the Town Hall.
4. Town of Pleasant Valley, Dutchess: heat pumps for the Town's new and fully electric Town Hall.
5. Town of Poughkeepsie, Dutchess: heat pumps for the Town's senior center and several pump stations, along with energy audits and several VFDs to make the current system more efficient.
6. Village of Irvington, Westchester: heat pumps for the Town Hall.
7. Village of Ossining, Westchester: heat pumps for two firehouses.
8. Village of Rhinebeck, Dutchess: heat pumps for Village Hall, along with a VFD to make the new heat pump system more efficient.
9. Village of Tarrytown, Westchester: heat pumps for a pump station, along with LED lighting and energy audits for several buildings.
10. Village of Wappingers Falls, Dutchess: heat pumps for the Village's police department building, along with programmable thermostat and several energy audits.

Problem Statement: This coalition application was formed at the behest of municipalities that are seeking funding to support the conversion of their municipal buildings to clean heating and cooling technology and/or improve the energy efficiency of those buildings. Many of these buildings provide important resiliency functions for their municipalities. Residential and commercial buildings are responsible for approximately 40% of the US's energy consumption, 74% of its electricity use, and 35% of its total carbon emissions, making it the largest energy consuming sector in the nation. Additionally, approximately 40% of that energy used in buildings is associated with heating.¹

These municipalities have all set ambitious targets for reducing energy consumption and greenhouse gas (GHG) emissions in their municipal climate action plans by choosing to align with NY State's Climate Leadership and Community Protection Act goals to reduce GHG emissions 40% by 2030 and 85% by 2050. Heat pumps are cleaner and highly energy-efficient heating and cooling systems that can help

¹ <https://www.energy.gov/articles/doe-announces-46-million-boost-energy-efficiency-and-slash-emissions-residential-and>

achieve these goals by reducing reliance on fossil fuels and lowering carbon emissions. This coalition project will not only result in cleaner air with significantly reduced GHG emissions from local municipal buildings, but it will also serve as a compelling example and inspiration for residents and other local communities. By embracing heat pump technology, municipalities can spearhead a sustainable transition in heating and cooling systems, accelerating the transition to resilient building decarbonization projects on a regional, state, and national scale.

These conversions are not simple and straight-forward. Some of the main challenges these conversions present for municipalities generally include 1. high project costs; 2. inopportune timing, if current systems are not near end of life; 3. electrical infrastructure constraints; 4. low availability of trusted contractors; and 5. insufficient capacity of municipal staff.

Coalition Background & MOA Affirmative Declaration: HVRC is applying as the lead applicant for this coalition of municipalities that began working together in 2019. The coalition of 10 municipalities are part of a larger cohort participating in HVRC's [Climate Action Planning Institute \(CAPI\)](#), and funded by the New York State Department of Environmental Conservation and Hudson River Estuary Program . As a result of CAPI, all participants have thus far completed individual municipal GHG Emissions Inventories and draft Government Operations Climate Action Plans (GOCAP). CAPI municipalities have identified and strategized the most impactful municipal decarbonization projects through the creation of effective municipal planning documents that identify their achievable climate objectives.

Funding from the CPRG program will enable these climate leaders – five municipalities from Dutchess County and five municipalities from Westchester County – to achieve a major milestone: implementing their high priority GHG reduction measures as outlined in their draft GOCAPs. Each municipality has submitted a letter of intent to sign the Memorandum of Agreement (MOA). An MOA signed by each municipality will be submitted to EPA by July 1, 2024.

Major Features, Tasks, Deliverables, Milestones, Responsible Parties, and Coalition Roles & Responsibilities:

The Workplan Table outlining the features and associated individual tasks, deliverables, milestones, and responsible parties for the project appears below. Combined, they ensure that every step in the Mid-Hudson Municipal Building Electrification Coalition will meet the projected emissions reductions and ensure success of the project. By decreasing or eliminating fossil fuel equipment in municipal buildings and installing more efficient equipment, this project will reduce the emissions from these buildings.

While each of the 10 municipal coalition members will be ultimately accountable for project success, HVRC will assist in project management during the design, procurement, and construction phases of the projects to minimize risk and maximize project success. HVRC will accomplish this in partnership with a local nonprofit organization serving as a sub-awardee, Sustainable Westchester (SW), and municipal staff leads. SW has a decade of experience helping complete commercial decarbonization projects. In particular:

- Design: HVRC will provide coordination services, along with SW, to ensure that the design of individual decarbonization projects meet industry best practices to the greatest extent practicable. HVRC may provide guidance on permitting and regulatory approvals. HVRC will assist with EPA project requirements, such as confirmation of prevailing wage and Build America

Buy America provisions. HVRC will work closely with each coalition member, holding regular check-ins, site visits, and project reviews.

- Procurement: HVRC and SW will draft the RFP and review project requirements, specifications, scope of work, timelines, and evaluation criteria. At the request of the municipality, HVRC will participate in any pre-bid meetings to clarify any aspects of the RFP or RFP submission. HVRC will participate in the evaluation of submissions as a member of the selection committee.
- Construction: HVRC and SW will continue site visits and project reviews. HVRC will communicate with municipal building managers or building inspectors to help with compliance, address any deficiencies, and to ensure satisfactory equipment performance.
- Communications: HVRC will provide a platform for municipalities to communicate with one another online and establish a coalition web page with relevant information and resources.
- Meetings: HVRC will hold cohort meetings every two months for coalition participants to share learnings, best practices, and learn from industry experts how to maximize project success and minimize risk. Participants will also hear from professionals on how to build capacity for future decarbonization projects and to effectively promote decarbonization projects. Additionally, HVRC will work with our partner SW to hold webinars, educational events, and work with the press to educate and promote these projects to municipal residents and the public throughout the project. HVRC will pay special attention to engaging disadvantaged communities and vulnerable populations who are often most negatively affected by climate change.

WORKPLAN TABLE				
Feature	Task	Deliverable	Milestone	Responsible Party
1. Formalization of an Electrification Coalition.	1.1. Execute MOA.	1.1.1. MOA drafted for municipal review.	Apr-2024	HVRC w. Munis
		1.1.2. MOA signed by coalition municipalities.	Jun-2024	Munis
		1.1.3. MOA submitted to EPA.	Jul-2024	HVRC
2. Coalition approach to decarbonization project design.	2.1. Complete benchmarking of project building for two years prior to construction start date.	2.1.1. Utility data secured for buildings.	Y1 Q1	HVRC w. Muni
		2.1.2. Data inputted into EPA ENERGY STAR Portfolio Manager.	Y1 Q2	HVRC
	2.2. Finalize municipality-specific RFPs that meet all EPA and municipal procurement standards.	2.2.1 Webinar hosted on heat pump best practices.	Y1 Q2	HVRC w. SW
		2.2.2. Project design finalized.	Y1 Q2	HVRC w. SW
		2.2.3. RFPs drafted for municipal solicitation of project bids.	Y1 Q2	HVRC, Muni, SW
		2.2.4. RFP published to contractors including SW's vetted contractor list.	Y1 Q3	SW w. HVRC
	2.3. Choose vendor, meeting procurement standards at lowest cost.	2.3.1. Municipal selection committees organized.	Y1 Q3	HVRC, Muni, SW
		2.3.2. Bids reviewed to ensure responsiveness to RFP, all criteria met.	Y1 Q3	Muni, HVRC
		2.3.3. Selection committee meeting and vendor chosen.	Y1 Q4	Muni, HVRC
	2.4. Contract with vendor.	2.4.1. Draft contract reviewed to ensure meets RFP guidelines and municipal and EPA criteria.	Y1 Q4	HVRC w. SW
		2.4.2. All contracts signed between municipalities and vendors.	Y2 Q1	Muni
3. Successful, timely, and within budget completion of construction projects.	3.1. Work with vendor to manage construction project.	3.1.1. Site visits conducted as appropriate to project scope to ensure work is being completed as detailed in the contract.	Y2 Q1 - Y5 Q3	HVRC, SW, municipal Code Official, General Contractor for larger projects.

