

WORKPLAN

1. OVERALL PROJECT SUMMARY AND APPROACH

The Minnesota Department of Transportation, Michigan Department of Transportation, and Wisconsin Department of Transportation (hereinafter referred to collectively as the Regional Electric Vehicle (REV) Midwest Coalition) propose to undertake the greenhouse gas (GHG) reduction efforts described in this workplan if awarded funding under the Climate Pollution Reduction Grant (CPRG) implementation grants general competition. As the lead applicant, the Minnesota Department of Transportation will submit a memorandum of agreement signed by all coalition members by July 1, 2024. In addition to the coalition members, the Minnesota Department of Transportation will provide a subaward to the Great Plains Institute (GPI). GPI will help administer the project, including scheduling and facilitating coalition member meetings and coordinating semi-annual and annual reports to the EPA. **Table 1** describes the roles and responsibilities of each coalition member and sub-awardee.

Table 1. Coalition roles and responsibilities

Entity	Roles and Responsibilities
Minnesota Department of Transportation	<ul style="list-style-type: none"> • Issue subawards to coalition partners in accordance with EPA's Subaward Policy • Coordinate selection of a consultant for the optimization study through a competitive procurement process • Oversee subrecipients, contractors, and vendors • Track and report on expenditures and purchases • Track, measure, and report progress on timelines and milestones • Submit semi-annual progress reports to EPA • Submit detailed final report to EPA within 120 calendar days of period of performance completion • Oversee community and stakeholder outreach and education within the Minnesota Department of Transportation's jurisdiction • Provide timely data and input for optimization study and map • Issue a request for proposals and subsequent awards to third parties to install, own, and operate multi-use charging hubs
Michigan Department of Transportation	<ul style="list-style-type: none"> • Comply with subrecipient requirements under EPA's Subaward Policy • Assist the Minnesota Department of Transportation with consultant selection process for the optimization study • Track and report to the Minnesota Department of Transportation on expenditures and purchases within the State of Michigan • Track, measure, and report to the Minnesota Department of Transportation on progress on timelines and milestones within the State of Michigan • Oversee community and stakeholder outreach and education within the State of Michigan

	<ul style="list-style-type: none">• Provide timely data and input for optimization study and map• Issue a request for proposals and subsequent awards to third parties to install, own, and operate multi-use charging hubs
Wisconsin Department of Transportation	<ul style="list-style-type: none">• Comply with subrecipient requirements under EPA's Subaward Policy• Assist the Minnesota Department of Transportation with consultant selection process for the optimization study• Track and report to the Minnesota Department of Transportation on expenditures and purchases within the State of Wisconsin• Track, measure, and report to the Minnesota Department of Transportation on progress on timelines and milestones within the State of Wisconsin• Oversee community and stakeholder outreach and education within the State of Wisconsin• Provide timely data and input for optimization study and map• Issue a request for proposals and subsequent awards to third parties to install, own, and operate multi-use charging hubs
Great Plains Institute	<ul style="list-style-type: none">• Comply with subrecipient requirements under EPA's Subaward Policy• Facilitate a task force of senior leadership or delegated staff from each state: schedule regular meetings, prepare agendas, secure speakers, and capture takeaways• Manage project schedule• Coordinate semi-annual reports and provide relevant technical assistance to coalition members• Coordinate the final report and provide relevant technical assistance to coalition members

a. Description of GHG Reduction Measures

The REV Midwest Coalition seeks to accelerate vehicle electrification for emerging applications, including medium- and heavy-duty vehicles and passenger vehicles pulling trailers in Illinois, Indiana, Michigan, Minnesota, and Wisconsin. This application complements efforts already underway by the coalition and the National Zero-Emission Freight Corridor Strategy.

The States of Illinois, Indiana, Michigan, Minnesota, and Wisconsin formed the REV Midwest Coalition on September 30, 2021, to accelerate vehicle electrification in the region. The [memorandum of understanding](#) signed by the respective governors details the coalition's objectives, activities, and process. To accelerate medium- and heavy-duty fleet electrification, the states identified the need for a regional optimization study to analyze routes of commercial significance, assess medium- and heavy-duty charging needs, and plan out a future charging network. Although Illinois and Indiana are not participating in this application, the states will support regional planning activities as demonstrated in their letters of commitment. Of note, both Illinois and Indiana are participating in a battery charging and hydrogen fueling station project funded by the US Department of Energy, which is led by Cummins Inc. The project will develop a charging and hydrogen fueling plan for the I-80 Midwest Corridor running through Indiana, Illinois, and Ohio.¹

