

WORKPLAN NARRATIVE

1. OVERALL PROJECT SUMMARY AND APPROACH

a. Description of GHG Reduction Measures

In the Commonwealth of Pennsylvania (Commonwealth), the industrial sector has been a central economic driver for more than a century, producing critical goods, including steel, cement, and glass, that helped build and grow the modern U.S. economy. Today, manufacturing contributes more than \$113 billion in state domestic product and provides 11% of the Commonwealth's jobs.¹ Pennsylvania is also one of the largest emitters nationally, ranking fourth highest in the U.S. Energy Information Administration's 2023 State Energy Data System report. Accounting for more than 30% of Pennsylvania's total greenhouse gas (GHG) emissions, the industrial sector is the highest-emitting sector overall, and emissions continue to trend upward. It will cost \$34.6 billion in unsubsidized implementation expenditures across all industrial subsectors to achieve an 84% reduction in carbon dioxide equivalent (CO₂e) emissions by 2050 from 2019 baseline levels in Pennsylvania alone.²

The Pennsylvania Department of Environmental Protection (DEP) proposes an industrial decarbonization incentive program called Reducing Industrial Sector Emissions in Pennsylvania (RISE PA) that seeks to reduce emissions by over 9 million metric tons CO₂e (MMT CO₂e) through 2050, an opportunity that could significantly abate the Commonwealth's overall emissions. DEP will leverage the innovative structures of the Inflation Reduction Act (IRA) tax credits to accelerate the scope and scale of known, shovel-ready industrial decarbonization projects across Pennsylvania, broadening the base of practice and implementation among hundreds of small- and medium-sized businesses. We have built a broad and enthusiastic coalition of partners who will help us achieve this goal and attached 60 total letters of commitment (3) and support (57) from industrial companies (22), labor organizations (8), environmental groups (8), a bipartisan congressional delegation (1), including Pennsylvania's two state senators and ten state representatives, and myriad other interested parties (18),³ including engineering firms, technology providers, industry associations, financial advisors, think tanks, research, advocacy, and economic development organizations, real estate developers, and nonprofits. Through these efforts, we have established a real market demand for industrial decarbonization technologies and projects across diverse communities.

We believe that if the U.S. Environmental Protection Agency (EPA) chooses to invest the requested award in Pennsylvania, a state with a well-founded claim to be the keystone of the Industrial Revolution of the 19th and 20th century, the Commonwealth will now lead the national industrial decarbonization movement in the century to come. However, our budget is modular with scalable components based on the allocation of funding to Pennsylvania should the EPA choose to award less than the \$475,812,534 requested.

¹ Ohio River Valley Institute (ORVI). 2024. A Roadmap for Industrial Decarbonization in Pennsylvania.

<https://ohiorivervalleyinstitute.org/a-roadmap-for-industrial-decarbonization-in-pennsylvania/>.

² Ibid.

³ Includes letters of commitment from PennTAP, Catalyst Connection, and Keystone Research Center and letters of support from the Sustainable Business Network of Greater Philadelphia, Kleinfelder, Entech Engineering, Inc., Innosepra LLC, Center for Public Enterprise, Johnson Controls, American Council for an Energy-Efficient Economy, Ceres, Keystone Energy Efficiency Alliance, PFM Financial Advisors, LLC, Mobilify Southwestern Pennsylvania, Team Pennsylvania, Aclima, Ohio River Valley Institute, The Heinz Endowments, Allegheny Conference on Community Development, and Oxford Development Company, and National Asphalt Pavement Association.

Reducing Industrial Emissions – A Sector Specific Approach

In 2020, Pennsylvania’s industrial sector emissions totaled 73.56 MMTCO₂e across four separate subgroups: combustion of fossil fuels (32.89 MMTCO₂e), industrial processes (12.86 MMTCO₂e), activities involving coal mining and abandoned coal mines (11.62 MMTCO₂e), and activities involving natural gas and oil systems (16.20 MMTCO₂e).⁴ The emissions related to electricity usage within the industrial sector are accounted for in the electricity production sector and amount to approximately 16.2 MMTCO₂e,⁵ bringing the total potential GHG emissions impact reduction from the industrial sector to 89.77 MMTCO₂e (see Table 1).

Table 1: Industrial Subsector Emissions Sources

Subsector Emissions Source	Total Emissions (MMTCO ₂ e)	Percentage of Total Industrial Sector Emissions
Industrial Fossil Fuel Combustion	32.89	36.6%
Industrial Electricity Usage	16.2	18.0%
Natural Gas & Oil Systems	16.20	18.0%
Industrial Processes	12.86	14.3%
Coal Mining & Abandoned Coal Mines	11.62	12.9%

Through RISE PA, DEP is targeting industrial sector decarbonization by incentivizing projects that abate these industrial subsector emissions sources and deploy the GHG reduction measures outlined in the PA PCAP (see Table 2) to catalyze progress toward reaching the Commonwealth’s goal of reducing overall emissions by 80% by 2050 from 2005 levels. DEP is applying to the top funding tier as a sole applicant because of the high upfront capital costs associated with large-scale, transformative industrial decarbonization projects. Our request is further justified by the fact that achieving substantial industrial sector emissions reductions in Pennsylvania alone will cost tens of billions of dollars.

The Program Design: Establishing Incentives to Catalyze Private Sector Decarbonization Investments Eligible Project Types

RISE PA will offer grants for small-, medium-, and large-scale industrial decarbonization projects that reduce the GHG and co-pollutant emissions at industrial facilities across the Commonwealth. These Greenhouse Gas Emissions Reduction Projects (GERPs) will deploy one or more of the GHG reduction measures outlined in the PA PCAP (see Table 2).⁶

⁴ DEP. December 2023. Pennsylvania Greenhouse Gas Inventory Report.

https://files.dep.state.pa.us/Energy/Office%20of%20Energy%20and%20Technology/OETDPortalFiles/ClimateChange/FINAL_2023_GHG_Inventory_Report_2.27.24.pdf.

⁵ According to the U.S. Energy Information Administration’s Form EIA-861 Annual Electric Power Industry Report, Pennsylvania’s total electric power industry emission rate was 713 lbs/MWh in 2022. When multiplied by the 50.00 TWh of electricity the industrial sector consumed as reported in the 2023 Pennsylvania Greenhouse Gas Inventory Report and converted to MMTCO₂e, this equates to 16.2 MMTCO₂e.

⁶ Although the measures in Table 2 are listed as five separate GHG reduction measures in the PA PCAP, the implementation of RISE PA will incorporate all five measures, so this proposal describes the RISE PA program as if it were a single GHG reduction measure.

Table 2: Alignment between RISE PA and PA PCAP Measures

PA PCAP Reduction Measure	Example Eligible Projects under RISE PA
Industrial Electrification, Efficiency, and Process Emissions	Electrification – Installing electric heat pumps Energy efficiency – Deploying smart energy management systems Process emissions – Utilizing advanced recycling technologies
Low Carbon Fuels	Installing fluidized bed biomass systems
On-Site Renewable Energy	Installing rooftop solar photovoltaic systems
Carbon Capture Utilization & Storage	Installing flue gas carbon capture systems
Fugitive Emissions Reductions	Installing regenerative thermal oxidizers

RISE PA will create Pennsylvania-specific industrial decarbonization opportunities that leverage the structure of the Internal Revenue Service’s Advanced Energy Project Credit Allocation Program (Allocation Program) under Section 48C(e) of the Internal Revenue Code. **Please note:** A project that applies for and receives the Advanced Energy Project Credit will be ineligible to receive an award under RISE PA; however, RISE PA project types will have requirements similar to those under the Allocation Program for GERPs across all Award Tracks to provide additional opportunities to fund industrial decarbonization initiatives in Pennsylvania. A GERP must satisfy the following requirements:

1. Re-equips any industrial or manufacturing facility with equipment designed to reduce GHG emissions. GERPs submitted to the Medium-scale Award Track (MAT) and Large-scale Award Track (LAT) must reduce GHG emissions by at least 20% at an individual industrial facility or across a portfolio of facilities; GERPs submitted to the Small-scale Award Track (SAT) will not be required to meet this 20% reduction threshold. GERPs across all Award Tracks must reduce GHG emissions through the installation of one or more of the following technologies:
 - a. Electrification technologies such as low- or zero-carbon process heat systems, electric heat pumps, combined heat and power (CHP) systems, thermal storage, and other heating systems based on electricity, clean hydrogen, biomass, or waste heat recovery;
 - b. Energy efficiency technologies those that reduce direct fuel or electricity use, utilize insulation, sensors, or controls or deploy smart energy management systems or other advanced energy efficiency technologies;
 - c. Industrial process emissions and waste reduction technologies such as those that reduce waste in industrial applications, including industrial heat pumps, CHP systems, or advanced recycling approaches;
 - d. Fuel switching technologies that enable the transition to low carbon fuels such as fluidized bed biomass furnaces, solar-thermal heating systems, and direct reduced iron shaft furnaces designed or retrofitted for hydrogen-based reduction;
 - e. On-site renewable energy technologies such as solar photovoltaic systems, wind turbines, micro-hydropower, or geothermal;
 - f. Carbon capture, utilization, and storage (CCUS) technologies such as flue gas carbon capture systems or calcium looping CO₂ capture systems;
 - g. Fugitive emissions reduction technologies such as regenerative thermal oxidizers and ventilation air systems; and

- h. Any other technology that reduces industrial GHG emissions, as determined by DEP.
2. Meets the prevailing wage requirement as most recently determined by the Secretary of the U.S. Department of Labor under the Prevailing Wage Rate Requirements.
3. Meets the apprenticeship requirements by ensuring that not less than 15 percent of the total labor hours for the construction, alteration, or repair work is performed by qualified apprentices. Satisfies the apprentice-to-journeyworker ratio requirement such that each industrial facility owner, contractor, or subcontractor who employs four or more individuals to perform construction, alteration, or repair work with respect to the construction of a GERP must employ one or more qualified apprentices to perform such work.