		3.1.2. Monthly meetings held between responsible parties to address any issues that arise (delays, procurement, construction findings, etc.).	Y2 Q1 - Y5 Q3	HVRC, municipal Code Official, General Contractor for larger projects.
		3.1.3. Final inspections and signoffs on projects.	Y4 Q1-Y5 Q3	Municipal Code Official
	3.2. Work with vendor to ensure projects follows EPA procurement standards.	3.2.1 Assuming no waiver, BABA requirements fulfilled.	Y2 Q1-Y5 Q3	HVRC, Vendor
		3.2.2. Necessary prevailing wage requirements of the grant fulfilled, such as laborer interviews and/or surveys.	Y2 Q1-Y5 Q3	HVRC
4. Evaluation of Electrification Coalition Model.	4.1. Complete benchmarking of building post-project (1 year later) to determine energy savings.	4.1.1 Utility data secured for project buildings one-year post-construction completion.	Y3 Q1- Y5 Q3	HVRC, Muni
		4.1.2. Data inputted into Portfolio Manager.	Y3 Q1- Y5 Q3	HVRC
	4.2. Calculate total energy savings and co-pollutant impacts.	4.2.1. Data analyzed to understand and calculate emissions reductions and co-pollutant impacts.	Y5 Q1-3	HVRC
5. Local knowledge sharing and capacity building on challenges and benefits of decarbonization projects.	5.1. Help residents in these communities understand impact of municipal projects.	5.1.1. Signage created for each municipal project showing GHG reduction and energy/cost savings from projects.	Y4 Q2-4	SW w. HVRC
		5.1.2. Municipal webpage created for each municipal project to show savings dashboard over time, press release, social media, targeted outreach to low-income and hard to reach communities.	Y4 Q2-4	HVRC
		5.1.3. Community members educated on resiliency efforts and on local resilient building(s) through in-person events, social media, and earned media.	Y4 Q2-4	HVRC w. Muni
		5.1.4. Community members educated on co-pollutant reductions through in-person events, social media, and earned media.	Y4 Q2-4	HVRC

	5.2. Disseminate lessons learned to encourage other municipalities with similar buildings to replicate these projects.	5.2.1. RFP Library for RFPs used in projects created.	Y5 Q1-4	HVRC
		5.2.2. Case studies of each project created.	Y5 Q1-4	SW w. HVRC
		5.2.3. Regional conference and/or webinar series to help assess feasibility of future decarbonization projects.	Y5 Q1-4	HVRC
	5.3. Plan future municipal decarbonization projects in coalition municipalities.	5.3.1. Energy audits of other municipal buildings conducted.	Y5 Q1-3	Muni
		5.3.2. GRITS used to identify future projects.	Y5 Q1-3	Muni w. HVRC
6. Effective measurement of project success through reporting in line with EPA reporting guidelines and timeframes.	6.1. Complete semi-annual reporting.	6.1.1. Semi-annual reports prepared and submitted to EPA.	twice annually	HVRC, Muni
	6.2. Complete semi-annual benefits report.	6.2.1. Semi-annual community benefits report prepared and submitted to EPA.	Y2 Q1	HVRC, Muni
	6.3. Complete final report.	6.3.1. Final report prepared.	Y5 Q3-4	HVRC, Muni
		6.3.2. Final report submitted to EPA.	120 days post-contract end	HVRC

Return to [Responsible Parties & Authorities](#).

Underlying Assumptions & Risks:

Risks that would typically be associated with a project of this type include:

- Technology: Technologies used for building decarbonization may not perform as expected or may face technical challenges during implementation.
- Financial and Construction Related: Cost overruns due to unforeseen expenses, price fluctuations in materials or labor, supply chain disruptions, or changes in project scope. Additional risks include a shortage of contractors, engineers, laborers, or municipal staff available to work on projects; quality control; contractual disputes; labor and materials costs uncovered in the official RFP process, and the more detailed site review and project analysis.
- Policy and Regulatory Risks: Changes in government policies, regulations, or incentives related to energy efficiency, renewable energy, or building codes could impact the feasibility or economics of building decarbonization projects. Regulatory uncertainty or inconsistency may create additional compliance burdens or delay project timelines.
- Market Risks: Market factors such as fluctuating energy prices, evolving consumer preferences, competition from conventional energy sources, or shifts in technology trends could affect the demand for building decarbonization solutions and the viability of related business models.
- Stakeholder Resistance or Opposition: Resistance or opposition may arise from stakeholders, such as building owners, developers, tenants, utility companies, or community members who are skeptical of the benefits, costs, or impacts of decarbonization efforts.
- Technical Capacity and Expertise: There may be a lack of technical capacity or expertise within the coalition or partner organizations to effectively plan, implement, or manage building decarbonization projects. This could include gaps in knowledge, skills, or resources needed to address complex technical challenges or coordinate multi-stakeholder efforts.
- Climate and Environmental Risks: Climate-related hazards such as extreme weather events, natural disasters, or changes in environmental conditions could pose risks to building infrastructure or disrupt project timelines.
- Legal and Liability Risks: There may be legal or liability risks associated with building decarbonization projects, including contractual disputes, claims of negligence, or non-compliance with regulations or industry standards.

HVRC aims to proactively manage and mitigate these risks through the following measures:

- Detailed Project Planning: Careful planning, contingency budgeting, and regular monitoring.
- Coalition Collaboration: Leverage collective strengths and knowledge as a cohort to share lessons learned and to collectively identify and manage risk through monthly cohort meetings and other regular coalition and stakeholder meetings.
- Scale: By collaborating as a coalition with heat pump providers and contractors, the coalition can leverage scale to get attention and results, as well as help foster larger community engagement and stakeholder buy-in for these and future decarbonization initiatives.
- Partnership: Our partners bring ample building decarbonization technical expertise, as well as experience working on projects of this kind in the region. The specialized knowledge, experience, and resources, as well as knowledge of best practices in building decarbonization, that they bring to the project will help us identify and address potential risks more effectively.

Assumptions include:

- Technology Availability: Regionally, the technologies needed for building decarbonization projects, such as heat pumps, have been available. With the general improvement to supply chains, we expect this to continue to be the case.

- **Capacity and Expertise:** The Mid-Hudson Region is a hotbed of clean energy and sustainability activity and, therefore, serves as a high-demand area for the project technologies, with relatively sufficient contractors available to meet the demand. We anticipate this project being able to rely on the Region's existing contractor base. Additionally, our project partner has the capacity, expertise, and resources available to provide the necessary support to HVRC and coalition members to effectively plan, implement, and manage building decarbonization projects, including technical, financial, and regulatory expertise.
- **Municipal Support:** Political will at the local level has been demonstrated through the provision of letters of intent. This project is a unique demonstration project and first of its kind in the Region and, as such, will be a high-profile endeavor for all participants. These elements will serve to foster ongoing political support at the local level that will facilitate sufficient municipal support and administrative attention for successful project completion.
- **Local Buy-in:** The high-profile nature of this project is expected to also engender support on the local level from residents and volunteers, community organizations, and other stakeholders.
- **Education and Behavior:** The ample education and promotion from this project is anticipated to inspire building occupants and residents to adopt more energy-efficient behaviors and practices, such as reducing energy consumption, optimizing building operations, and low-carbon lifestyles.

New York State (NYS) Priority Climate Action Plan (PCAP) Alignment: In the NYS Climate Leadership and Community Protection Act (Climate Act), the State established its goal to reduce GHG emissions 40% by 2030 and 85% by 2050. The State notes in its PCAP, "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."² Our project aligns with New York's PCAP Measure 3.5 – "Create Resilient and Green Public Facilities". The measure notes it 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 heat pumps in public municipal sites that provide a resiliency function, as well as energy audits, and envelope improvements. Facilities that are located in and serve disadvantaged communities have been prioritized 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."³ Aligning with the State's measure, HVRC has prioritized funding to municipal buildings that fall within the EPA Inflation Reduction Act (IRA) Program definition as disadvantaged, noted in the CPRG NOFO. These buildings make up 59% of the funding requested and 64% of the GHG emission benefits through 2050.