On March 12, the Biden-Harris Administration released the National Zero-Emission Freight Corridor Strategy.² The administration aims to achieve 100 percent zero-emission medium- and heavy-duty vehicle sales through a four-phase approach by 2040 along the National Highway Freight Network. The first phase largely overlaps with the timeline laid out in this application. During that time, the national corridor strategy will establish hubs largely outside the REV Midwest Coalition area. Between 2030 and 2035, the national corridor strategy aims to expand the original network, including more of Minnesota and Wisconsin. With CPRG implementation funding, the REV Midwest Coalition will be well ahead of the national effort and be able to serve as a model for the region.

Medium- and heavy-duty vehicles are vital for the US economy broadly, with significant amounts of trucking and freight movement through the Midwest. Electrifying this segment will allow each REV Midwest Coalition state to reduce transportation emissions and improve public health outcomes as identified in their Priority Climate Action Plans (PCAPs). **Table 2** shows the metric tons of carbon dioxide equivalent (MTCO₂e) emitted in 2022 by heavy- and medium-duty vehicles in each state based on data from the Rhodium Group's ClimateDeck.

Table 2. Annual amount of GHG emissions from medium- and heavy-duty vehicles per state

State	MTCO ₂ e
Michigan	23,980,000
Minnesota	26,380,000
Wisconsin	22,300,000

¹ <https://www.cummins.com/news/releases/2023/02/17/cummins-destination-zero-strategy-receives-major-support-through>

² <https://driveelectric.gov/files/zef-corridor-strategy.pdf>

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While the focus of the project is to electrify medium- and heavy-duty vehicles, the site design for these charging hubs may also enable passenger electric vehicles pulling trailers or boats the ability to charge. Passenger electric vehicles with trailers require a pull-through charging station, like the size required by medium- and heavy-duty electric vehicles. Most publicly accessible charging stations today are not designed for pull-through vehicles. Many states have encouraged pull-through stations in their National Electric Vehicle Infrastructure plans, but there will continue to be a need for more of these stations to enable vacationers and others the ability to drive electric while towing a trailer. Building these stations alongside medium- and heavy-duty charging hubs will satisfy both use cases, increasing light-, medium-, and heavy-duty vehicle electrification throughout the region and meeting coalition PCAP GHG measures.

Major elements to implement the measure include:

- developing a publicly accessible digital optimization map for infrastructure placement;
- producing a white paper identifying technical and safety standards for charging sites;
- preparing a regional infrastructure plan addressing the short-, medium- and long-term goals for developing and deploying a publicly accessible multi-use charging infrastructure network; and
- piloting multi-use charging hubs in cities offering the most GHG reduction benefit to low-income and disadvantaged communities (LIDACs).

Table 3 details tasks and milestones required to accelerate vehicle electrification for emerging applications. Ultimately, vehicle electrification can only occur with a robust, reliable charging network. All the tasks shown in Table 3 build upon one another, leading to the deployment of multi-use charging hubs. The optimization study will identify the number and locations for future charging hubs, paving the way for a robust network. Developing technical and safety standards with industry and stakeholder input will ensure a consistent and reliable user experience. Standards will improve the understanding of site capabilities and needed amenities, such as but not limited to vehicle pull-through and turning radius, plug types, charge delivery, average length of stay, and end user experiences. Preparing a regional infrastructure plan will foster greater collaboration between public and private entities and allow for strategically allocating resources. Lastly, piloting multi-use charging hubs will help the states evaluate station design and gather user feedback, informing future station design and build-out. The REV Midwest Coalition will engage stakeholders and community members throughout the project to inform project design and deliverables.