Award Tracks

DEP anticipates awarding up to \$440 million to help fund 106-1,660 GERPs that fall within the following Award Tracks: Small-scale, Medium-scale, and Large-scale (see Table 3). Additional details on the Award Track breakouts can be found in the Budget Narrative.

Table 3: Small-, Medium-, and Large-scale Award Tracks

Award Track	Total Available Funding	Anticipated Minimum Number of Awards*	Anticipated Minimum Award Size for Any One Individual Award (DEP Share)**	Anticipated Maximum Award Size of or Any One Individual Award (DEP Share)**
Small-scale (SAT)	\$40,000,000	100-1,600	\$25,000	\$74,000
			\$75,000	\$149,000
			\$150,000	\$400,000 ⁷
Medium-scale (MAT)	\$100,000,000	5-50	\$2,000,000	\$20,000,000 ⁸
Large-scale (LAT)	\$300,000,000	1-10	\$30,000,000	\$300,000,000
Total	\$440,000,000	106-1,660		

DEP will allocate \$40 million to the SAT to implement small-scale GERPs and \$14.5 million for administration, education, outreach, and technical assistance, which will include funding for 266 Energy Audits and 160 GHG Emissions Reduction Audits from 2024-2029. This funding will be exclusively

* Subject to change depending on the number and quality of applications. Total funding per Award Track may shift depending on number of projects awarded.

** The maximum award size is based on projects receiving the base cost share and does not reflect the addition of any cost share bonuses.

⁷ For GERPs that are eligible to receive awards greater than the maximum Small-scale award size but less than the minimum Medium-scale award size (i.e. between \$400,000 and \$2 million), award sizes from \$400,000-\$1,199,999 will be considered Small-scale and \$1,200,000-\$1,999,999 will be considered Medium-scale.

⁸ For GERPs that are eligible to receive awards greater than the maximum Medium-scale award size but less than the minimum Large-scale award size (i.e. between \$20,000,000 and \$30,000,000), award sizes from \$20,000,000-\$24,999,999 will be considered Medium-scale and \$25,000,000-\$29,999,999 will be considered Large-scale.

available for small- and medium-sized manufacturers (SMMs),⁹ and the free audits will help to build a robust pipeline of shovel-ready projects. DEP will sub-award these funds to the Pennsylvania Technical Assistance Program (PennTAP) and Catalyst Connection (Catalyst), two entities uniquely positioned to administer the SAT (see Budget Narrative for additional details). PennTAP, as part of the Pennsylvania State University, serves the entire Commonwealth through a network of geographically dispersed Technical Advisors (TAs), who provide free and unbiased on-site industrial Energy Assessments for SMMs and energy efficiency recommendations. In the past five years, TAs have completed approximately 300 industrial assessments and provided SMMs with over 500 energy efficiency recommendations that constitute a robust pool of shovel-ready small-scale projects. Catalyst is a non-profit organization that helps SMMs in southwestern Pennsylvania to innovate, expand, create better jobs, and boost revenue, growth, and productivity by providing technical assistance and access to capital. Catalyst is a U.S. Department of Commerce Manufacturing Extension Partnership (MEP) Center and a Pennsylvania Industrial Resource Center (PA IRC) backed by the Pennsylvania Department of Community & Economic Development. In partnership with six other MEP centers and PA IRCs, Catalyst serves over 12,000 SMMs and 560,000 manufacturing employees across Pennsylvania.

Within the Medium-scale Award Track (MAT) and Large-scale Award Track (LAT), DEP will allocate \$400 million to implement medium- and large-scale GERPs (\$100 million and \$300 million, respectively). To provide applicants with flexible funding, up to 90% of the overall award will be made available as project costs are incurred. All remaining funds will be awarded upon completion of a third-party measurement and verification analysis and will be subject to readjustment based on the participant's performance relative to their stated GHG emissions reduction goal.

Cost Share and Bonus Award Allocations

All awards issued under RISE PA will include a base grant award (BGA) and an applicant cost share. By building in a required cost share component, DEP will leverage \$283.8-\$973.3 million¹⁰ of private capital to further expand the transformative impact and the magnitude of GHG reductions. GERPs submitted to the SAT will be eligible to receive \$25,000-\$400,000 grant awards with DEP contributing a BGA of 50% of the total eligible project cost (TPC) and the applicant contributing a 50% cost share. TPCs for the SAT will be \$50,000-\$800,000 per project. GERPs submitted to the MAT and LAT will be eligible to receive \$2-20 million and \$30-300 million grant awards, respectively, with DEP contributing a BGA of 30% of the total eligible project costs and the applicant contributing a 70% cost share. TPCs will therefore range from \$6.7-66.7 million and \$100 million-\$1 billion, per project, respectively.

GERPs across all Award Tracks may be eligible to receive bonus award allocations that will be added to the BGA for projects that meet certain additional criteria (see Tables 4-5). An application that proposes a GERP located in a low-income and disadvantaged community (LIDAC) as defined by EPA's IRA definition and submits an approved Community Benefits Plan (CBP) will be eligible to receive the Community Benefits Bonus (CBB). Applications across all Award Tracks may also be eligible to receive the Fair Labor Bonus (FLB) for meeting additional labor requirements beyond the prevailing wage and apprenticeship requirements that all GERPs must satisfy. Applications only within the MAT and LAT may be eligible to

⁹ The term "small- or medium-sized manufacturer" means a manufacturing firm in which the gross annual sales are less than \$100,000,000, has fewer than 500 employees at the plant site of the manufacturing firm, and has annual energy bills of which total more than \$100,000 but less than \$3,500,000.

¹⁰ The total private capital investment depends on the uptake of bonus award allocations. See RISE PA CPRG Implementation Grant – Calculations Sheet for additional details on modeling assumptions.

receive the GHG Emissions Reduction Bonus (GERB) for GERPs that reduce over 20% of the total GHG emissions at an industrial facility or cumulatively across a portfolio of industrial facilities (see Table 5).

Table 4: Example BGA, CBB, and FLB Award Allocations

Award Track	Example Total Project Cost (TPC)	Base Grant Award (BGA) Percentage	BGA Amount	CBB or FLB (10% of TPC)		CBB + FLB (20% of TPC)	
				CBB or FLB Award Size	Total Adjusted Award Size	CBB + FLB Award Size	Total Adjusted Award Size
SAT	\$200,000	50%	\$100,000	\$20,000	\$120,000	\$40,000	\$140,000
MAT	\$15,000,000	30%	\$4,500,000	\$1,500,000	\$6,000,000	\$3,000,000	\$7,500,000
LAT	\$150,000,000	30%	\$45,000,000	\$15,000,000	\$60,000,000	\$30,000,000	\$75,000,000

Table 5: GERB Bonus Percentages for a \$15,000,000 TPC, \$4,500,000 BGA, and \$1,500,000 CBB or FLB

GHG Emissions Reduction Percentage	GERB Bonus Percentage of TPC	Total Adjusted Award Size	GERB + CBB or FLB (20% of TPC)	GERB + CBB + FLB (30% of TPC)
21-24%	2%	\$4,800,000	\$6,300,000	\$7,800,000
25-29%	4%	\$5,100,000	\$6,600,000	\$8,100,000
30-34%	6%	\$5,400,000	\$6,900,000	\$8,400,000
35-40%	8%	\$5,700,000	\$7,200,000	\$8,700,000
41% +	10%	\$6,000,000	\$7,500,000	\$9,000,000

Evaluation Criteria – Base and Bonus Awards

To qualify for the BGA, eligible GERPs across all Award Tracks must satisfy the following:

1. **Describe the over-all project approach**, including a GHG reduction measures, demonstration of funding need, and transformative impact of the project.
2. **Demonstrate commercial viability**, including readiness to proceed, reasonableness of the timeframe required for construction and commissioning of the project, soundness of risk management and mitigation strategies, and certainty of project financing arrangements.
3. **Demonstrate financial viability**, including detailed budget and justification narrative.
4. **Quantify the impact of GHG reduction measures**, including magnitude of short- and long-term GHG and co-pollutant reductions, and cost effectiveness of GHG reductions.
5. **Articulate environmental and community outputs, outcomes, and performance measures**, including expected measurable community benefits, proposed project tracking and measurement plan, and detailed implementation timeline.
6. **Describe benefits to Low-income and Disadvantaged Communities (LIDACs)**, including expected economic benefits and avoided disbenefits, extent of meaningful community engagement, and specific, high-quality actions to support LIDACs.

7. **Enhance workforce and job quality**, including commitments to ensure job quality and a diverse workforce; potential to create and/or retain high-quality, good-paying jobs; and extent to which applicant demonstrates sufficient supply or plans to train appropriately skilled labor.
8. **Demonstrates project capabilities**, including successful management of other project(s) of similar size and scope and requisite organizational and staff expertise and qualifications.

To qualify for the CBB, an eligible GERPs must be in a LIDAC as defined by EPA's IRA definition, and the applicant must submit an approved Community Benefits Plan (see Section 4.b for list of requirements). To qualify for the FLB, eligible GERPs must satisfy the following evaluation criteria in Section 5.