The Mid-Hudson Municipal Building Electrification Coalition also aligns with the State's PCAP as many buildings within this coalition's application serve critical resiliency functions in their respective municipality. This includes vital infrastructures, such as water treatment plants, fire stations, and police stations – all of which play essential roles in ensuring the safety and security of the Mid-Hudson Region. That being said, if both NYS and HVRC are awarded for separate proposals to support the decarbonization of buildings serving these functions, none of the municipal buildings in this proposal would receive support from CPRG twice. If both projects are funded, the buildings included in this proposal would not be eligible for NYS's proposal to CPRG. Our municipalities' projects are ready to be

² <https://www.epa.gov/system/files/documents/2024-03/nys-cprg-pcap.pdf> (p. 16)

³ <https://www.epa.gov/system/files/documents/2024-03/nys-cprg-pcap.pdf> (p. 23)

implemented today and will be able to serve as case studies if the State is also funding municipal building decarbonization efforts with CPRG dollars.

The municipalities located in Westchester County also fall under the NYC MSA PCAP. HVRC's proposal relates to the NYC MSA's measure, 3.2.6 Building Electrification and Energy Efficiency. The section on this measure notes, "authorities within the MSA are working to replace boilers in schools and other public buildings for equipment such as heat pumps so the places where people live, work, learn, and play are decarbonized."⁴ The buildings in this coalition application will also not be eligible for any CPRG projects funded using the MSA's PCAP regarding building decarbonization. HVRC and municipalities have discussed PCAP measures with both the State and the MSA teams before they submitted their PCAPs.

b. Demonstration of Funding Need

Need for Funding: The NYS Climate Act aims to reduce GHG Emissions 40% by 2030 from 1990 levels. New York's Carbon Neutral Buildings Roadmap emphasizes heat pumps as a "very high" priority and a critical part of the decarbonization solution. Although there are significant GHG emission reduction and air quality improvement benefits to electrifying buildings, chief barriers are high equipment and installation costs.

Baseline conditions—such as the type of existing heating and distribution system, size of electric service/panel or distribution lines, extent of occupant disruption, and environmental remediation needed for both weatherization and electrification—can make upgrades expensive and complex. In the Mid-Hudson Region, older buildings of unique stock are commonplace for Town Halls, libraries, police stations, and firehouses. For example, the City of White Plains, with 59,500 residents, anticipates the cost to upgrade its 1974 Brutalist-style library from existing gas-fired boilers to a ground-source heat pump system to be more than \$3.5 million due to the building size and complexity of implementing a geothermal system. The Village of Rhinebeck, with 2,700 residents, recognized as a historic district by the State of New York Historic Preservation Office and the Department of Interior's National Register of Historic Places, anticipates the cost to upgrade its 1970 Village Hall to air-source heat pumps to be close to \$1 million due to necessary remediation work.

Current fuel costs are also a chief barrier to installing heat pumps. Electricity costs are high relative to combustion fuel energy costs.⁵ In 2018, the average cost of electricity in NYS for commercial buildings was \$42.50/MMBtu compared to \$7.13/MMBtu for natural gas and \$17.98/MMBtu for propane.⁶ Electricity prices in NYS are higher than the US average; electricity in New York is approximately 4.27 cents/kWh more expensive than the national average.⁷ The lower payback makes the natural gas-to-heat-pump conversion less attractive despite the GHG reduction benefits.

Other Funding Sources:

⁴ <https://njtpa.maps.arcgis.com/sharing/rest/content/items/e0e185dfc5fd463792730c72d39030ed/data> pg. 64

⁵ Figure 4 – Average Fuel Costs by U.S State (in \$/kBtu)

<https://portfoliomanager.energystar.gov/pdf/reference/FuelMixandCost.pdf>

⁶ <https://www.nyserda.ny.gov/-/media/Project/Nyserda/Files/EDPPP/Energy-Prices/Annual-Prices/Annual-Prices-Commercial.pdf>

⁷ <https://www.eia.gov/state/data.php?sid=NY>

Federal Funding Sources: The 2022 IRA includes tax incentives, grants, and loans to support and accelerate the deployment of clean energy, clean vehicles, clean buildings, and clean manufacturing.⁸ Nonprofits, municipalities, and other tax-exempt organizations can directly access IRA tax credits through “direct pay” or “elective pay.” There are 12 IRA tax credits that are eligible for direct pay, including investments in manufacturing, clean vehicles, clean fuel production, clean energy generation, and carbon capture. This direct pay incentive is currently incorporated into the cost of the piece of this project that is expected to be a ground source heat pump, but the tax credit alone is not sufficient for this project. Direct Pay incentives do not include air-source heat pumps.

Non-Federal Funding Sources:

- a. NYS’s Department of Environmental Conservation Climate Smart Communities Grant Program provides 50% matching grants up to \$2M for municipal climate adaptation efforts. This funding is not applicable. The Town of Pleasant Valley received a CSC grant to relocate its Town Hall out of a flood zone. Heat pump installation is not applicable under this grant award as it is not a necessary component of the relocation project, and the grant program does not fund GHG mitigation projects related to building energy efficiency.⁹
- b. The NYS Energy Research and Development Authority (NYSERDA) Clean Energy Communities (CEC) Program provides generally small (between \$5-250K) no-match grants for municipalities when they reach a certain number of points in the CEC Program. Points are achieved by taking clean energy actions, such as installing heat pumps. The grants can be used to install heat pumps and complete building energy efficiency upgrades. The municipalities in this application participate in the CEC program and most are CEC Designated, but the funding is first come first served and the program will end in 2025.
- c. The NYS Clean Heat Program offers rebates and incentives to commercial entities for HVAC upgrades. The incentive amount is based on the local utility provider offerings. The incentives are not sufficient. They cover a portion of the equipment costs but no other materials and installation costs. The Dutchess County municipalities will be utilizing these rebates where applicable. Municipalities in Westchester are generally not eligible for these incentives because their electricity supplier is NYPA, a NY Authority, as they do not pay into the Systems Benefit Charge that qualifies customers for the Program.

a. Transformative Impact

Challenge Statement: Municipal buildings are critical facilities for communities – from libraries to firehouses to community centers, these buildings are used daily by residents, municipal staff, and elected officials, and can be critical in emergencies. Yet most municipal buildings are old—the buildings in this coalition range from 70-year-old brutalist structures to 150-year-old schoolhouses converted into town halls. Upgrading HVAC systems for these buildings is expensive and complex yet must be done if New York and the United States are to meet our climate goals.

Another major challenge with decarbonizing buildings is scale – each building is non-standard. The small scale and complexity of these projects often fails to generate sufficient interest from contractors and engineers. This problem is further magnified by the issues faced by municipalities seeking to reduce

⁸ <https://www.whitehouse.gov/wp-content/uploads/2022/12/Inflation-Reduction-Act-Guidebook.pdf>

⁹ https://www.dec.ny.gov/docs/administration_pdf/23cscrf.pdf

their carbon footprint: finding engineers and contractors who possess a deep understanding of energy-efficient technology.

Transformative Impact: This program will showcase the feasibility of regionally upgrading HVAC systems across small municipalities. By combining projects of a similar nature, we hope to attract greater interest from construction firms, increase learnings and regional interest, achieve economies of scale and potentially lower project costs. The transformative impact of this project stems from the pioneering coalition approach: leveraging learnings, and best practices at scale to ensure all projects are completed with the same level of efficiency, care, and affordability. We will aim to consolidate projects to reduce costs wherever possible, including by considering the possibility during the RFP process of having the same contractor for multiple projects. The quotes municipalities received to craft the budget for this project differ considerably. The development of a coordinated and level-set bid process is expected to result in improved pricing competitiveness and standardization of quality of work.