Table 3. Tasks and Milestones

Task #	Task Description	Anticipated Milestone Dates	Assumptions
Task 1: Consultant selection			
1.1	Obtain legal authority if needed	September 2024	States will be able to obtain the necessary legislative authority required to spend CPRG dollars and for project activities within the first two years of the project.
1.2	Develop a project website or webpage to house information	October 2024	The Minnesota Department of Transportation will be able to host the webpage on its website
1.3	Procure consultant(s) through request for proposals	May 2025	The Minnesota Department of Transportation will procure the consultant through its Professional Technical contract process
1.4	Prepare semi-annual reports	April 2025, October 2025	EPA will require semi-annual reports every six months
Task 2: Optimization study			
2.1	Consultant collects data and information with stakeholders and community members	December 2025	Selection of a contractor takes seven or fewer months to complete
2.2	Consultant prepares optimization map	August 2026	Consultant is able to collect data and information in the time estimated
2.3	Consultant prepares technical and safety standards white paper	August 2026	Consultant is able to collect data and information in the time estimated
2.4	Consultant carries out publication and public awareness campaign for optimization map and technical and safety standards	January 2027	Consultant is able to develop deliverables in the time estimated
2.5	Prepare semi-annual reports	April 2026, October 2026	EPA will require semi-annual reports every six months
Task 3: Charging procurement			
3.1	Procure charging hub owner-operator(s) through request for proposals	September 2027	Procurement takes twelve or fewer months. Entities that have shovel-ready projects will be best suited for the award timeline.
3.2	Vendor completes any required state environmental review	December 2027	Environmental review takes three or fewer months
3.3	Prepare semi-annual reports	April 2027, October 2027	EPA will require semi-annual reports every six months
Task 4: Regional plan development			
4.1	Consultant prepares regional infrastructure plan using the inputs from the Optimization Study	March 2029	Consultant is able to collect data and information in the time estimated

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4.2	Consultant carries out publication and public awareness campaign for regional infrastructure plan	September 2029	Consultant is able to develop deliverables in the time estimated
Task 5: Multi-use charging hub design			
5.1	Vendor completes site design and grid assessment, including stakeholder and community engagement	September 2028	Site design takes twelve or fewer months. Entities that have shovel-ready projects will be best suited for the award timeline.
5.2	Prepare semi-annual reports	April 2028, October 2028	EPA will require semi-annual reports every six months.
Task 6: Charging hub installation and evaluation			
6.1	Vendor installs multi-use charging hubs	March 2029	Installation takes six or fewer months. Entities that have shovel-ready projects will be best suited for the award timeline.
6.2	Evaluate multi-use charging hubs	August 2029	Installation takes six or fewer months and there is time to evaluate the hubs before the five-year deadline.
6.3	Prepare semi-annual reports	April 2029	EPA will require semi-annual reports every six months
Task 7: Final report			
7.1	Prepare final report	October 2029	All project activities are completed by the end of year 5 in time to submit the final report. The final report may be submitted later than October 2029 but no later than 120 days past the project completion.

Table 4 details anticipated risks associated with measure implementation and mitigation strategies for each risk.

Table 4. Risks and mitigation strategies

Risk	Effect on GHG emission reductions	Mitigation Strategy
Delays in optimization study procurement process	May reduce cumulative GHG emission reductions in the near-term (2025-2030)	The Minnesota Department of Transportation will identify REV Midwest as a potential project to help prospective consultants prepare for upcoming solicitations and can work with coalition partners to establish a scope of work.
Vendors do not respond to the charging hub request for proposals or not enough bids are received	May reduce cumulative GHG emission reductions in the near-term (2025-2030) and long term (2025-2050)	The Minnesota Department of Transportation seeks a project extension from the EPA.
Delays in charging hub procurement process	May reduce cumulative GHG emission reductions in the near-term (2025-2030)	Coalition members will learn from the optimization study engagement efforts and adapt procurement processes before year 3.
Delays in designing and building multi-use charging hubs due to supply chain shortages or other issues	May reduce cumulative GHG emission reductions in the near-term (2025-2030)	The Minnesota Department of Transportation seeks a project extension from the EPA due to delays outside coalition member control.

Table 5 demonstrates how accelerating vehicle electrification for emerging applications relates to GHG reduction measures in coalition member PCAPs. This measure was selected as a priority because the Midwest is an important thoroughfare for the nation, transporting goods and services from one coast to the other. The region has a vital role in ensuring that roads meet the needs of the future while achieving climate goals, providing clean air, and supplying jobs to Midwesterners. The REV Midwest Coalition can significantly advance the decarbonization of medium- and heavy-duty vehicles in the Midwest, considerably reducing transportation emissions. Additionally, this measure would help implement the memorandum of understanding signed by REV Midwest Coalition governors on September 30, 2021.