The RISE PA Team: Project Management Office (PMO) Design

DEP proposes to administer RISE PA in collaboration with PennTAP, Catalyst, and Keystone Research Center if awarded funding under the CPRG Competition. The program team will also add additional capacity in four areas:

- **Engineering feasibility analysis and emissions profiling:** DEP will contract with a third-party engineering and design firm for services to determine the feasibility of medium- or large-scale GERPs and the reasonability of project costs. We will leverage the broad range of consulting design and engineering firms used by the Pennsylvania Department of General Services for Commonwealth construction and decarbonization projects, in alignment with ongoing efforts to deploy Guaranteed Energy Savings Agreements as we upgrade major facilities. A letter of support from one such firm, Entech Engineering, which is a partner to more than 100 industrial clients throughout the Commonwealth, is attached as a reference.
- **Financial analysis and construction cost auditing:** To ensure appropriate cost allocations for GERPs across all Award Tracks, DEP will contract with a financial advisor like PFM, which has substantial experience working with both private and governmental authorities, to analyze financial reports and audit the reasonableness and allocability of construction costs. A letter of support from PFM, along with a brief description of the firm's capabilities, is attached as a reference. Note that the Commonwealth has standing, pre-existing contractual relationships with many such firms if PFM is unavailable to execute program implementation.
- **Emissions reductions baselining, measurement, monitoring, and verification (MMV):** DEP will contract with a mobile air monitoring provider like Aclima, which has provided a letter of support attached as a reference, to measure baseline air pollutants, GHGs, and air toxics in communities hosting medium- and large-scale GERPs. Deploying a hyperlocal mobile air monitoring solution in disproportionately impacted communities will help DEP to gather baseline measurements both around industrial facilities and within fence-line communities, measure intervention impacts over time, and report community benefits. DEP will contract with a second third-party to perform onsite MMV upon the completion of medium- and large-scale GERPs to ensure they achieve the proposed GHG emissions reductions.
- **Industrial Decarbonization Playbook development:** DEP will contract with a third-party to assemble case studies of successful GERPs into an Industrial Decarbonization Playbook that DEP will make publicly available. This resource will provide project information that will enable other industrial facility owners and operators that do not receive RISE PA funding to implement similar projects, further leveraging the overall impact of the funding.

RISE PA Tasks, Milestones, Risks, and Mitigation Strategies

If awarded funding, DEP anticipates opening the application process in October 2024, and the application window will remain open through July 2029 or until all funds have been obligated. DEP will review applications tri-annually with evaluation cohort deadlines in February, June, and October. Successful applicants within the same evaluation cohort can participate in a peer learning group that will enable sharing technical assistance and lessons learned. Table 6 details tasks and milestones that have been completed or will be completed to implement RISE PA during the anticipated period of performance from October 2024 – October 2029. Table 7 details anticipated risks associated with measure implementation and mitigation strategies for each risk.

Table 6: RISE PA Tasks and Milestones

Task #	Task Description	Completed/ Anticipated Milestone Dates	Updates and Assumptions
1	Engaged industrial stakeholders and inventoried prospective GERPs	September 2023 – March 2024	DEP received 20 letters of support from industrial companies detailing potential projects
2	Issued a Request for Information (RFI) soliciting input on initial RISE PA program design	December 2023 – January 2024	DEP issued RFI Notice ¹¹ and received 39 responses ¹²
3	Engaged consultant to analyze RFI feedback and incorporate into final program design	January – February 2024	RFI remained open for 23 days, so potential respondents may not have had enough time to submit responses
4	Develop Request for Proposals (RFP) to solicit for GERPs through competitive procurement	April – October 2024	Competitive procurement procedures are anticipated to take six months, so RFP development will begin in advance of award notice
5	Prepare RISE PA program guidelines, application, and promotional materials, and begin stakeholder and community engagement	July - October 2024	Will occur after award notice and before award receipt so DEP can begin accepting applications upon award receipt
6	Issue RFP to solicit GERPs and continue educating industrial stakeholders and communities about program guidelines	October 2024 – Until all funds obligated	Application window will remain open and with tri-annual cohort deadlines in February, June, and October

¹¹ Pennsylvania Bulletin Volume 53 Issue 52 (53 Pa.B. 8133). Proposed Reducing Industrial Sector Emissions in Pennsylvania Grant Program; Request for Information. December 30, 2022.

<https://www.pacodeandbulletin.gov/Display/pabull?file=/secure/pabulletin/data/vol53/53-52/1796.html>

¹² DEP released the RFI on December 30, 2023 to continue gathering feedback on a potential program design for RISE PA. The RFI closed on January 29, 2024, and DEP received a total of 39 responses from 23 businesses and organizations and 15 individuals. Respondents included academic and research organizations, business advocacy groups, civic organizations, the United State Climate Alliance, environmental advocacy groups, trade associations, natural gas utilities, and industrial and technology companies.

7	Procure third-party contractors to help DEP administer RISE PA (see Budget Narrative and Table)	July 2024 – January 2025	Competitive procurement process may take up to six months, so DEP will prepare procurement documents upon notice of award
8	Review and select cohort applications, select projects, enter into agreements with project sponsors, and disburse grant funds	February 2025 – April 2025	One month to evaluate and select successful applications and two months to enter into agreements with project sponsors
9	Provide technical assistance to awardees throughout project	April 2025 – Project completion date	Based on agreed upon project duration with project sponsors
10	Continue community engagement during and following project implementation	April 2025 – Project completion date	Based on agreed upon project duration with project sponsors
11	Revise program guidelines, materials, and application in response to participant and community feedback	October 2025	Annual review and updates until all funds obligated
12	Repeat steps 8 – 11 for as many funding cohorts as needed	April 2025 – July 2029	RFP will remain open until all funds obligated across all Award Tracks
13	Semi-annual and final report preparation	March 2025 – January 2030	Assumes DEP will not require a period of performance extension
14	Industrial Decarbonization Playbook development	July 2029 – October 2029	Sufficient GERPs will have been completed across all Award Tracks

Table 7: RISE PA Risks and Mitigation Strategies

Risk	Effect on GHG emission reductions	Mitigation Strategy
Delays in RFP procurement process and procurement of third-party contractors	Delays may reduce cumulative GHG emission reductions in the near-term by delaying program opening and shortening project windows	Develop RFP documentation before award announcements and receipt of award agreement
Delays in hiring new staff to administer RISE PA	Delays may reduce cumulative GHG emission reductions in the near-term by delaying program opening and shortening project time windows	Write job descriptions prior to award announcement and begin conducting interviews as soon as award notice issued
Certain Award Tracks may be undersubscribed	GHG emission reductions and criteria co-benefits may not occur over the anticipated geographies	Tracking of applicant locations and targeted outreach in undersubscribed areas
Large-scale GERP implementation may exceed the 5-year period of performance	Reduces the total GHG emissions reductions that can be achieved in the near-term (2025-2030) and long-term (2025-2050)	Continue conducting outreach with large industrial facilities to enable them to apply as soon as the program opens; DEP may request a period of performance extension
Medium- and/or large-scale GERPs do not achieve	Reduces the total GHG emissions reductions that can be achieved in	Use third-party contractors to help verify the technical

minimum 20% GHG emissions reduction	the near-term (2025-2030) and long-term (2025-2050)	feasibility and performance of GHG reduction technologies during application review
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RISE PA will meet the goals of the CPRG program in the following ways:

1. Implementing a first-of-a-kind and first-in-the-nation industrial decarbonization grant program that addresses GHG and co-pollutant emissions from a hard-to-abate sector is an ambitious undertaking that will achieve significant cumulative GHG reductions by 2030 and beyond, including reducing 5,281,925 MTCO₂e by 2030 and 9,176,810 MTCO₂e by 2050 while leveraging \$283.8-\$973.3 million in additional private investment.
2. The RISE PA program design will ensure that substantial community benefits, including the reduction of co-pollutants such as criteria air pollutants (CAPs) and hazardous air pollutants (HAPs), are achieved, particularly in LIDACs.
 - a. By incentivizing projects that decrease industrial fossil fuel use and lead to cleaner and more efficient industrial practices, RISE PA will lower GHG and co-pollutant emissions and generate environmental, public health, and socioeconomic advantages.
 - b. Reducing co-pollutants will immediately enhance both indoor and outdoor air quality, diminishing HAPs, CAPs, and other harmful substances. The alleviation of these pollutants will positively impact the physical and economic well-being of LIDACs. Over the long-term, the reduction of GHGs will mitigate the impacts of climate change.
 - c. By offering the Community Benefits Bonus, which adds an additional 10% to the total grant award for GERPs located in census tracts that have been designated as overburdened and underserved and requires the submittal of an approved Community Benefits Plan, RISE PA will provide additional incentives to encourage projects in LIDACs so that community members benefit directly from improved air quality.
3. RISE PA will also complement other existing state and federal funding sources to maximize these GHG and co-pollutant reductions and associated community benefits while addressing significant funding gaps for industrial decarbonization projects in Pennsylvania (see Section 1.b).
4. Although RISE PA's innovative program design already has a statewide focus, this program can be replicated in other states across the country to rapidly scale up its impact and catalyze national industrial GHG emissions reductions.

b. Demonstration of Funding Need

CPRG Implementation funding is critical to fully implement RISE PA due to the strong, unmet need that exists for a Pennsylvania-specific incentive program focused on industrial decarbonization projects. Although Pennsylvania does have some existing government loan, grant, and tax credit programs¹³ that may be leveraged in a complementary manner with CPRG funding, most of these industrial incentives

¹³ Pennsylvania Industrial Development Authority Low Interest Loan Program: provides low-interest loans for construction, renovation, machinery, and equipment costs; Small Business Advantage Grant: provides \$5,000-\$8,000 grants for small businesses to improve energy efficiency or reduce pollution or waste; Keystone Innovation Zone Tax Credit: provides a up to \$100,000 in tax credits per company to promote the growth of specific targeted industries within the boundaries of a Keystone Innovation Zone; Regional Clean Hydrogen Hub Tax Credit: provides a tax credit worth \$0.81 per kilogram of clean hydrogen purchased from a Regional Clean Hydrogen Hub and/or \$0.47 per unit of natural gas that is purchased and used in manufacturing at the project facility.