We will leverage learnings with Program benchmarking studies, energy cost analysis from ClearPath and GRITS platforms, and other state-of-the art tools. Learnings will stem from topics such as contractor experiences, materials evaluation, emissions analysis, and building resiliency. We will promote those learning in case studies, press events, webinars, social media and online, and articles, and develop targeted outreach to ensure municipalities are armed with the expertise needed to confidently implement similar projects.

By seeking to convert these very different buildings, this project will not just decarbonize those specific buildings but have a ripple effect beyond the municipalities participating. Embracing heat pump technology and other building energy efficiency measures through a coalition approach will help scale up the transition to building decarbonization projects on a regional and state level. Last, coalition municipalities will demonstrate leadership and innovation in addressing climate mitigation, adaptation and resiliency, and further position themselves as leaders in the transition to a low-carbon economy, attracting investment, talent, and recognition on regional, state, and national levels.

2. IMPACT OF GHG REDUCTION MEASURES

HVRC utilized ICLEI's ClearPath platform to calculate municipal building emissions reductions from implementing the proposed decarbonization measures.¹⁰ The Global Warming Potential values from the 2013 IPCC AR5 Fifth Assessment Report were used to estimate GHG emissions reductions.¹¹ The narrative portions of Sections 2.a. Magnitude of GHG Reductions from 2025 through 2030 and 2.b. Magnitude of GHG Reductions from 2025 through 2050 reference the below table.

Name of Municipality	GHG Emissions Reductions 2030	GHG Emissions Reductions - 2050
City of Peekskill	164	984
City of White Plains	448	4,928

¹⁰ <https://icleiusa.org/clearpath/> ClearPath is an online application for the calculation, tracking and management of GHG emissions for government operations and community, created and managed by ICLEI.

¹¹ IPCC Fifth Assessment Report (AR5). [Global Warming Potential Values](#).

Town of Amenia	148	851
Town of Pleasant Valley	129	989
Town of Poughkeepsie	180	1,080
Village of Irvington	232	1,392
Village of Ossining	88	528
Village of Rhinebeck	219	1,679
Village of Tarrytown	95	475
Village of Wappingers Falls	50	250
TOTAL	1,993	16,140

a. Magnitude of GHG Reductions from 2025 through 2030

The cumulative emissions reductions from 2025-2030 for 10 participating municipalities equals 1,993 MTCO₂e. Once reduction measures are installed, they will be there until the equipment is replaced, therefore this measure will result in a long-term reduction in cumulative GHG emissions. Note – ClearPath considers the three main GHGs: carbon dioxide (CO₂), methane (CH₄), and nitrous oxide (N₂O). Hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF₆) are typically emitted in much smaller quantities and exist in relatively low atmospheric concentrations compared to CO₂, CH₄, and N₂O, which are the primary GHG gases emitted from human activities. Also, while these reductions are anticipated to last through the timeframes in question, there may be (a) a potential slight loss in GHG reductions as equipment ages, (b) lower GHG reductions by equipment over time as compared to new technology.

b. Magnitude of GHG Reductions from 2025 through 2050

The cumulative emissions reductions from 2025-2050 for 10 participating municipalities equals 16,140 MTCO₂e. Heat pump systems typically have a lifespan of 10 to 20 years or more, depending on factors such as maintenance, usage, and technological advancements. GHG emissions reductions associated with heat pump installations can be expected to persist throughout the operational life of these systems. The emissions reductions associated with this project are continuous and cumulative until 2050 as it is expected that municipalities will not revert to fossil fuel equipment when this equipment is replaced. The duration of GHG emissions reductions also depends on the energy source powering the heat pumps. Ongoing efforts to decarbonize the electricity grid can contribute to sustained GHG emissions reductions from heat pump operations.

c. Cost Effectiveness of GHG Reductions

Cost effectiveness of GHG reductions = $(\$9,306,402) / (1,993) = \$4,670/\text{MTCO}_2\text{e}$. This project has a direct GHG reduction cost of \$4,670 per MTCO₂e reduced for the 2025-2030 period. This cost effectiveness calculation is based on industry-standard models for the calculation of the GHG reductions as well as sound cost estimates and budgeting, as explained in the budget narrative. The cost per MTCO₂e is high, but this project has significant co-benefits, such as increasing resiliency in disadvantaged communities. The electrification of buildings is necessary to reduce climate pollution and older commercial buildings are some of the most complex buildings to electrify. These projects will serve as case studies for future municipal electrification projects.

Factors affecting the reduction measures' cost-effectiveness:

- Price increases or decreases, changes to federal, state, or regional tax credits or rebates, or other financial incentives, could also affect the project's cost effectiveness.
- Heat pumps technological advancements that happen in the coming few years could lead to cost reductions and performance improvements.

d. Documentation of GHG Reduction Assumptions

Please see the technical appendix for an explanation of the methodology, assumptions, and data elements used to calculate GHG emissions. The GHG emission reduction calculation spreadsheet "GHGcalcs_HVRC" includes calculations for anticipated emission reductions for each participating coalition member.

3. ENVIRONMENTAL RESULTS

The Mid-Hudson Municipal Building Electrification Coalition meets Goal 1: Tackle the Climate Crisis, Objective 1.1: Reduce Emissions that cause Climate Change of EPA's Fiscal Year 2022-2026 Strategic Plan.

- a. Outcomes and Outputs:** The expected outcomes, outputs, timeline, and performance measures for the Mid-Hudson Municipal Building Electrification Coalition are listed below.

OUTCOMES, OUTPUTS, & PERFORMANCE MEASURES TABLE			
Outcomes	Outputs / Activities	Timeline	Performance Measures
Decrease in energy use, GHG emissions and co-pollutants from municipal buildings determined.	Baseline benchmarking in EPA ENERGY STAR Portfolio Manager.	Y1 Q1-2	Pre-construction benchmarking reports and modeled co-pollutant analyses prepared for 10 municipal buildings.
	Benchmarking of energy use post clean HVAC technology installation.	Y5 Q2-4	Post-construction benchmarking reports and modeled co-pollutant analyses prepared for 10 municipal buildings, including pre- to post-construction comparison.
Development of a coordinated and level-set bid process resulting in improved pricing competitiveness and standardization of quality of work.	RFP(s) Finalized that meet all EPA and municipal procurement standards.	Y1 Q2	1-10 RFPs published.
	Vendor(s) chosen that will meet procurement standards at the lowest cost.	Y1 Q3-4	1-10 vendors under contract.
Decreased emissions and co-pollutants from more resilient, energy efficient municipal buildings.	Installation of energy efficiency and building envelop measures.	Y2Q1-4 - Y4Q1-4	Energy efficiency and building envelope measures installed in 3 buildings.
	Installation of clean HVAC technology.	Y2Q1-4 - Y4Q1-4	Installation of technology in 10 municipal buildings.
	Establish maintenance schedule for clean HVAC technology to ensure GHG emissions are maximized by ensuring efficient operation of technology.	Y4 Q1-4	Incorporation of maintenance schedule in 10 municipal procedure manuals.
Increased understanding by participating municipalities of benefits from GHG emissions-reducing-measures.	Conduct cohort meetings with municipal project implementers to share questions, status, challenges, and lessons learned.	Y1 Q1 - Y5 Q4	30 cohort meetings conducted on an approximately every other month schedule.
	Creation of webpages for municipal websites on decarbonization project + dashboard showing savings over time.	Y4 Q1-4	Screenshots and hyperlinks of 10 municipal decarbonization webpages.
	Project overview meeting reporting on pre-construction benchmarking reports and project goals.	Y1 Q4	Minimum 20 coalition member participants.