Table 5. Measure alignment with coalition member PCAPs

Measure	PCAP Title(s)	Page Numbers
Vehicle electrification for emerging applications, including medium- and heavy-duty vehicles and passenger vehicles pulling trailers	Minnesota Priority Climate Action Plan:	19-22
	Climate pollution reduction grants	
	Implementing the MI Healthy Climate Plan:	87-90
	Michigan's Priority Climate Action Plan	
	Wisconsin Emissions Reduction Roadmap	24-28

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Accelerating vehicle electrification for emerging vehicles, including medium- and heavy-duty vehicles and passenger vehicles pulling trailers, is critical for meeting CPRG goals as defined in coalition member PCAPs and below.

1. Significant cumulative GHG reductions will be achieved by 2030. Combined, the three coalition members estimated that accelerating vehicle electrification would achieve 16.7 million metric tons of carbon dioxide equivalent (MMTCO₂e) reduction in their PCAPs by 2030. By 2050, coalition members estimated that vehicle electrification will reduce GHG emissions by about 100 MMTCO₂e.
2. Substantial community benefits (such as reduction of criteria air pollutants (CAPs) and hazardous air pollutants (HAPs)), particularly in low-income and disadvantaged communities, will be achieved. Communities identified as low-income disadvantaged communities (LIDACs), situated near bustling freight centers and trucking routes, are directly and unevenly subjected to the detrimental emissions from diesel trucks. These communities also disproportionately bear the impacts of climate change, such as increasingly frequent and severe floods and extreme heat. Accelerating vehicle electrification for emerging vehicles will substantially reduce criteria pollutant emissions, particularly benefiting LIDACs. Future electrified corridors will facilitate considerable reductions in greenhouse gas emissions.
3. Other funding sources will maximize GHG reductions and community benefits. Charging and vehicle incentives will be required to accelerate vehicle electrification for emerging applications and bring air quality and other benefits to communities. Funding received through the EPA's CPRG Implementation Grant program would complement other federal, state, and third-party funding sources in each coalition state. On the federal side, all coalition members are issuing funds to install fast charging stations through the Federal Highway Administration's National Electric Vehicle Infrastructure program. Fast chargers are also being deployed in the states through the Volkswagen Settlement Mitigation Fund, Charging and Fueling Infrastructure Discretionary Grant, and multiple state and electric utility programs. Numerous federal, state, and electric utility programs are also incentivizing electric vehicle purchases across the coalition states. Examples include the federal Alternative Fuel Vehicle Refueling Property Credit, federal Commercial Clean Vehicles Credit, and Minnesota's electric vehicle purchase rebates.
4. Multiple jurisdictions across the country will be able to replicate the project. The REV Midwest Coalition's innovative project would not only analyze where critical charging infrastructure needs to go to scale medium- and heavy-duty vehicles; it would also implement the technical and safety standards jurisdictions need to ensure a seamless charging experience for users. Even further, the project will evaluate multi-use charging hubs so that jurisdictions and project developers can learn from and improve upon the technology in the future.

b. Demonstration of Funding Need

The proposed implementation of this project will help reduce current and future trucking operations costs for certain market use cases³ that can implement and benefit directly from incentivization to electric trucking conversion. Intermodal yards, garbage hauling, furniture and moving companies as well as airport drayage will benefit from the proposed access to additional charging sites and funds. In a recently completed study, the Minnesota Department of Transportation partnered with the University of Minnesota to study electrification trends and found that a minimal number of charging sites can incentivize adoption in these type of medium- and heavy-duty vehicle market segments.⁴

The REV Midwest Coalition would greatly benefit from CPRG implementation funding. Mapping out the required charging infrastructure for emerging electric vehicle applications, setting technical and safety standards, and piloting the technology is necessary to harness the significant GHG emissions reduction potential from vehicle electrification. However, planning studies and standard development are typically not eligible costs within funding opportunities. And when they are, the Midwest has largely been outcompeted in favor of initiatives along the western and eastern coasts. Planning studies are critical for the success of emerging technologies. Without understanding the needs and gaps in infrastructure, systems, and policies, there will continue to be implementation challenges.

Coalition members have applied for and received related grants; however, these grants are insufficient to fully accelerate vehicle electrification. **Table 6** lists federal and non-federal funding sources that coalition members have explored or applied related to accelerating vehicle electrification for emerging applications.