focus on creating jobs or construction equipment deployment rather than decarbonization.¹⁴ These incentives are also too small to meaningfully offset the high upfront capital costs of many industrial decarbonization projects. At the federal level, a suite of legislative actions and agency initiatives have begun to create an enabling environment for industrial decarbonization through various grant programs and tax incentives available under the Infrastructure Investment and Jobs Act (IIJA) and IRA, including grant funding for industrial decarbonization demonstration and pilot projects¹⁵ and a bevy of new and updated tax credits¹⁶ that both directly and indirectly support industrial decarbonization. To date, DEP has received \$69,457,220 to address emissions from orphaned, abandoned, and low-producing oil and gas wells, which is only a small fraction of the total funding required to significantly reduce the Commonwealth's industrial emissions. Even if DEP were eligible to apply for and successfully received the maximum award available for every available industrial decarbonization funding opportunity listed in Footnote 15, Pennsylvania would still require an additional \$31.87 billion of investment to reach the \$34.6 billion needed to reduce industrial emissions by 84% by 2050 according to the Ohio River Valley Institute's (ORVI) recently published Roadmap for Industrial Decarbonization in Pennsylvania report.¹⁷

In addition to being nationally available and therefore highly competitive, these existing sources of federal funding are insufficient to drive meaningful industrial sector emissions reductions in Pennsylvania due to their limited availability and the extremely high cost of industrial decarbonization project implementation. For example, the Advanced Energy Project Credit (48C) offers a 30% investment tax credit to industrial facilities that reduce their total GHG emissions by at least 20%; however, this tax credit is capped at \$10 billion, is only guaranteed to have two rounds of funding available (one of which has already closed), and is a nationally competitive opportunity with a complicated application process. DEP is aware of several Pennsylvania companies that submitted concept papers for consideration under the first allocation of 48C and were discouraged from submitting full applications, which demonstrates there are existing industrial decarbonization projects seeking support that were unable to secure federal funding and would benefit from a Pennsylvania-specific incentive program like RISE PA. Therefore,

¹⁴ ORVI. 2024. Pennsylvania Climate Pollution Reduction Grant: Industrial Decarbonization Funding Recommendations. <https://ohiorivervalleyinstitute.org/wp-content/uploads/2024/02/PA-CPRG-Funding-Recommendations-Memo.pdf>.

¹⁵ Industrial Demonstrations Program: \$6.3 billion total available funding (TAF); \$500 million maximum available award (MAA); DEP did not apply; Carbon Capture Demonstration Projects Program: \$2.537 billion TAF; \$350 million MAA; DEP did not apply; Clean Energy Demonstrations on Current and Former Mine Land: \$450 million TAF; \$150 million MAA; DEP's concept paper was discouraged; Carbon Utilization Program: \$310,140,781 TAF; \$500,000 MAA; DEP did not apply; Regional Clean Hydrogen Hubs: \$7 billion TAF; \$1.25 billion MAA; DEP did not apply, but the Mid-Atlantic Clean Hydrogen Hub, which will include projects in Pennsylvania, Delaware, and New Jersey, received \$750 million, and the Appalachian Regional Clean Hydrogen Hub, which will include projects in Pennsylvania, West Virginia, and Ohio, received \$925 million; Clean Hydrogen Hubs Demand Support: \$1 billion TAF; DEP is ineligible to apply; Advanced Energy Manufacturing and Recycling Grants: \$750 million TAF; \$100 million MAA; DEP is ineligible to apply; Industrial Research and Assessment Centers: \$150 million TAF; \$7 million MAA; DEP is ineligible to apply; Industrial Research and Assessment Center Implementation Grants: \$400 million TAF; \$300,000 MAA; DEP is ineligible to apply; Orphaned Well Site Plugging, Remediation, and Restoration: \$4.667 billion TAF; DEP received a \$25 million Initial Grant and will receive a \$305,625,896 Formula Grant; Methane Emissions Reduction Program: \$1.5 billion TAF; DEP received a \$44,457,220 Formula Grant. Cumulative TAF across all opportunities listed is \$25,124,140,781; Cumulative MAA across all opportunities listed is \$2,732,883,116.

¹⁶ The IRA provides the 48C Advanced Energy Project credit, 45Q carbon capture tax credit, 45V hydrogen production tax credit, and both production and investment tax credits for clean energy production (45Y and 48E).

¹⁷ ORVI. 2024. A Roadmap for Industrial Decarbonization in Pennsylvania. <https://ohiorivervalleyinstitute.org/a-roadmap-for-industrial-decarbonization-in-pennsylvania/>.

funding RISE PA with \$475,812,534 is an important first down payment for addressing the overall high expense of decarbonizing Pennsylvania’s industrial sector.

c. Transformative Impact

RISE PA has the potential to create transformative impacts that will lead to significant additional GHG emission reductions within a hard-to-abate sector where emissions reduction measures have not yet been widely adopted. With a pioneering program design that is both replicable and scalable across other states and regions, RISE PA can unlock subsequent national GHG and co-pollutant reductions if adopted outside of Pennsylvania or the program receives additional funding from either federal sources or a direct appropriation from the Pennsylvania General Assembly after CPRG Competition funds have been expended. As a member of the U.S. Climate Alliance, a bipartisan coalition of 24 governors focused on climate action, Governor Shapiro has a direct platform to leverage Pennsylvania’s industrial decarbonization leadership across other member states. Even if RISE PA is not replicated outside of Pennsylvania, successfully implemented GERPs can pursue similar projects within the Commonwealth and beyond by providing compelling case studies that DEP will publish in an Industrial Decarbonization Playbook to spur the widescale adoption and commercialization of newer decarbonization technologies.

Across the United States, progress is accelerating toward economy-wide decarbonization. The established federal emissions reduction targets, coupled with the passage of major pieces of legislation to advance decarbonization, mark historic steps toward addressing climate change. Still, significant hurdles remain to meeting both near-term and mid-century climate goals,¹⁸ and these obstacles are particularly acute in the industrial sector, which accounted for 23% of total U.S. GHG emissions in 2021.¹⁹ The U.S. Department of Energy (DOE) estimates that the capital costs required for eight industrial subsectors to reach net zero by 2050 is at least \$700-1,100 billion,²⁰ further illustrating the need for incentive programs like RISE PA to help offset these high upfront capital costs, reduce capital exposure to new technology investments, and de-risk cutting-edge deep decarbonization investments.

2. IMPACT OF GHG REDUCTION MEASURES

a. Magnitude of GHG Reductions from 2025 through 2030

The total estimated GHG emission reductions quantified between 2025 and 2030 are shown in Table 8 and include reductions in emissions across all industrial activities and only account for the GHG emissions reductions associated with CPRG funding. Presently, Pennsylvania does not plan to leverage other plans or actions to fund RISE PA, but \$440 million of funding to implement GERPs would result in \$283.8-\$973.3 million of additional private investment over the grant period. The emissions estimates in Table 9 are calculated using the global warming potentials in the IPCC’s Fifth Assessment report and include emissions from carbon dioxide, methane, nitrous oxide, and hydrofluorocarbons (HFCs).

Table 8: Cumulative GHG Reductions from 2025 through 2030

¹⁸ Ibid.

¹⁹ DOE. September 2023. Pathways to Commercial Liftoff: Industrial Decarbonization.

https://liftonff.energy.gov/wp-content/uploads/2023/10/LIFTOFF_DOE_Industrial-Decarbonization_v8.pdf

²⁰ Ibid.

Result	GHG reductions (MTCO ₂ e), 2025-2030 ^a
Industrial Electrification	2,900,400
Fuel Switching	33,450
Carbon Capture and Storage (CCS)	154,950
Fugitive methane abatement	1,605,900
Renewable Energy and Energy Efficiency	587,225
Sum of Emissions Reductions	5,281,925

^a Does not include emissions reductions achieved by other funding sources

RISE PA will prioritize investing substantial capital to complete transformative projects from 2025-2030. Due to the large upfront investment in these technologies, some projects may take longer than others to become operational and result in GHG emission reductions. Modeling accounts for the necessary time for implementation and construction of projects. The integration of industrial renewable energy sources and electrification, fuel switching, CCS, and fugitive emission reduction all involve significant financial commitments. Once implemented, these large-scale capital improvements will not only drive immediate emissions reductions but also create lasting projects that will reshape the Commonwealth's industrial landscape. In addition to RISE PA providing funding for capital projects, DEP will verify the emissions reductions for all project sizes through PennTAP and third-party MMV contractors. The MMV work will ensure short-term emissions reductions (through 2030) and provide feedback to ensure that capital investments are performing as intended and provide long-term reductions.

2.b. Magnitude of GHG Reductions from 2025 through 2050

The total estimated GHG emissions reductions quantified between 2025 and 2050 are shown in Table 9 and follow the same approach as Section 2.a. RISE PA will prioritize making substantial capital investments to achieve transformative projects from 2025 through 2050 following the same approach as 2.a. of this application where a discussion on durability of savings can be found.

Table 9: Cumulative GHG Reductions from 2025 through 2050

Result	GHG reductions (MTCO ₂ e), 2025-2050 ^a
Industrial Electrification	3,349,500
Fuel Switching	145,950
Carbon Capture and Storage	312,900
Fugitive methane abatement	1,727,250
Renewable Energy and Energy Efficiency	3,641,210
Sum of Emissions Reductions	9,176,810

^a Does not include emissions reductions achieved by other funding sources

2.c. Cost Effectiveness of GHG Reductions

Table 10 summarizes the CPRG grant GERP funding (\$440 million) divided by cumulative 2025-2030 reductions, which is less than half of EPA's \$190 proposed social cost of carbon.