	Project completion webinar reporting on scope of work completed, project accomplishments, and projected energy use and GHG emissions reductions.	Y5 Q1-2	Minimum 20 coalition member participants.
Increased municipal decarbonization projects regionally.	Establish RFP library available to Mid-Hudson municipalities.	Y3 Q1-2	RFP library established on HVRC website, hyperlink and screenshot provided.
	Develop individual project case studies outlining project goals, how goals accomplished, challenges/opportunities, lessons learned.	Y5 Q1-2	10 case studies developed, posted on municipal and HVRC websites, and disseminated by HVRC to 203 Mid-Hudson municipalities.
	Host webinar reporting on scope of work completed, projects accomplishments, and projected energy use and GHG emissions reductions.	Y5 Q1-2	Minimum 50 participants from Mid-Hudson municipalities.
	Conduct energy audits on municipal buildings in coalition where requested.	Y1 Q1-4 - Y5 Q1-2	11 energy audit reports.
Increased understanding by coalition residents of decarbonize benefits and path to decarbonization.	Create signage showing GHG reduction, energy/cost savings of implementing project.	Y4 Q1-4	10 project-specific signs created and posted, 1 in each building.
	Create project webpage for each municipality showing savings dashboard over time.	Y4 Q1-4	Screenshots and hyperlinks of 10 municipal decarbonization webpages.
	Inform community of decarbonization project and co-pollutant reductions through in-person events, social media postings, and earned media.	Y4 Q1-4	At project inception: 10 press releases, 1 per municipality; throughout project: 50 social media posts, 5 per municipality, and 10 in-person tabling events.
EPA regularly informed of project and benefits to low-income and disadvantaged communities.	Semi-annual progress reports prepared.	twice yearly	9 semi-annual progress reports.
	Final report prepared.	Y5	1 final report.

CAP and/or HAP emissions:

By reducing fossil fuel consumption and emissions associated with combustion-based heating systems, heat pumps contribute to improvements in outdoor air quality. New York has been found to emit more building air pollution (including fine particulate matter, NOx, SOx, VOCs and ammonia) than any other State.¹² This project will have a tangible reduction on CAP and HAP emissions in the Region.

Furthermore, as the electricity used to power heat pumps increasingly comes from clean and renewable sources, the overall environmental impact is further reduced. Lastly, as more buildings adopt heat pumps and other energy-efficient technologies, there may be a cumulative grid effect on reducing emissions at a broader scale, which can contribute to overall improvements in outdoor air quality in communities.¹³

b. Plan for Tracking & Measuring Progress and GHG Reduction Measure Evaluation

Performance Measures and Plan: The plan for tracking and measuring progress toward achieving the expected outputs and outcomes was established in the Outcomes, Outputs, & Performance Measures Table in Section 3.a The Coalition will continue to use ICLEI's ClearPath software to model the GHG reductions. HVRC will facilitate this through the cohort meetings. This will be a continuation of the GHG inventorying and climate action planning work this group has undertaken together for the past few years. At the beginning of the project, HVRC will walk cohort members through Clearpath's GHG emissions business-as-usual forecasts and reduction measure modeling to review findings and ensure

ECI Project Savings

Cornell uses the [Green Revolving Investment Tracking System \(GRITS\)](#) to track and calculate project-level energy, financial, and carbon savings data for all ECI projects and efficiency improvements. Check out [Cornell's GRITS public dashboard](#).


Cornell University			
TOTAL PROJECTS FUNDED (COMPLETED / IN-PROGRESS)	TOTAL INVESTED TO DATE	MEDIAN ANNUAL ROI	MEDIAN PAYBACK PERIOD
68 / 2	\$ 48,036,886	13.34%	5.03 years
MEDIAN ANNUAL EMISSIONS ABATED	TOTAL FINANCIAL SAVINGS TO DATE	TOTAL ENERGY SAVINGS TO DATE	TOTAL EMISSIONS ABATED TO DATE
322.71 MTCO ₂ e	\$ 75,147,447	3,550,212 MMBtu	321,708 MTCO ₂ e
Efficiency data powered by  GRITS			
* Includes investments to in-progress projects without savings to date Last updated 03/23/2024			

Figure 1. An example of a GRITS dashboard from Cornell University. See:

<https://sustainablecampus.cornell.edu/buildings-energy/energy-conservation-initiatives>.

any new cohort members understand assumptions, factors, and methods for measuring GHG emissions reductions. At project completion, the group will review emissions projections again to determine original accuracy. In addition, we will use EPA's ENERGY STAR Portfolio Manager tool to measure energy and emissions reductions upon project completion. We will use the GRITS software to quantify and disclose the emission reductions in a visually appealing webpage dashboard for each municipality, showing both emissions and energy cost savings to date.

A significant portion of this project relates to disseminating and publicizing project details and results to show the impact of these projects to other municipalities and residents in each of the communities. HVRC will assist the municipalities to publicize their

projects through social media, a press release, and in-person events in their jurisdiction. In addition, they will participate in a webinar HVRC will host for other municipalities in the Mid-Hudson Region. HVRC will create case studies about each of the projects, host a web site highlighting the project results, including the total GHG reductions of all the projects. HVRC will also create an RFP library for all the RFPs used and a hub of resources to serve other municipalities in their decarbonization projects moving forward.

¹² Gruenwald, T., Mushegan, S. (2021) New York Emits more Building Air Pollution than any Other State. RMI. <https://rmi.org/new-york-emits-more-building-air-pollution-than-any-other-state/>.

¹³ International Energy Agency, [Report on the Future of Heat Pumps](#).

Evaluation of GHG Reduction Measure: Working with New York’s Co-pollutant Impact Benefits Analysis Based on Emissions and/or conducting our own analysis using methods in CPRG’s Technical Reference Document, Benefits Analyses: Co-Pollutant Impacts, we will proportionally apply the changes estimated for GHGs to co-pollutants, to ensure that this project is able to quantify and disclose the actual GHG emission reductions as well as associated CAP/HAP changes accomplished by decarbonizing these buildings.

Tracking and Measuring Progress on Outcomes and Outputs: The tasks and deliverables in the [Workplan Table](#) (section 1a.) associated with each project outcome and output in the [Outcomes, Outputs, and Performance Measures Table](#) will be tracked using an Excel-based tracking sheet based on identified performance measures.

Disclosing Actual GHG Emissions Reductions & Associated CAPs/HAPs: The [Outcomes, Outputs, & Performance Measures Table](#) outlines the comprehensive dissemination approach that will be taken as part of this project. The effective and efficient use of social media, municipal webpages, webinars, signage, and in-person events and technical assistance libraries (i.e., RFPs) detailed in the Table will exceed the typical disclosure approaches for projects of this type.

c. Responsible Parties & Authorities

The [Workplan Table](#) in section 1a. identifies the responsible parties for each deliverable necessary for successful implementation of the GHG reduction measure, Municipal Building Decarbonization Coalition Program. The Workplan Table also details the Milestones for each deliverable and the [Outcomes, Outputs, & Performance Measures Table](#) details the timeline for completing specific outputs. Below find an overview of the parties responsible for implementing the Program, which consists of the lead applicant, 10 coalition members, and a specialist partner consultant.

Lead Applicant: The lead applicant is HVRC, a regional planning organization established by the Mid-Hudson Region’s seven county governments: Dutchess, Orange, Putnam, Rockland, Sullivan, Ulster, and Westchester. HVRC will manage the project on behalf of the 10 municipalities and as such will have complete oversight and responsibility for ensuring full project implementation. HVRC will also be responsible for completion and submission of the required reporting, which appears as #7 in the [Workplan Table](#). This lead applicant role is noted in the Workplan Table where HVRC appears. The interested municipalities have provided HVRC the authority to implement the tasks outlined in the Workplan Table by way of signed letters of intent. If the grant is awarded, HVRC will further affirm that authority through a memorandum of agreement for the coalition to be sent to EPA by July 1, 2024.

Coalition Members & Sub-awardees: The coalition is comprised of 10 municipalities based in Dutchess and Westchester Counties in NYS, which were listed on page 1 of this application. They are a subset of HVRC’s CAPI cohorts. Coalition members will be responsible for implementing projects on their own buildings and will lead project implementation, with extensive support from HVRC and SW. Each coalition member has submitted a letter of intent affirming their participation in the project. HVRC will be ultimately accountable for program success.