Table 6. Funding sources explored to accelerate vehicle electrification for emerging applications

Funding Source	Funding Status by Coalition Member	Need for CPRG funding
Charging and Fueling Infrastructure Discretionary Grant, Federal Highway Administration	Minnesota Department of Transportation, not awarded	The agency did not receive funding.
	Michigan Department of Transportation, not awarded	The agency did not receive funding.
Fiscal Year 2022 Vehicle Technologies Office Program Wide Funding Opportunity, Department of Energy Office of Energy Efficiency and Renewable Energy	Michigan Department of Labor & Economic Opportunity (with Illinois Department of Transportation, Indiana Office of Energy Development, Minnesota Department of Transportation, and Wisconsin Office of Sustainability & Clean Energy as team members), not awarded	The application did not receive funding.

³ <https://nacfe.org/wp-content/uploads/2023/04/Cycle-Sweet-Spot-1536x989.png>

⁴ <https://www.dot.state.mn.us/ofrw/mfac/pdf/white-paper-electrification-of-freight.pdf>

c. Transformative Impact

The measure proposed in this application has the potential to create transformative impacts, leading to further significant GHG emission reductions. After the charging optimization study and map have been completed, other jurisdictions and project developers will be able to use them to plan and site subsequent charging hubs. These jurisdictions and project developers will also benefit from the lessons learned through piloting the multi-use charging hubs sought in this application. Those lessons will lead to further technology innovation, particularly in the medium- and heavy-duty charging infrastructure industry.

Fleets and energy providers will be able to make smarter choices based on information. This will help reduce GHGs. For instance, fleets can switch to electric cars and trucks, which are better for the environment. This will reduce their pollution. Regional energy providers will also benefit. They can use the optimization study to plan a charging network for electric vehicles. They will consider how much power the grid can handle and where new charging stations are needed. This helps improve the reliability of the power grid. Knowing when and where to set up charging stations is very valuable for planning and decision-making for electric companies.

2. IMPACT OF GHG REDUCTION MEASURES

The REV Midwest Coalition multi-use charging hubs are expected to reduce 3,804 metric tons of carbon dioxide equivalent (MTCO₂e) in 2029 and 5,072 MTCO₂e each year thereafter. A cumulative 8,876 MTCO₂e would be avoided for the period between 2025-2030 and 110,318 cumulative MTCO₂e for the period between 2025-2050. These emissions reductions are expected to occur due to the CPRG implementation grant dollars used to fund the REV Midwest Coalition charging hubs.

The emissions reductions were calculated using the following formula:

$$\text{Quantified GHG reductions from CPRG funding} = \left[\frac{\text{Requested CPRG funding}}{\text{Total funding to implement measure}} \right] \times (\text{Total estimated GHG reductions of measure})$$

The Technical Appendix contains details on the methodology and assumptions used to derive the annual emission reduction estimates.

Installing multi-use charging hubs throughout the REV Midwest Coalition will result in durable GHG emission reductions. The average lifetime for electric vehicle infrastructure is assumed to be 30 years, which matches the maximum vehicle lifetime, consistent with the AFLEET Tool 2023 background data.⁵ Furthermore, these pilot charging hubs are expected to spur other public fast-charging investments and scale up the emission reduction from commercial traffic on key corridors.

Reducing emissions through the establishment of REV Midwest Coalition charging hubs is highly cost-effective. In the near-term (2025-2030), the cost is \$4,413/MTCO₂e reduced. These costs are further reduced in the long term (2025-2050) as the charging infrastructure is utilized over its lifetime. The cost in the long term is \$355/MTCO₂e. The REV Midwest Coalition multi-use charging hubs will be the first in the region. They are expected to spur public and private investments in electric vehicles and charging infrastructure across the region, creating additional greenhouse gas emissions and air pollution reduction benefits that will continue to scale with time.

The **CPRG Implementation Grants Budget Table** accompanying the application details the associated proposal costs.

The REV Midwest Coalition charging hubs are also expected to bring significant air quality improvements (the direct co-pollutant emissions changes are quantified in Section 3) that will positively affect the states where the stations are located and other states across the country. The CO-Benefits Risk Assessment (COBRA) screening tool assesses the health impacts of changes in air pollution due to clean energy policies and programs.⁶ The COBRA screening tool provides the following health benefit estimates for all contiguous U.S. states if the REV Midwest Coalition multi-use charging hubs are established:

- Mortality:
 - The estimated reduction in mortality cases has a corresponding monetary value of \$256,780 to \$581,320 per year.