Table 10: Cost Effectiveness of Emissions Reductions

Result	\$/MTCO ₂ e from 2025-2030 ^a
Cost Effectiveness of Emissions Reductions	\$83.30

^a Does not include emissions reductions achieved by other funding sources

Investments in RISE PA's industrial decarbonization measures will aim to be cost effective and DEP, through its administration of the funds, will seek to maximize the funds provided on a metric-tons-reduced basis. Additionally, the implementation of the program will seek to support a range of projects employing a diversity of technologies, including those which are not yet broadly deployed by industry. In maintaining this balance, DEP will both support deep decarbonization projects and help pave a path for the broader commercialization of newer and emerging technologies. Cost-effectiveness modeling for this grant application was conducted for illustrative insights, not specificity, because the CPRG funding is for a competitive grant program (RISE PA) to fund hundreds of potential projects, not a handful of already known specific projects. The modeled funding amounts only account for DEP's share of funded projects during the 5-year grant period, and only used for capital expenditures; scenarios were calibrated accordingly. Any additional funding from leveraged capital or funding outside the grant period was not included. Similar to the federal 48C Allocation Program, presuming capital leveraged from other private and public sources and funding post-2030 would greatly increase the emissions reduction calculation. Lastly, modeling estimates that a \$440 million investment in RISE PA would result in \$283.8-\$973.3 million of additional private investment over the grant period.

Typical lead times for energy project development and completion were incorporated into scenario modeling, with significant differences in implementation timeframe based upon technological readiness and complexity, e.g. CCS on a cement plant takes much longer to plan and build than a commercial scale solar facility. Project lifetime and attribution for the emissions reduction due to the RISE PA investment were incorporated as part of the scenario design and as a part of the Energy Policy Simulator (EPS) model structure. Certain technologies require varying levels of continual funding to keep operating effectively while others do not. Over time, RISE PA's directly attributable impact decreases because fuel, operation, maintenance, capital re-investment, and other costs take over that must be paid by other sources. However, indirectly, RISE PA providing start-up funding for capital improvements that are then operated, maintained, and expanded upon by the private sector will have a much greater GHG impact. Through modeling, three cases were calculated: a base case where it was presumed no projects receive the GERB, and a low emission case where all medium and large projects receive the GERB. A middle case, where some projects were more effective at GHG reduction than the industry subsector average, was then calculated. Because RISE PA will be a competitive grant program funding the most cost-effective emissions reductions first it is reasonable to estimate greater \$/tonne efficacy than average.

2.d. Documentation of GHG Reduction Assumptions

RISE PA investments and resulting GHG reductions compared to business-as-usual were modeled using the Pennsylvania EPS v3.4.3. RISE PA investment scenarios each resulted in annual emissions outputs, which were then subtracted from the EPS model's business-as-usual scenario to find the marginal emissions impact in each year for each RISE PA category scenario. A full background on emissions reductions can be found in the Technical Appendix.

3. ENVIRONMENTAL RESULTS – OUTPUTS, OUTCOMES, AND PERFORMANCE MEASURES

First and foremost, RISE PA supports the EPA’s Strategic Plan Goal 1 “Tackle the Climate Crisis” by addressing Objective 1.1 “Reduce Emissions that Cause Climate Change.” By reducing up to over 9 MMTCO₂e through 2050 from Pennsylvania’s industrial sector, RISE PA directly aligns with EPA’s mission. Climate change is already affecting Pennsylvania. From severe heat waves to significant flooding, climate change influences weather events that have economic, health, and other impacts across the Commonwealth. These events can affect some Pennsylvanians more than others. Not only has the Commonwealth experienced increased average temperatures and abnormal precipitation patterns in recent decades, but DEP’s Climate Impacts Assessment predicts a future of more extreme heat waves, more extreme rainfall, and more drought – with impacts ranging from higher flood risks to threats to public health, agriculture, and infrastructure.²¹ RISE PA ultimately seeks to aggressively reduce GHG emissions from Pennsylvania’s industrial sector to help mitigate these impacts.

a. Expected Outputs and Outcomes

Outputs from this proposal include:

- Standing up a first-in-the-nation statewide industrial decarbonization grant program
- Completing 100-1,660 small-scale GERPs, 5-50 medium-scale GERPs, and 1-10 large-scale GERPs
- Reducing air pollutants including CAPs and HAPs throughout Pennsylvania and in LIDACs
- Providing benefits (and avoiding disbenefits) to LIDACs, including improved indoor and outdoor air quality, equitable economic and workforce growth, and improved quality of life
- Hiring staff to implement RISE PA and its associated bonus awards
- Community Benefits Plans (CBPs) submitted as part of the CBB
- Providing on-the-job training opportunities for new employees hired to work on GERPs through the Commonwealth Workforce Transformation Program (see Section 5 of this proposal)
- Completing semi-annual progress reports²² and a detailed final report
- Communicating the successful completion of GERPs through press and social media outlets
- Publishing an Industrial Decarbonization Playbook with case studies describing successful GERPs

Outcomes from this proposal include:

- Reduction in cumulative metric tons of GHG emissions, including 5,281,925 metric tons CO₂e from 2025-2030 and 9,176,810 metric tons CO₂e from 2025-2050
- Reduction in annual CAPs, including particulate matter (both PM_{2.5} and PM₁₀), carbon monoxide, sulfur dioxide, ozone, and nitrogen dioxide, and HAPs, including hydrogen sulfide, benzene, toluene, ethylbenzene, xylene, hexane, ethane, pentane, formaldehyde, butane, dichlorobenzene, and propane, in LIDACs in 2030
- Improved ambient air quality and reduced exposure to unhealthy ambient air quality
- Increased DEP staff capacity to implement RISE PA and policies that address climate change
- Lower energy demand and industrial energy expenditures
- Enhanced level of community engagement through the CBPs, which will increase ongoing actions to engage with organizations and residents of LIDACs and other interested parties
- Increased public awareness of RISE PA and need for industrial decarbonization

²¹ DEP. 2021. Pennsylvania Climate Impacts Assessment.

<https://greenport.pa.gov/elibrary//GetDocument?docId=3667348&DocName=PENNSYLVANIA%20CLIMATE%20IMPACTS%20ASSESSMENT%202021.PDF.%20>

²² Beginning with the second semi-annual report, reporting will include detailed quantified benefits to LIDACs, including changes in co-pollutant emissions and updates on ongoing and planned community engagement.

- Number of high-quality jobs created throughout Pennsylvania and in LIDACs through the prevailing wage, apprenticeship, and FLB requirements
- Reducing the costs of implementing innovative industrial decarbonization technologies
- Creating business and employment opportunities for the companies that manufacture and deploy innovative industrial decarbonization technologies

b. Performance Measures and Plan

RISE PA will evaluate the following performance measures to track, measure, and report progress for GERPs across all Award Tracks:

- Number and type of GERPs completed, including the number completed in LIDACs
- Number of interim project milestones accomplished on schedule
- Levelized cost of a GERP's reduction in GHG emissions
- Quantified GHG emissions reductions
- Quantified reductions in CAPs and HAPs, including in LIDACs
- Number of avoided health incidences such as adult and infant mortality, cardio-vascular illnesses, respiratory illnesses, and work loss days
- Number of high-quality Pennsylvania jobs created (direct and indirect) both during GERP construction and operation of the facility upon GERP completion
- Number of local jobs created (both direct and indirect) both during GERP construction and operation of the facility upon GERP completion
- Number of high-quality jobs created in LIDACs
- Number of CBBs, FLBs, and GERBs awarded
- GERP energy savings (kWh for electricity, kBTU for gas)

As the SAT administrator, PennTAP staff will provide DEP with tri-annual reports on the status of performance measures for small-scale GERPs and verifying the GHG emissions reductions achieved upon project completion.²³ PennTAP's MMV activities and reports will capture source reduction impacts, energy reduction impacts, independent grant and rebate funds, and the cost savings of projects implemented to assess the effectiveness of their efforts. PennTAP will follow up with clients to verify and document environmental and economic benefits resulting from small-scale GERP implementation. PennTAP will determine and report the outcomes (MTCO₂e reduced, lbs. of air pollution reduced, lbs. of waste reduced, MMBtu of energy conserved, cost savings, etc.) that result from SAT grants by periodically returning to clients to verify actual implementation of recommendations. DEP staff will work as project managers MAT and LAT GERPs and will be responsible for measuring and tracking performance measures by completing reporting forms for each interim project milestone across the lifetime of the project. DEP will procure a third-party MMV contractor to assist with certifying the actual GHG, CAP, and HAP reductions for each medium- and large-scale GERP. In turn, DEP will provide a status update with respect to each performance measure to EPA in the semi-annual report and final reports.

c. Authorities, Implementation Timeline, and Milestones

Table 11 identifies the parties responsible for implementing RISE PA, their roles and responsibilities, and their respective authority to carry out this program. The overarching roles and responsibilities of each party are detailed in Section 1.a of this proposal. A detailed implementation timeline—including tasks, key milestones, and key actions needed to meet measure goals and objectives by the end of the grant period—for each measure is also provided in Section 1.a of this proposal.

²³ PennTAP has over ten years of experience completing industrial energy assessments and MMV procedures.