General Construction Management & Sub-Awardee: Sustainable Westchester, our partner consultant, is participating as a sub-awardee. SW is a municipality-led entity that delivers climate solutions to the governments, businesses, organizations, and people of Westchester County. SW’s commercial building

decarbonization team has been operating as a project manager for private sector building decarbonization projects throughout the County for nearly a decade. The SW team was recently awarded a three-year contract with the Department of Energy (DOE) to provide grants to up to 32 nonprofits throughout NYS for energy efficiency upgrades. SW's DOE grant will utilize the knowledge they gain to assist our coalition program. SW's scope of work will broadly entail participating in regular meetings with the coalition and fielding periodic requests for assistance/guidance from HVRC staff in best practices for project management during the grant period when issues arise.

For each municipality, they will use GRITS and other tools to understand additional efficiency measures that may be applicable. They will work in collaboration with HVRC on draft RFPs for municipalities to utilize and help review bids, support connection to tax specialists, connect with workforce development partners, and assist with signage and case studies. In addition, SW will work with HVRC and the municipalities at selected points during the implementation process to ensure that the project is completed on time and as detailed in the budget. The points include project RFP, contracting, design review, installation review, and any variations outside of the proposed design.

4. LOW-INCOME AND DISADVANTAGED COMMUNITIES

a. Community Benefits

The EPA EJScreen Tool was used to identify low-income and disadvantaged communities according to EPA's IRA definition. This project includes several census blocks that meet the definition. Municipalities with a building decarbonization project in an EPA IRA census block include the Cities of Peekskill and White Plains, Town of Amenia, and Village of Ossining. The buildings in these communities make up 59% of the total funding request and 64% of the GHG reduction benefit of this application, exceeding the Justice40 goal of 40% of benefits of federal investments flow to Disadvantaged Communities.

All buildings in this application serve their communities in various ways. The City of White Plains will be decarbonizing its downtown library. The library serves as a designated heat advisory/cooling center on dangerously hot or cold days, serving White Plains' residents without air conditioning or heat. The City of Peekskill plans to decarbonize its courthouse and police complex, which is a part of a larger building facility that includes community amenities and services. The Town of Amenia will decarbonize its Town Hall, which is an old, converted school house with several meeting rooms, gymnasium, and auditorium that Town residents use. The Village of Ossining plans to install heat pumps in its two volunteer fire houses. The Village of Wappingers Falls also contains an EPA IRA low-income and disadvantaged census block. Although the project is not located in that census block, the building still serves the greater community. The availability of these future resilient structures to each municipality's community members will form important, local climate adaptation solutions. Please see attached Areas_HVRC-heatpumps for the list of affected census tracts and blocks.

Negative Project Impacts: There are very few negative potential impacts associated with this project. There is some potential for increased noise during the construction, but it would be short-lived. In addition, adding heat pumps would increase the electricity use of the building. However, this increase would be relatively small, and heat pumps are 2 to 3 times more efficient than most current fossil-fuel heating systems, and therefore energy usage overall will decrease.¹⁴

¹⁴ <https://www.rewiringamerica.org/my-home/heating-and-cooling/heat-pumps-reduce-pollution>

Direct and Indirect Benefits: Combustion of fossil fuels can release harmful indoor air pollutants such as particulate matter and carbon dioxide. Installing heat pumps not only eliminates combustion-related air pollutants but also filters indoor air of dust, dirt, and allergens.¹⁵

Heat pumps are also more efficient at removing heat and humidity from the air than traditional air conditioning systems.¹⁶ The Town Hall in Amenia, which is located in a low-income and disadvantaged community, currently does not have any air conditioning. This leaves Town Hall staff and residents vulnerable to heat-related health risks. As heat wave events become more prevalent and intense in this region, ensuring that there is access to sufficient cooling at emergency centers will be vital.

CAP and/or HAP emissions:

As noted earlier, NY consumes more fossil fuels in its residential and commercial buildings than any other state in the country.¹⁷ This impacts residents of Disadvantaged Communities, as research suggests that low-income communities may experience increased health impacts from air pollution due to many environmental, social, and economic factors. Pollutants from fossil fuels, including fine particulate matter (PM_{2.5}), NO_x and SO_x, and VOCs can cause asthma attacks, hospitalizations, and even premature death.¹⁸

Impact on Low-Income and Disadvantaged Communities:

City of Peekskill: The census block that the project is located in meets the EPA IRA Disadvantaged Community criteria. It is at the 91st percentile for traffic proximity and 91st percentile for Superfund proximity. The City includes two Justice40 census tracts that are identified for climate change, energy, health, housing, and workforce development burden and census blocks that are at the 98th percentile for ozone exposure, 97th percentile for diesel particulate matter, 97th percentile for toxic releases to air, 99th percentile for lead paint, 97th percentile for hazardous waste proximity, 98th percentile for underground storage tanks, and 98th percentile for wastewater discharge. The City is home to a predominantly lower income and Hispanic/Latino population (41.3%).¹⁹ The police building and courthouse is a part of a building that includes a neighborhood center, a library, and serves as a cooling center. This broader facility provides other community services like classes for seniors and the public. Upgrading the building to heat pumps will improve its overall energy efficiency and improve its capacity as an emergency cooling center.

City of White Plains: The project is in a Justice40 Disadvantaged census tract and EPA IRA Disadvantaged census block. The census tract meets the housing, transportation, and workforce development burden, and the census block is at the 94th percentile for ozone, 92nd percentile for diesel particulate matter, and 93rd percentile for traffic proximity. It is also worth noting that the rest of the City also contains census tracts that meet the workforce development burden and census blocks that are at the 90th percentile for particulate matter, 94th percentile for air toxics cancer risk, 94th percentile for lead paint, and 95th percentile for underground storage tanks. Based on this data, air quality and exposure to air pollutants

¹⁵ <https://www.sciencedirect.com/science/article/abs/pii/S0091674999704161>

¹⁶ <https://www.architecturaldigest.com/reviews/hvac/heat-pump-vs-ac>

¹⁷ [New York Emits More Building Air Pollution Than Any Other State](#), Rocky Mountain Institute, May 2021.

¹⁸ [EPA Research: Environmental Justice and Air Pollution](#)

¹⁹ US Census. <https://www.census.gov/quickfacts/fact/table/peekskillcitynewyork/PST045223>

are prevalent environmental risk factors. Switching to heat pumps will reduce the amount of air pollutants that are emitted through traditional combustion heating.²⁰

Town of Amenia: The entire municipality is categorized as a Justice40 Disadvantaged Community. The census block that the Town Hall is located in is also at the 92nd percentile for the Lead Paint Supplemental Indexes. The census block is also at the 84th percentile for Superfund site proximity, indicating a higher proportion of Superfund sites on the National Priority List within 5 km of the average resident in the block group. Although this project will not directly address these risks, it can be assumed that retrofitting the Town Hall will improve building quality overall.

Village of Ossining: The two census blocks that the firehouses are in are categorized as Justice40 Disadvantaged Communities. The census block that the project is located in is at the 92nd percentile for ozone. It is also worth noting that the surrounding census blocks in are at the 93rd percentile for diesel particulate matter, 93rd percentile for traffic proximity, 89th percentile for lead paint, 88th percentile for superfund proximity, and 90th percentile for wastewater discharge. While the buildings themselves do not serve a climate resiliency function, the Ossining Fire Department consists of an all-volunteer force. This project will improve the working conditions for those who provide critical first responder services to the community.

Village of Wappingers Falls: The municipality contains one census block that meets the EPA IRA Disadvantaged Communities criteria. The census block is at the 90th percentile for lead paint, 95th percentile for superfund proximity, and 82nd percentile for hazardous waste proximity.