⁵ [AFLEET Tool \(anl.gov\)](https://afleettool.anl.gov/)

⁶ [COBRA Web Edition | CO-Benefits Risk Assessment \(COBRA\) Health Impacts Screening and Mapping Tool | US EPA](#)

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- Nonfatal heart attacks:
 - The economic value associated with the reduction in nonfatal heart attacks lies within the range of \$380 to \$3,528 annually.
- Infant mortality:
 - Although the change in infant mortality is negligible, it still contributes to an economic value of \$1,511 annually.
- Hospital admissions:
 - The monetary benefit for avoided hospital admissions is \$186 per year.
- Cardiovascular hospital admissions:
 - The associated economic value of reduced cardiovascular hospital admissions is \$261 annually.
- Other health effects:
 - Various other health endpoints exhibit reductions:
 - The reduction in upper respiratory symptoms is valued at \$23 annually.
 - The reduction in lower respiratory symptoms is valued at \$10 annually.
 - The reduction in emergency room visits for asthma is valued at \$6 annually.
 - Reduction in asthma exacerbation is valued at \$41 annually.
 - The reduction in minor restricted activity days is valued at \$1,387 annually.
 - Reduced work loss days are valued at \$535 annually.
- Total health effects:
 - The cumulative economic benefit from all these health improvements amounts to \$261,139 to \$588,828 annually.

Figure 1 visualizes the health benefits, represented by the monetary values for the outcomes.