Table 11: RISE PA Administrative Roles and Responsibilities

Implementing Entities	Roles and Responsibilities	Legal Authority to Implement
DEP	Oversee and manage RISE PA and subcontractors; administer MAT, LAT, CBB, FLB, and GERB; complete all reporting requirements	Yes (Air Pollution Control Act, 35 P.S. §4001- 4015; Conservation and Natural Resources Act, P.L. 89, No. 18 (1995 Act 18, Section 504)
PennTAP	Administer SAT; conduct 266 additional industrial energy assessments from 2024-2029	Yes
Catalyst Connection	Provide education, outreach, and technical assistance to SMMs to build out the pipeline of small-scale GERPs; procure and oversee contractor to provide 160 GHG Emissions Reduction Audits from 2024-2029	Yes
Keystone Research Center	Provide workforce development technical assistance to ensure the hiring of diverse local workers and dislocated coal workers on decarbonization projects	Yes
MMV Contractors	Perform baseline MMV and subsequent MMV to validate GHG, HAP, and CAP reductions upon the completion of medium-and large-scale GERPs	Yes
Technical Feasibility Contractor	Assist with drafting RFP and evaluating medium- and large-scale GERP proposals for technical feasibility	Yes
Financial Feasibility Contractor	Assist with evaluating medium- and large-scale GERP proposals for financial feasibility	Yes
Industrial Decarbonization Playbook Contractor	Assist with drafting and publishing Industrial Decarbonization Playbook with case studies from successful GERPs	Yes

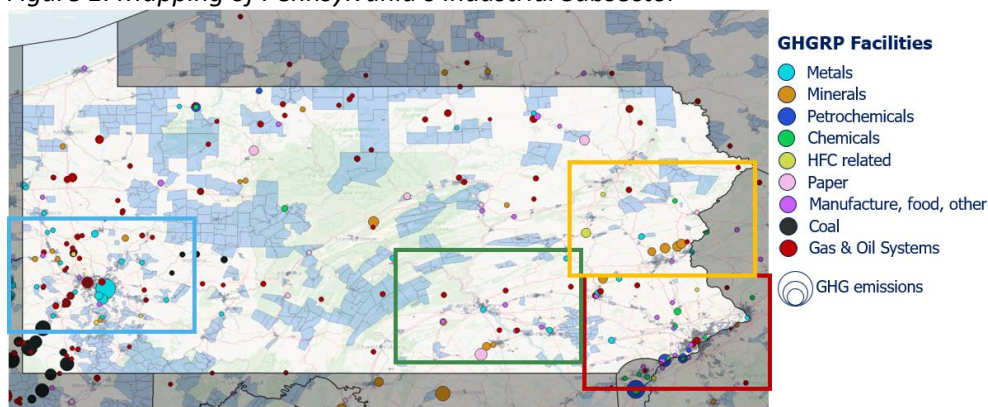
4. LOW-INCOME AND DISADVANTAGED COMMUNITIES

a. Community Benefits

Climate change will not affect all Pennsylvanians equally. Low-wealth and minoritized communities are expected to experience the most severe impacts of climate change and are also the least equipped to prepare for and respond to these impacts due to a lack of resources and socio-political power. Within Pennsylvania, the most prevalent climate hazards are extreme precipitation events, extreme heat, landslides, sea level rise, severe tropical and extra-tropical cyclones, and drought, all of which will disproportionately burden LIDACs. Successful implementation of RISE PA is anticipated to provide significant direct and indirect benefits to LIDACs. A list of all LIDAC census tracts affected by this proposal is included as an attachment to this application. Based on a mapping exercise in ORVI's Industrial Decarbonization Funding Recommendations report in which Pennsylvania's largest industrial facilities, which are those reporting to EPA's Greenhouse Gas Reporting Program (GHGRP), are overlaid with all the LIDACs in the Commonwealth, 21% of industrial facilities are located within a LIDAC while an additional 15% and 16% of facilities, respectively, lie within 1 mile and 3 miles from a LIDAC (see Figure 1). In total, 52% of large industrial facilities are sited 3 miles or less from a LIDAC. These facilities are responsible for 71% of GHG emissions, with those directly within LIDACs accounting for 32% of carbon

emissions, while those within 1 mile are responsible for 23% of carbon emissions, and those within 3 miles are responsible for 16%.²⁴

Figure 1: Mapping of Pennsylvania's Industrial Subsector²⁵



GERPs implemented at industrial facilities located in LIDACs, which are directly incentivized through the CBB as described in Section 1.a, will reduce GHG emissions as well as CAPs and HAPs. In the short term, these co-pollutant reductions will enhance both indoor and outdoor air quality, diminishing hazardous air pollutants, toxins, and other harmful substances. The immediate alleviation of these pollutants will positively impact the physical and economic well-being of LIDAC residents while mitigating the long-term impacts of climate change. Reducing GHG and co-pollutant emissions has and will continue to have profound implications for public health of all Pennsylvanians, especially those living in LIDACs, which are often fenceline communities that are disproportionately impacted by these emissions. The combustion of fossil fuels at industrial facilities contributes to outdoor and indoor air pollution which, in turn, poses significant health risks. In instances of long-term exposure, these health effects can include premature mortality, adverse birth outcomes, cognitive decline, and gastrointestinal inflammatory disease, while short term exposure can lead to asthma and respiratory symptoms. Through RISE PA, this likelihood and other risks will be reduced for fenceline communities²⁶ by reducing co-pollutant emissions and resulting in enhanced public health outcomes, such as declines in illnesses and premature mortality.

RISE PA seeks to benefit LIDAC communities by mitigating these public health risks through GERPs that directly reduce GHG and co-pollutant emissions, which can in turn lead to reductions in new asthma cases and decreases in hospital admissions and emergency department visits. Because GHG emissions contribute to more frequent and severe extreme weather events that result in substantial financial costs and economic impacts, long-term reduction of GHG emissions through GHG reductions measures like RISE PA can mitigate extreme precipitation and storms, while preventing associated costs like increased insurance premiums, expenses for repairing structural damage, and losses in crops and natural

²⁴ ORVI. 2024. Pennsylvania Climate Pollution Reduction Grant: Industrial Decarbonization Funding Recommendations. <https://ohiorivervalleyinstitute.org/wp-content/uploads/2024/02/PA-CPRG-Funding-Recommendations-Memo.pdf>.

²⁵ The blue, red, yellow, and green boxes in this figure demarcate the Pittsburgh, Philadelphia, Lehigh Valley, and Harrisburg areas, respectively.

²⁶ DEP. 2024. PA PCAP.

[https://greenport.pa.gov/elibrary/GetDocument?docId=8188822&DocName=PA%20PRIORITY%20CLIMATE%20ACTION%20PLAN.PDF%20%20%3Cspan%20style%3D%22color%3Agreen%3B%22%3E%3C%2Fspan%3E%20%3Cspan%20style%3D%22color%3Ablue%3B%22%3E\(NEW\)%3C%2Fspan%3E](https://greenport.pa.gov/elibrary/GetDocument?docId=8188822&DocName=PA%20PRIORITY%20CLIMATE%20ACTION%20PLAN.PDF%20%20%3Cspan%20style%3D%22color%3Agreen%3B%22%3E%3C%2Fspan%3E%20%3Cspan%20style%3D%22color%3Ablue%3B%22%3E(NEW)%3C%2Fspan%3E).

resources. The reduction of extreme weather events also alleviates costs related to medical bills and premature deaths.²⁷ RISE PA will also bring significant socioeconomic advantages to LIDACs by increasing high-quality jobs and new workforce training opportunities associated with GERP construction projects in LIDACs by requiring contractors to pay prevailing wage and meet apprenticeship requirements for all GERPs and directly incentivizing additional fair labor practices for GERPs that satisfy the FLB described in Sections 1.a and 5. Clean energy projects at industrial facilities will provide direct benefits to surrounding LIDACs by improving grid resilience, reducing the risk of blackouts, and promoting energy independence. Consequently, these investments will indirectly benefit LIDACs by mitigating the economic and physical impact of extreme weather events.

Although all GERPs eligible under RISE PA offer the potential to deliver these benefits to LIDACs, some of the decarbonization levers these projects deploy may result in direct and indirect disbenefits that must be mitigated. GERPs that propose to deploy carbon capture and storage (CCS) technologies have a higher potential for disbenefits due to the need for carbon transport and storage infrastructure and perpetuating the need for the extraction and use of fossil fuels.²⁸ These disbenefits will be mitigated by ensuring that CCS projects only receive RISE PA funding if they are addressing industrial emissions that cannot be feasibly abated using any other decarbonization strategy. GERPs deploying fuel switching to hydrogen may offer both benefits and disbenefits depending on the type of hydrogen deployed. All types of hydrogen have the potential for disbenefits due to hydrogen production, transport, and storage infrastructure. While all types of hydrogen will reduce air pollutants from fossil fuel combustion, hydrogen combustion produces NOx emissions.²⁹ These disbenefits will be mitigated by ensuring that the efficacy of the proposed solution will be evaluated based not only on the fuel used for the industrial process (i.e., hydrogen) but also on the source of the fuel and how the production of that fuel reduces or increase the overall carbon intensity of any given project.

GERPs that involve electrification will provide high air quality benefits for LIDACs near industrial sites due to complete elimination of fossil fuel combustion emissions; however, if the electricity is generated using fossil fuels, this may result in disbenefits by exacerbating air quality issues in LIDACs near fossil fuel extraction and power plant sites. Expanding infrastructure to support electrification (e.g., transmission) could also be a disbenefit depending on where it is sited.³⁰ These disbenefits will be mitigated as Pennsylvania's electric grid continues to decarbonize. As the grid becomes cleaner over time, investments in electrification will continue to lead to additional, incremental decarbonization resulting in the possibility for about 30 million metric tons of annual GHG emissions reductions in the industrial sector by 2050.³¹ GERPs that reduce emissions from the natural gas and oil industrial subsector will provide air quality benefits for LIDACs surrounding natural gas extraction and transport infrastructure, and reduced methane losses may result in lesser need for new extraction, creating additional benefits. Disbenefits may arise if technology upgrades encourage prolonging the life of natural gas extraction. Decarbonization investments in this subsector may extend its lifespan, which would create continued disbenefits for surrounding communities.³² DEP believes the benefits of GERPs that reduce GHG

²⁷ Ibid.

²⁸ ORVI. 2024. Pennsylvania Climate Pollution Reduction Grant: Industrial Decarbonization Funding Recommendations. <https://ohiorivervalleyinstitute.org/wp-content/uploads/2024/02/PA-CPRG-Funding-Recommendations-Memo.pdf>.

²⁹ Ibid.

³⁰ Ibid.

³¹ Ibid.

³² Ibid.

emissions from the natural gas and oil systems subsector will outweigh the potential disbenefits, and these types of considerations will be addressed in CBPs under the CBB.