Plan to Report Benefits: HVRC will assess, quantify, and report benefits and avoided disbenefits to these (and all) communities, including co-pollutant impacts (e.g., CAP and HAP reductions), throughout the grant period. Working with New York's Co-pollutant Impact Benefits Analysis Based on Emissions and/or conducting our own analysis using methods in CPRG's Technical Reference Document, Benefits Analyses: Co-Pollutant Impacts, we will proportionally apply the changes estimated for GHGs to co-pollutants. The reporting approach described in section 3.b Disclosing Actual GHG Emissions Reductions & Associated CAPs/HAPs and detailed in the [Outcomes, Outputs, & Performance Measures Table](#) will be the same platform used to report benefits and avoided disbenefits.

b. Community Engagement

Input: Inclusive community engagement is critical for successful environmental decision-making at the local level. HVRC has repeatedly emphasized this point to all participating Coalition Program participants over the last year in its work assisting municipalities with their Government Operations GHG Emissions Inventories and draft Government Operations Climate Action Plans (GOCAP), and Climate Vulnerability Assessments. Each municipality created a Public Engagement and Outreach Plan, which outlined strategies for public participation and transparency. To implement these plans, municipalities established websites, held workshops, attended community events, posted draft plans for comment online, and distributed information through mailings, social media, and flyers. They consulted municipal departments and committees, including those serving vulnerable populations and promoting economic development, such as business, youth or senior councils and advisory boards. Special efforts were made to engage hard-to-reach populations, such as tabling at parks in low-income neighborhoods and translating materials into Spanish. Diverse partners were consulted, and input and

²⁰ <https://www.iea.org/reports/the-future-of-heat-pumps/executive-summary>

feedback will inform plan revisions.

Meaningful Engagement: If awarded this grant, HVRC will continue to direct municipalities to implement these strategies and explore additional new and meaningful ways to connect with the community, ensure robust public engagement, and encourage public input. Feature 5, specifically Tasks 5.1 and 5.3, in the [Workplan Table](#) present how municipalities will ensure their communities are heard and included in the projects this grant funds. HVRC will ensure that municipalities incorporate a community-elected member into the project team and continue to raise awareness about the significance of clean heating technologies in combating climate change -- technologies that aid in decreasing greenhouse gas emissions and co-pollutants, addressing indoor air pollution, and lowering municipal energy expenses. The signage, webpages, etc., will be available in languages represented in these communities. HVRC will build on the CAPI engagement efforts for coalition members' climate action and adaptation projects and use this project as a best practice for conducting community outreach from the planning through to the implementation phases.

Inclusion of Various Perspectives: HVRC's staff is bilingual. We will prioritize hiring staff for this project who can communicate in Spanish to ensure engagement with the Spanish-speaking populations near these buildings. There are also competent translation services available in this Region.

5. JOB QUALITY

HVRC will work with SW to draft template RFP(s) for municipality selection of project vendors. The template RFP(s) will include the grant requirements, such as prevailing wage and Build America Buy America standards, and language around the eight Good Jobs Principles, incorporated as a checklist in the bid package for vendor affirmation of whether they do or do not meet the Principles. This will focus municipalities' efforts on: 1) ensuring their contractors actively recruit from underserved communities and do not discriminate based on criteria unrelated to job performance, 2) provide family-sustaining benefits, 3) practice Diversity, Equity, Inclusion, and Accessibility in the workplace, 4) are empowered to join unions, 5) have a safe, healthy and accessible workplace, 6) excellent organizational culture, 7) are paid a stable living wage, and 8) have equitable opportunities and tools to progress. All municipalities have been made aware of the prevailing wage requirements for this grant and are comfortable moving forward to complete projects under that requirement. Ensuring the clean energy economy creates good, family sustaining jobs is critical to meeting our climate goals. This project, while diverse in that each entity may be putting out its own RFP and hiring its own contractor, will aim to put forth best practices towards clean energy job creation.

6. PROGRAMMATIC CAPABILITY AND PAST PERFORMANCE

a. Past Performance

HVRC currently has six full-time employees and one part-time employee working on Federal and State funded programs such as economic development, water quality, clean energy, and climate action planning. Below are descriptions of four of those programs on which we are the direct recipient:

Project Title: Hudson Valley Regional Council and EDD Comprehensive Economic Development Planning and Technical Assistance

Assistance Agreement Number: ED22PHI3020067

Federal or Non-federal Funding Agency and Assistance Listing Number: 11.302

Agreement Description: HVRC has received grant funding from the US Department of Commerce Economic Development Administration (EDA) to develop a Comprehensive Economic Development Strategy (CEDS) for the Region every five years, with annual updates in between. The staff at HVRC assist municipalities and eligible entities throughout the Region with the application process for EDA's various grant offerings.

Funder Contact: Lucas Martin, LMartin2@eda.gov

Management of Agreement: HVRC has received EDA funding for Comprehensive Economic Development Strategy for over a decade. HVRC has submitted acceptable interim reports under the current agreement and final reports under prior agreements. HVRC has completed the required deliverables on time as well as other agreement requirements: the EDD's 5-year CEDS and annual CEDS updates in a coordinated manner amongst all relevant stakeholders (local governments, private industry, organizations, and individuals). In addition, HVRC facilitates municipalities'/not-for-profits' applications to access Federal Investment Assistance both in relationship to the 5-year CEDS as well as other funding opportunities. HVRC's management of our EDA PPA grant ensures that our EDD meets the 2021 updated investment priorities of the US Economic Development Administration: greater equity by focusing on underserved populations and/or underserved communities; building economic resilience and recovery from economic shocks; workforce development that focused on education and skills training for well-paying, quality jobs; growing existing and new, innovative manufacturing; growing technology-based economic development; encouraging environmentally-sustainable development that helps address the climate crisis; and growing US exports and foreign direct investment.

Project Title: Hudson Valley Regional Council Special Initiative to address Severe Adverse Economic Impact due to the Covid-19 Pandemic

Assistance Agreement Number: ED20PHI3070083

Federal or Non-federal Funding Agency and Assistance Listing Number: 11.307

Agreement Description: With special project funding through the CARES Act, HVRC researched the impact of the COVID-19 pandemic on our regional economy and identified future measure to increase the Region's resilience to future potential adverse economic or environmental impacts.

Funder Contact: Lucas Martin, LMartin2@eda.gov

Management of Agreement: HVRC successfully created surveys and determined the impact of COVID-19 on municipalities and businesses throughout the Region, and reported back to EDA with the types of assistance needed for industries that were most severely impacted. Final technical reports were submitted by HVRC to the EDA at grant term completion as well as required interim and final reports on a timely basis.

Project Title: Clean Water Funding: Training & Technical Assistance (TA) for Small & Rural Municipalities in the Mid-Hudson Region, New York

Assistance Agreement Number: not available yet

Federal or Non-federal Funding Agency and Assistance Listing Number: 66.446

Agreement Description: HVRC has been awarded an EPA TA grant to ensure rural and disadvantaged municipalities in the seven-county Mid-Hudson Region of New York are able to take advantage of planning, development, and acquisition of funding and financing for wastewater projects, through a regional needs assessment and cohort model approach to guidance on IUP development and submission, in addition to project planning and management, and capacity building technical assistance.

Agreement Contact: Winnie Zhao, Zhao.Winnie@epa.gov

Management of Agreement: HVRC is finalizing the contracting process. We have successfully completed

the pre-award review process, and are putting final touches on the descriptive areas of the budget narrative. In doing so, we have gained a strong understanding of EPA contracting requirements.

Project Title: 604(b) Baseline Water Quality Planning Program

Assistance Agreement Number: DEC01-C00929GG-3350000

Federal or Non-federal Funding Agency and Assistance Listing Number: 66.454

Agreement Description: HVRC is the recipient of grant funding to assist with Water Quality Planning in the Region through the NYSDEC and the Federal Clean Water Act Program. HVRC receives ongoing 604b funding from NYS DEC to organize and sustain collaboration around water quality management; build local capacity for watershed management planning and source water protection project implementation; provide technical support for MS4 permit compliance to communities in their service areas; update watershed plans to nine-element standards; and provide technical assistance on water quality matters to Mid-Hudson municipalities as requested.