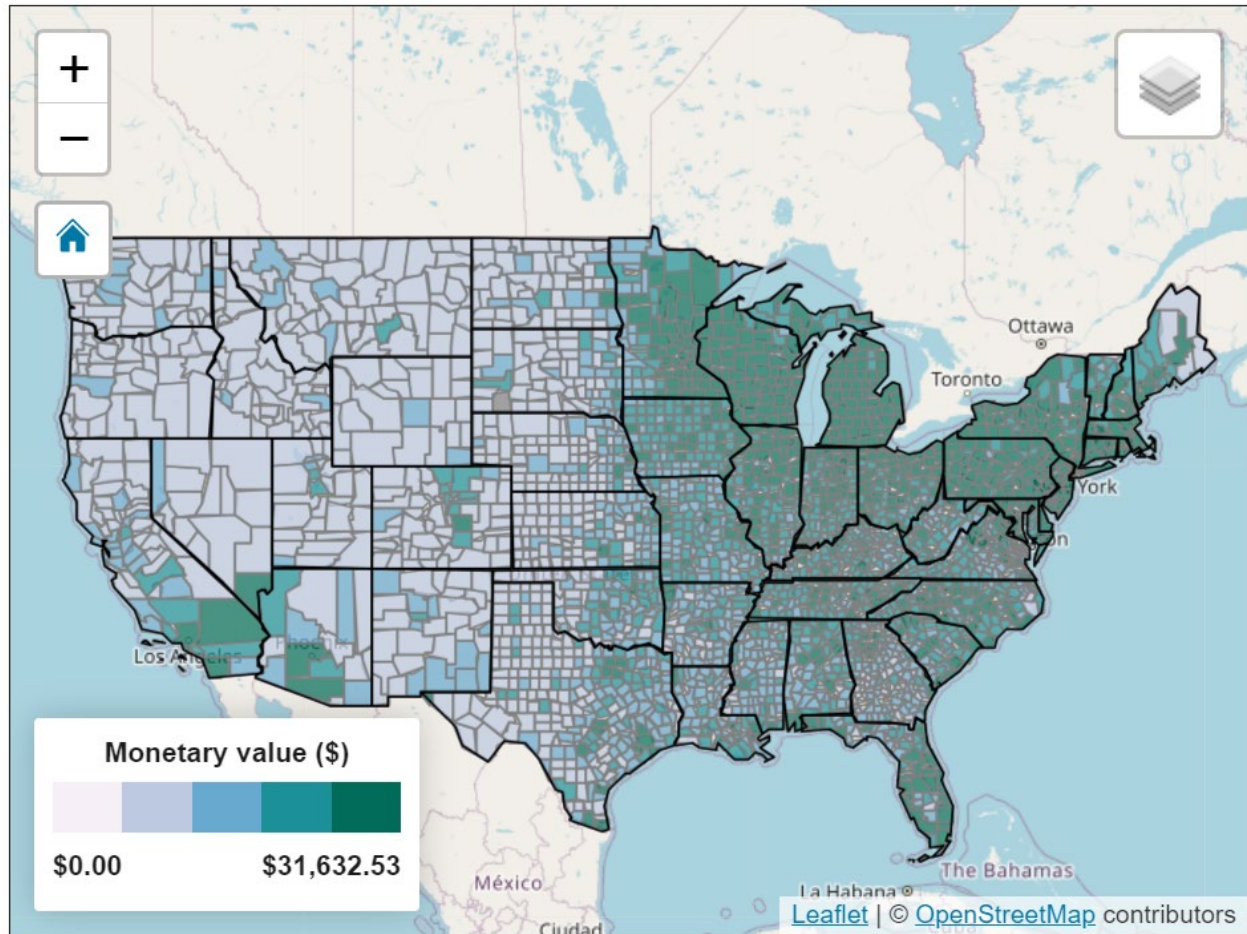


Figure 1: Visualizing the monetary value of the health benefits of establishing the REV Midwest Coalition charging hubs. Source: The CO-Benefits Risk Assessment (COBRA) screening tool.

The results highlight substantial positive impacts from the REV Midwest Coalition multi-use charging hubs on public health by reducing air pollutants.

- Additional advantages encompass fostering stronger and more trusted relationships between infrastructure and fleet host communities, involving state authorities, fleet operators, and operators of zero-emissions infrastructure.

The REV Midwest Coalition multi-use charging hubs are expected to attract further investment in electric vehicle charging infrastructure along these key commercial corridors.

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

The REV Midwest Coalition multi-use charging hubs will help meet some of the goals set forth by the US EPA FY 2022-2026 EPA Strategic Plan.⁷ The multi-use charging hubs will reduce climate change-causing GHGs by allowing vehicles traveling key commercial corridors in the Midwest to complete trips using zero-emission vehicles, thus supporting Goal 1, “Tackle the Climate Crisis”; Objective 1.1 “Reduce Emissions that cause Climate Change.” As zero-emission vehicles replace conventional vehicles along these key commercial corridors, the communities located along these corridors will benefit from improved air quality. This will help support Goal 4, “Ensure Clean And Healthy Air for All Communities”; Objective 4.1, “Improve Air Quality and Reduce Localized Pollution and Health Impacts.” The continued operation of the pilot multi-use charging hubs, and the expansion in charging infrastructure investments spurred by these stations will result in significant and sustained reductions in GHG emissions and harmful air pollutants in the Midwest region.

a. Expected Outputs and Outcomes

Outputs from this proposal include:

- Installation and operation of three to six multi-use electric vehicle charging sites with four 350 kilowatt direct current fast chargers and four 1 megawatt direct current fast chargers per site.
- Community engagement through meetings and other significant interactions during the development of the optimization study and infrastructure projects.
- An optimization study and technical and safety standards allowing states to identify priorities for coordination and future implementation.
- Semi-annual progress reports.
- Detailed final report.

Outcomes from this proposal include:

- Reduction in cumulative metric tons of GHG emissions:
 - **Estimated cumulative GHG reductions for 2025-2030 (in metric tons):** 8,876 MTCO₂e
 - **Estimated cumulative GHG reductions from 2025-2050 (in metric tons):** 110,318 MTCO₂e
- **Table 7** lists reduction in annual criteria pollutant (CAP) and hazardous air pollutant (HAP) emissions in 2030.

Table 7: Reductions in annual criteria pollutant (CAP) and hazardous air pollutant (HAP) emissions in 2030

Pollutant	Tons Reduced
Carbon monoxide (CO)	14.81
Nitrogen oxides (NO)	17.72
Coarse particulate matter (PM10)	0.17
Fine particulate (PM2.5)	0.15
Volatile organic compounds (VOC)	0.74

⁷ [FY 2022-2026 EPA Strategic Plan](#)

b. Performance Measures and Plan

The coalition has established performance measures to track progress concerning successful processes and output and outcome strategies.

- Semi-annual tracking and reporting of project progress on expenditures and purchases related to this project in each state;
- Semi-annual tracking, measuring, and reporting accomplishments on proposed timelines and milestones in each state;
- Number of public relations, community engagement, and education events and their locations in each state;
- Actual GHG emission reductions and associated CAP/HAP changes;
- Number of charging events conducted at the multi-use charging hubs; and
- Number of additional electric vehicle charging infrastructure deployments supported by each state.