GERPs that deploy energy efficiency solutions have the potential to provide high air quality benefits by reducing need for fossil fuel combustion and electricity use at industrial sites and will create upstream benefits by reducing need for fossil fuel extraction and electricity production. Investments in energy efficiency offer advantages for local job creation in a way that differentiates this decarbonization lever from others. Most efficiency improvements, such as upgrades in lighting, insulation, doors and windows, or heating and cooling systems, can be performed by the local workforce, supporting jobs for contractors and suppliers within LIDACs. Prioritization of industrial efficiency efforts would be expected to result in large local economic benefits, given that many efficiency improvements, such as retrofits or other equipment installations, are often performed by local workers, who in turn spend income in the local economy.³³ These solutions have no identified disbenefits.³⁴ DEP will assess, quantify, and report a more thorough analysis of associated community benefits based on actual data collected during RISE PA implementation. DEP will procure third-party contractors specializing in mobile air monitoring and MMV to track the deployment of GERPs in and near identified LIDAC census tracts to quantify reduction in GHG emissions and co-pollutant emissions and other community benefits. DEP will include results of these assessments in semi-annual reports to EPA and make the information publicly available.

b. Community Engagement

DEP created its Climate Action for Environmental Justice Communities (CAEJC) Program to identify and support strategic actions to help Pennsylvania's communities impacted by environmental justice concerns adapt to climate change while striving to lower GHG emissions with measures that reduce risk and capitalize on potential opportunities to strengthen local economies. In spring 2023, DEP engaged with Pennsylvanians in seven communities across the Commonwealth including Meadville, Pittsburgh, Scranton, Reading, Harrisburg, Norristown, and Philadelphia. This engagement took the form of both in-person and virtual open discussions with community members, where participants shared their experiences with climate change and other environmental issues and insights on climate mitigation and adaptation actions that could be directly beneficial to their communities. A public survey was also developed as part of the CAEJC Program to solicit feedback on statewide climate priorities. Results of this engagement effort were published in a June 2023 report.

DEP expanded on the community engagement of the CAEJC Program to conduct specific outreach to guide the development of the PA PCAP. In December 2023, DEP held four workshops across the Commonwealth (in Clairton, Williamsport, Hazelton, and Wysox), and one virtual session to solicit community feedback on priorities for the PA PCAP. Workshop locations were selected to build on existing learnings from and expand the reach of DEP's successful CAEJC program. DEP targeted outreach in areas that were identified by EPA's EJScreen as LIDACs and in communities which have been impacted by industrial activities and reached 177 individuals through these sessions. DEP performed extensive community outreach, including to LIDACs, during development of RISE PA as part of the PA PCAP process. DEP identified LIDACs in the PA PCAP using EJScreen and engaged with LIDACs to seek their input on creation of RISE PA through online resources (website, survey), community meetings, targeted

³³ ORVI. 2024. A Roadmap for Industrial Decarbonization in Pennsylvania. <https://ohiorivervalleyinstitute.org/a-roadmap-for-industrial-decarbonization-in-pennsylvania/>

³⁴ ORVI. 2024. Pennsylvania Climate Pollution Reduction Grant: Industrial Decarbonization Funding Recommendations. <https://ohiorivervalleyinstitute.org/wp-content/uploads/2024/02/PA-CPRG-Funding-Recommendations-Memo.pdf>.

outreach, engagement, partnership with eight community-based organizations (CBOs), and outreach to DEP's 15-member Environmental Justice Advisory Board (see PA PCAP for additional details on the results of these engagement efforts). DEP also received letters of support that are attached to this application from the eight environmental groups that fully support the RISE PA program.³⁵ Throughout the period of performance, RISE PA will incentivize applicants to conduct meaningful engagement with LIDACs during and following the implementation of GERPs through the CBB, which will add an additional 10% to the Department's base award for projects located in LIDACs that complete and implement approved CBPs. To qualify for the CBB, an applicant must include the following elements in their CBP:³⁶

1. **General Project Information** including construction information on any known construction labor risks or threats that could cause delays to the schedule; potential public and worker health and safety risks and hazards; known possibilities of labor disruption; plans for coordination among various employers; plans for resolution mechanism to avoid potential project delays; the general contractor or engineering, procurement, and construction contractor; and the primary business of the general contractor; locations and communities affected, including the known location served or impacted by the project and the location(s) of construction or alteration activity, communities geographically near the applicant's proposed project.
2. **Community Engagement** including community and labor stakeholders engaged to date; community and labor stakeholders to be engaged; other community and engagement goals, commitments, and milestones; and details on how engagements will be accessible and inclusive.
3. **Diversity, Equity, Inclusion, and Accessibility** including applicant commitments to partnering with Minority Business Enterprises, Minority Owned Businesses, Woman Owned Businesses, and Veteran Owned Businesses and applicant commitments to implementing a plan to reduce barriers and improve access to jobs for local and underrepresented workers, including LIDAC residents, those with disabilities, returning citizens, opportunity youth, and veterans.
4. **Justice40 Initiative** information including Justice40 benefits for LIDACs, which LIDACs benefit, how and when planned or anticipated benefits are expected to flow to LIDACs, milestones to indicate progress toward benefit delivery, metrics to be used to track and report on benefits, and CBOs involved in identifying, negotiating, or delivering benefits; anticipated or potential negative environmental impacts on LIDACs, including anticipated environmental impacts, known upstream or downstream impacts, and plan to monitor and mitigate negative impacts.

5. JOB QUALITY

The activities associated with RISE PA implementation will create high quality jobs in a sector that is a core component of Pennsylvania's broader economy. Meeting the demand for these jobs with a supply of qualified and trained workers from all areas within the Commonwealth will require a commitment to partnership and learning from many different stakeholders and a willingness to invest in equitable

³⁵ The Nature Conservancy, Evergreen Collaborative, Pennsylvania Environmental Council, Natural Resources Defense Council, Sierra Club Pennsylvania Chapter, PennEnvironment, Conservation Voters of Pennsylvania, and Penn Future have each offered letters of support fully endorsing RISE PA.

³⁶ For GERPs that receive the CBB, DEP will follow up with LIDACs upon the completion project completion to solicit input on which components of the CBP worked well and which elements require improvements. DEP will then incorporate this feedback and modify the requirements for subsequent CBPs, accordingly, to ensure the early and consistent inclusion of diverse LIDAC perspectives throughout GERP implementation.

workforce development activities over the long run.³⁷ Ten occupations³⁸ are crucial to the successful implementation of RISE PA and are likely to see some of the greatest increase in demand. Based on the typical attributes of these jobs including wages, benefits, training needed, unionization rates, and access to training pathways, the increase in demand for these occupations provides a significant opportunity to create and maintain good jobs throughout Pennsylvania as the industrial sector decarbonizes.³⁹ Industrial decarbonization and improved efficiency offer a strong path forward for both high-quality employment and climate goals. Heavy industry is a heavily unionized sector that requires well-trained and skilled workers to complete complex jobs safely, and decarbonizing industry will require many such workers and lead to an increase in job creation within the priority occupations.⁴⁰ By focusing workforce development investments and programs that support these occupations, DEP can maximize CPRG funding. Furthermore, RISE PA spending could directly and indirectly create and support nearly 1,200 jobs throughout the Commonwealth from 2025-2030.⁴¹

Additionally, on July 31, 2023, Governor Shapiro signed an executive order that created a first-of-its-kind statewide workforce training program designed to leverage IIJA and IRA funding available by establishing the Commonwealth Workforce Transformation Program (CWTP). This initiative will invest up to \$400 million in workforce development over the next five years and create up to 10,000 new jobs. By incentivizing on-the-job training, CWTP will help break down employment pathway barriers for underserved populations by allowing supportive services (e.g., transportation and childcare) to be eligible reimbursement costs for the new employees hired to work on an IIJA or IRA project. With support from the Pennsylvania Department of Labor & Industry, which is responsible for administering the CWTP, RISE PA will deploy the following concrete strategies that support “high road” labor practices and ensure the creation of high-quality jobs with a diverse, highly skilled workforce. First, all GERPs must satisfy the prevailing wage and apprenticeship requirements outlined in Section 1.a of the proposal. Through the FLB, RISE PA will further incentive high road labor practices by offering an additional 10% to DEP’s base cost share for GERPs that incorporate and satisfy the following requirements:

1. **Good Neighbor Agreement**, including plans to ensure access to jobs and business opportunities for local residents and investment in training for local workers, commitments to pay wages and benefits above the prevailing rates for construction when not already required, and commitments to pay above average wages and benefits for hourly (non-construction) workers.
2. **Collective Bargaining Commitments**, including a commitment to negotiate a Project Labor Agreement for construction activity, pledges and commitments to remain neutral during any union organizing campaigns, permit union recognition through card check, enter into binding

³⁷ BW Research. 2024. RISE PA Workforce Assessment. <https://www.evergreenaction.com/documents/PA-PCAP-workforce-analysis.pdf>.

³⁸ Priority occupations include the following: electricians; heating, air conditioning and refrigeration mechanics and installers; pipelayers, plumbers, pipefitters, and steamfitters; construction laborers; carpenters; boilermakers; construction equipment operators; insulation workers; industrial machinery installation, repair, and maintenance workers; and welding, soldering, and brazing workers.

³⁹ BW Research. 2024. RISE PA Workforce Assessment. <https://www.evergreenaction.com/documents/PA-PCAP-workforce-analysis.pdf>.

⁴⁰ DEP. 2024. PA PCAP.