Funder Contact: Natalie Brown, Natalie.browne@dec.ny.gov

Management of Agreement: The current grant period has brought success in completing a Drinking Water Source Protection Program (DWSP2) Plan in NYSDEC's first iteration of the draft framework. We provided input on how the program can be improved before it is finalized by conducting a beta test and documenting the challenges the community faced while following the draft framework. Other program accomplishments include active participation in watershed planning and water quality groups at the watershed and county levels, participating in climate action planning for water resources, and more. HVRC is currently in the contracting phase for the Fiscal Year 2025 contract and has met the quarterly reporting requirements of past grant agreements.

In addition to the above four grants where we hold the contract with the state or federal entity, we are also a sub-awardee on two state contracts that directly relate to this project: NYSERDA's Clean Energy Communities Program and DEC's Climate Smart Communities (CSC) Coordinator Program. In each of these programs we advise local governments on climate and clean energy topics, helping them earn state grants for their efforts. CSC Coordinators assist and support local governments in taking action to reduce GHG emissions and adapt to climate change through outreach, planning, education, and capacity building. In the past two years HVRC completed an update to the 2010 Community GHG Emissions Inventory (GHGI) for the Mid-Hudson Region, the only region in the state to have done so. It is now available regionwide for municipal preparation of their individual community GHGIs. HVRC also led three cohorts and has just begun a fourth cohort, with a total of 82 municipalities participating across the four cohorts (unique participation number is lower).

Finally, in the last few years we also successfully implemented three county-level Climate Action Planning Institute cohorts since 2018. HVRC developed and implemented this innovative approach to climate action planning under our original NYSERDA agreement, working with nine municipalities. For the current two cohorts, HVRC lead the application process with two counties to the NYS DEC CSC Grant Program, enabling HVRC to deliver this much needed programing to 18 additional local governments. We have a proven track record in shepherding groups of municipalities to create GHG emissions inventories and climate action plans for their government operations. We have found this style of technical assistance to be especially effective for municipalities to learn not only from our experts, but from each other. Cohorts not only help us reach more municipalities faster but help build capacity in the Region so municipalities can more effectively serve their residents over time.

b. Reporting Requirements

HVRC has met the reporting and completion requirements, where applicable, on each of the grants listed above. We submitted acceptable interim and final reports for each grant project above. All that have been available for renewal have been re-awarded to us based in part on our past performance on the projects. This includes the EDA Partnership Planning Assistance Grant, DEC 604b Water Quality Planning Grant, and the NYSEDA Clean Energy Communities Program Grant. We pride ourselves on achieving the expected deliverables, outputs, and outcomes under our agreements with State and Federal agencies. In the rare instance in which we are encountering difficulty implementing the project, we provide transparency and keep an open line of communication with our funder.

c. Staff Expertise

Hudson Valley Regional Council: HVRC was established in 1978 as an organization of county governments comprising Dutchess, Orange, Putnam, Rockland, Sullivan, Ulster, and Westchester Counties. HVRC is one of ten regional councils in NYS enabled through General Municipal Law Articles 12-B and/or 5-G and is one of over 650 regional planning organizations in the United States. In addition to providing a regional perspective, HVRC offers planning, education & outreach, and advocacy for Mid-Hudson municipalities, specifically in the areas of economic development, environmental sustainability, materials management, clean energy, and water quality. We are a trusted and known entity relied upon to provide helpful technical assistance suited to our local governments' needs and goals. HVRC is considered a government entity by New York State. We have submitted a legal opinion and New York State Article 5-G under "Other Narrative Attachments" as documentation that New York State considers HVRC to be a public body created by and pursuant to state law accountable to municipal units of government.

Staff: In addition to the Project Program Manager who will be hired to implement the Project, the HVRC staff listed below bring the expertise and background to support the successful completion the Municipal Building Decarbonization Coalition Program. Our reach and strong relationships within the Region extend beyond local governments to the many not-for-profit entities doing good work in the environmental arena. This experience enables us to bring in appropriate partners with the resources, capacity, and expertise to fulfill the requirements of this proposed project.

Carla Castillo, Executive Director. Ms. Castillo has been with HVRC since 2016. In her current role, Ms. Castillo oversees staff's regional work with 202 municipalities in the seven-county Mid-Hudson Region. This includes HVRC's funded work through the US Department of Commerce Economic Development Administration, Northern Borders Regional Commission, NYSDEC 604(b) Water Quality Program, NYSEDA Clean Energy Communities Program, NYSDEC Climate Smart Communities Program, and NYSDEC-funded Climate Action Planning Institutes in Dutchess and Westchester Counties. Ms. Castillo manages HVRC's \$1.2M budget and board relations with a 19-member board consisting of elected officials and non-government representatives. She has dedicated thousands of hours creating and maintain relationships with nearly all the municipalities within the Region, and her fluency in Spanish is useful for communicating with the large Spanish-speaking population of the Region. Ms. Castillo's brings 26 years of combined experience in project management and lending as well as community engagement and capacity building experience to this project. Ms. Castillo received a master's degree in City & Regional Planning and a Master of Science in International Development & Appropriate Technology from the University of Pennsylvania. She received a bachelor's degree in Latin American Studies from UCLA.

Ms. Castillo chairs her local municipality's town-appointed environmental committee and sits on a number of regional and local boards.

Eleanor Peck, Deputy Executive Director. Ms. Peck has been with the organization since 2021 managing the Clean Energy Communities and Climate Smart Communities Program for the Mid-Hudson Region, providing support as a Clean Energy Communities Coordinator to communities working to reduce energy usage and GHG emissions through the implementation of cost-saving clean energy projects. Previously, Ms. Peck was the Climate Smart Coordinator in the City of Beacon, helping the City achieve NYS Climate Smart Communities Program Silver Certification. She has also worked for the Cary Institute of Ecosystem Studies in Millbrook, fundraising for the Institute's ecological science, as well as the Wildlife Conservation Society, fundraising for the Bronx Zoo and conservation projects around the globe. Ms. Peck received a master's degree in International Affairs from the New School for Social Research in New York City and her bachelor's degree from Roosevelt University in Chicago. She continues to volunteer in the City of Beacon as a member of the City's conservation advisory committee.

Mary Lambert, Climate Action Planning Institute Coordinator. Ms. Lambert joined HVRC in July 2022. As Coordinator of the Climate Action Planning Institute, she leads cohorts of local governments in creating GHG inventories, climate action plans, climate vulnerability assessments, and climate adaptation plans in Dutchess and Westchester Counties. Ms. Lambert previously served on the Hastings-on-Hudson Board of Trustees, as the Co-Chair of the Hastings-on-Hudson Climate Smart Communities Task, and as a member of the Hastings Conservation Commission and the Zero Waste Advisory Task Force. She has also served as Executive Director of the Weeden Foundation and as a project coordinator for Conservation International. In addition, Ms. Lambert has worked for over 20 years in technology and media, holding senior management roles at Google, Opera Software, and at Volta Charging. She was the Founder of an award-winning green e-marketplace, and most recently, ran her own marketing consulting business, Closed Loop Consultants. Ms. Lambert received her master's degree in business administration from Columbia University and her bachelor's degree in American Studies from Yale University.

Elizabeth Sun, Clean Energy Communities Coordinator. Ms. Sun joined HVRC in March 2023. She works on the NYSEDA Clean Energy Communities Program, providing support as a Clean Energy Communities Coordinator to communities working to reduce energy usage and GHG emissions through the implementation of cost-saving clean energy projects. She previously was a Legislative Fellow for Citizens' Climate Lobby, providing technical and research support to promote sustainable environmental policies. Ms. Sun received her master's degree in Public Health with a certificate in Environmental Health Policy from Columbia University and her bachelor's degree in Biology and Public Health from George Washington University.

Project Partner and Sub-Awardee: HVRC has engaged the services of a long-standing and well-regarded partner for this Project, SW. SW's experience with air- and ground-source heat pump installation through NYS-funded clean heating and cooling campaigns will ensure project implementation success. SW leads for this project, Program Director for Building Decarbonization Rachel Carpitella brings significant experience decarbonizing commercial properties. A more complete professional background is found in the Biography Attachment.