[https://greenport.pa.gov/elibrary/GetDocument?docId=8188822&DocName=PA%20PRIORITY%20CLIMATE%20ACTION%20PLAN.PDF%20%20%3Cspan%20style%3D%22color%3Agreen%3B%22%3E%3C%2Fspan%3E%20%3Cspan%20style%3D%22color%3Ablue%3B%22%3E\(NEW\)%3C%2Fspan%3E](https://greenport.pa.gov/elibrary/GetDocument?docId=8188822&DocName=PA%20PRIORITY%20CLIMATE%20ACTION%20PLAN.PDF%20%20%3Cspan%20style%3D%22color%3Agreen%3B%22%3E%3C%2Fspan%3E%20%3Cspan%20style%3D%22color%3Ablue%3B%22%3E(NEW)%3C%2Fspan%3E).

⁴¹ Ibid.

arbitration to settle first contracts, allow union organizers access to appropriate onsite non-work places, and refrain from holding captive audience meetings.

3. **CWTP Participation**, including dedicating at least 3% of the FLB to provide on-the-job training for New Employees as defined by the CWTP Program Guidelines, which reimburse up to \$40,000 per New Employee.

DEP also conducted robust direct outreach and engagement with the labor community on the RISE PA program design, incorporated their feedback into the development of the FLB, and received eight letters of support from the following organizations that fully endorse our RISE PA application: Pennsylvania State Building and Construction Trades Council, Pennsylvania American Federation of Labor and Congress of Industrial Organizations (AFL-CIO), Pittsburgh Regional Building Trades Council, Pittsburgh Plumbers Local Union 27, Philadelphia Council AFL-CIO, Philadelphia Area Labor Management Committee, Philadelphia Steamfitters Local Union 420, and Heat & Frost Insulators & Allied Workers. The Keystone Research Center (KRC) facilitated this engagement and will partner with DEP to help administer the FLB, provide technical assistance to integrate organized labor into RISE PA, and develop template local hire agreements with strong provisions related to diverse local hiring, preferential hiring for dislocated coal workers, and apprenticeship utilization.

6. PROGRAMMATIC CAPABILITY AND PAST PERFORMANCE

Past Performance and Reporting Requirements

RISE PA will be administratively housed within DEP's Energy Programs Office (EPO), which has successfully implemented and is currently implementing other federal grants. Federally funded assistance agreements that EPO is performing or has performed within the last three years include:

- Preventing Outages and Enhancing the Resilience of the Electric Grid
 - Assistance Agreement Number: DE-GD0000039
 - Funding Agency: DOE
 - Assistance Listing Number: 81.254
 - Description: EPO developed the Pennsylvania Grid Resilience Grants Program (PA GRG), a \$40 million competitive grant program seeking to fund transformative projects that result in a more resilient and reliable electric grid.
Funding Agency Contact:
DOE Award Administrator: Ashley Dew; 412-386-9423; ashley.dew@netl.doe.gov
DOE Program Manager: Robert Reed; 304-285-4990; robert.reed@netl.doe.gov
 - Status: EPO is currently administering the first round of PA GRG and received concept papers from 19 applicants. Full application was due January 26, 2024, and a prospective awardee list is anticipated in March 2024.
 - Reporting History: EPO submitted three approved quarterly reports on time to DOE and adequately reported progress made toward achieving the expected outputs and outcomes, challenges to meeting expected outputs and outcomes during the reporting period, and strategies to address such challenges. EPO submitted one annual report, but no projects had been completed to date at the time of that submission because EPO was still working to open the PA GRG application period.
- State Energy Program (SEP) – IIJA Allocation
 - Assistance Agreement Number: DE-EE0010096
 - Funding Agency: DOE
 - Assistance Listing Number: 81.041

- Description: EPO received \$14 million to administer a Shared Energy Manager (SEM) Program and Industrial Energy Assessment Program, draft a State Energy Security Plan (SESP), and create a residential energy efficiency financing program.
- Funding Agency Contact:
DOE Award Administrator: Lindsay Eaves; 603-359-5887; Lindsay.Eaves@ee.doe.gov
- DOE Project Officer: Myles Rogers; 240.597.6348; myles.rogers@hq.doe.gov
- Status: EPO selected a contractor for the SEM Program, and there are 20 local governments participating in the program. EPO has issued an RFP to obtain a vendor to provide industrial energy assessments. EPO completed the 2023 SESP in September. The residential energy efficiency financing program is still under development.
- Reporting History: EPO is required to provide quarterly performance reports and financial reports. EPO has successfully completed its quarterly performance and financial reporting on time and highlighted the successes for each task under the grant and addressed the challenges being faced. Deviations in expectations to the original plan have been explained in these reports. Each of these subsequent reports has been approved by DEP's DOE project officer. EPO has sufficiently addressed any issues with the reports as flagged by the DOE project officer.
- Building Codes Implementation for Efficiency and Resilience
 - Assistance Agreement Number: DE-EE0010941
 - Funding Agency: DOE
 - Assistance Listing Number: 81.117
 - Description: EPO earned this competitive \$3 million grant to develop energy code technical trainings and building science training programs at career and technical high schools and community colleges across Pennsylvania.
 - Funding Agency Contact:
DOE Award Administrator: Abdulwahab Salih; 720-360-5552; abdulwahab.salih@ee.doe.gov
DOE Project Officer: Christina Volpi; 720-813-9293; christina.volpi@ee.doe.gov
 - Status: EPO is working to find pilot schools, develop RFPs, and identify technical advisory group participants.
 - Reporting History: EPO is responsible for submitting quarterly reports detailing progress made toward achieving the expected outputs and outcomes, challenges to meeting expected outputs and outcomes during the reporting period, and strategies to address such challenges. EPO intends to submit the first report on time at the end of Q1.
- Climate Pollution Reduction Grants Planning Grant
 - Assistance Agreement Number: 5D - 95315901
 - Funding Agency: EPA
 - Assistance Listing Number: 66.046
 - Description: EPO received a \$3 million grant to conduct in-depth climate action planning and must produce a Priority Climate Action Plan (PCAP) that identifies GHG reduction measures within priority sectors and a Comprehensive Climate Action Plan addressing GHG emission sources statewide.
 - Funding Agency Contact:
EPA Project Officer: Alison Riley; 215-814-2095; Riley.Alison@epa.gov
EPA Grant Specialist: Vanessa Davies; 215-814-2801; Davies.Vanessa@epa.gov
 - Status: DEP submitted the Commonwealth's PCAP to EPA on March 1, 2024.
 - Reporting History: DEP must submit quarterly reports to EPA and has complied with all reporting requirements for the CPRG Planning Grant to date. DEP has submitted

acceptable required progress reports on time since the grant launch in July 2023. These include reports for the two completed reporting periods 7/1/2023-9/30/2023 and 10/1/2023-12/31/2023. In each report, DEP has outlined progress towards expected outputs and outcomes, as well as, documented any challenges to project progress.

Staff Expertise

EPO will spearhead DEP's RISE PA Project Team with input from DEP's Bureau of Air Quality (BAQ). Operating within DEP since 1995, EPO is the DOE-recognized State Energy Office (SEO) and possesses the requisite staff expertise, qualifications and resources to execute RISE PA. Leading Pennsylvania energy policy development and energy program implementation, Director Dave Althoff, who has over 30 years of service with DEP, and his current 22-member staff complement assist, educate, and encourage Pennsylvanians to advance conservation and efficient use of diverse energy resources to achieve greater energy security. As the SEO, EPO is responsible for submitting the SEP to administer grants for energy efficiency, renewable energy, and energy assurance activities. The SEP includes planning, tracking, implementing and promoting energy efficiency, building codes, energy management systems, renewable energy, alternative fuels, energy assurance and security, fuel resources, and financial markets. In the last five years alone, EPO has received 18 competitive and formula-based DOE awards totaling over \$50 million. Under IIJA, EPO is receiving approximately \$67 million of formula funding to administer programs such as the Energy Efficiency Revolving Loan Fund, Energy Efficiency and Conservation Block Grants, and Preventing Outages and Enhancing the Resiliency of the Electric Grid. EPO is receiving over \$261 million of formula funds through IRA to create and implement the Home Energy Performance-Based, Whole-House Rebates and Home Electrification and Appliance Rebates.

BAQ is responsible for safeguarding the health of Pennsylvanians by achieving the goals of the federal Clean Air Act and the Pennsylvania Air Pollution Control Act. With 158 staff located in DEP's Central Office and 115 staff housed across DEP's six Regional Offices, BAQ's team of highly-skilled air quality specialists develop air quality regulations, conduct meteorological tracking and air quality modeling studies and reviews, develop transportation control measures and other mobile source programs, and oversee regional permitting activities, including providing technical assistance for pollution control technology determinations. BAQ also collects and monitor air quality data from industrial facilities to ensure and enforce state and federal regulatory compliance for all air permits. Assistant Bureau Director John Krueger serves as BAQ's core RISE PA Project Team representative, and his 35 years of experience working at DEP have proven to be an invaluable resource to help shape the RISE PA program.

EPO and BAQ will leverage their collective staffs' extensive knowledge, expertise, and resources to successfully implement RISE PA along with oversight from the Governor Shapiro's Office of Critical Investments (OCI). Under the leadership of Executive Director Dr. Brian Regli, OCI oversees a \$20 billion portfolio of federal appropriations allocated to Pennsylvania through the IIJA and IRA. OCI has two Infrastructure Coordinators who partner closely with EPO on IIJA and IRA program development, design, and implementation to further leverage and augment its capacity. One of OCI's Infrastructure Coordinators, Louie Krak, has led this CPRG Implementation application, including developing the RFI and RISE PA program design, drafting the Implementation application materials, and building a broad coalition of support of diverse stakeholders across the Commonwealth that wants to see RISE PA come to fruition. Should this proposal receive an award, Mr. Krak will continue to lead the RISE PA under the guidance of Dr. Regli, Director Althoff, and Assistant Director Krueger. This application includes attached resumes for all the key staff, managers, and personnel on the RISE PA Project Team. DEP thanks EPA for the opportunity to apply for the CPRG Competition and consideration of the RISE PA proposal.