Coalition partners will monitor the progress for each performance measure within their respective state and communicate this progress to the Minnesota Department of Transportation. In turn, the Minnesota Department of Transportation will include updates in the semi-annual reports and final report submitted to the US EPA using the forms specified.

c. Authorities, Implementation Timeline, and Milestones

Table 8 identifies the parties, roles, and responsibilities for implementing each GHG reduction measure and their respective authority to carry out the measure or plan for obtaining authority during the grant period. The overarching roles and responsibilities of each coalition member are detailed in section 1 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 provided in section 1.a of this proposal. A detailed Gantt chart is also included under Other Attachments.

Table 8. Parties, roles, responsibilities, and authorities required for vehicle electrification of emerging applications

Implementing Entities	Measure-Specific Roles and Responsibilities	Legal Authority
Minnesota Department of Transportation	<ul style="list-style-type: none"> • Issue subawards to coalition partners in accordance with EPA's Subaward Policy • Coordinate with coalition members on selection of a consultant for the optimization study through a competitive procurement process • Oversee subrecipients, contractors, and vendors • Track and report on project progress on expenditures and purchases • Track, measure, and report accomplishments on proposed timelines and milestones • Submit semi-annual progress reports on grant implementation and planned activities to EPA 	Minnesota has the authority to execute an agreement with the EPA and will seek authority to spend funds from the Legislative Advisory Commission upon award. Minnesota has the authority to solicit and execute professional and technical contracts and partnership agreements.

	<ul style="list-style-type: none"> • Submit detailed final report to EPA within 120 calendar days of the completion of the period of performance • Oversee community and stakeholder outreach and education within the Minnesota Department of Transportation's jurisdiction • Provide timely data and input for the optimization study and map • Issue a request for proposals and subsequent awards to third parties to install, own, and operate multi-use charging hubs 	
Michigan Department of Transportation	<ul style="list-style-type: none"> • Comply with subrecipient requirements under EPA's Subaward Policy • Assist the Minnesota Department of Transportation with the selection process for a consultant for the optimization study • Track and report to the Minnesota Department of Transportation on project progress on expenditures and purchases within the State of Michigan • Track, measure, and report to the Minnesota Department of Transportation on accomplishments and proposed timelines and milestones within the State of Michigan • Oversee community and stakeholder outreach and education within the State of Michigan • Provide timely data and input for the optimization study and mapping tool • Issue a request for proposals and subsequent awards to third parties to install, own, and operate multi-use charging hubs 	Michigan agencies have the authorization needed but must undergo a state budget process. It is expected that the budget process will take about three months.
Wisconsin Department of Transportation	<ul style="list-style-type: none"> • Comply with subrecipient requirements under EPA's Subaward Policy • Assist the Minnesota Department of Transportation with the selection process for a consultant for the optimization study • Track and report to the Minnesota Department of Transportation on project progress on expenditures and purchases within the State of Wisconsin • Track, measure, and report to the Minnesota Department of Transportation on accomplishments and proposed timelines and milestones within the State of Wisconsin • Oversee community and stakeholder outreach and education within the State of Wisconsin 	The Wisconsin Department of Transportation has the necessary authority to complete activities.

	<ul style="list-style-type: none"> • Provide timely data and input for the optimization study and mapping tool • Issue a request for proposals and subsequent awards to third parties to install, own, and operate multi-use charging hubs 	
Great Plains Institute	<ul style="list-style-type: none"> • Comply with subrecipient requirements under EPA's Subaward Policy • Facilitate a task force of senior leadership or delegated staff from each state: Schedule regular meetings, prepare agendas, secure speakers, and capture takeaways • Manage project schedule • Coordinate semi-annual reports • Coordinate the final report 	NA
Optimization study consultant (to be selected through competitive process)	<ul style="list-style-type: none"> • Lead stakeholder and community engagement efforts • Collect data and information required for optimization study • Develop optimization map • Develop technical and safety standards white paper • Develop regional infrastructure plan • Develop and execute a communications strategy to disseminate deliverables 	NA
Charging hub owner-operators (to be awarded through competitive process)	<ul style="list-style-type: none"> • Design and install multi-use charging hubs 	NA
Electric utilities	<ul style="list-style-type: none"> • Provide grid data for optimization study • Work with charging hub awardees to design and install multi-use charging hubs 	NA

4. LOW-INCOME AND DISADVANTAGED COMMUNITIES

a. Community Benefits

Communities identified as low-income and disadvantaged communities (LIDACs),⁸ situated near bustling freight centers and trucking routes, are directly and unevenly subjected to the detrimental emissions from diesel trucks. These communities also disproportionately bear the impact of climate change effects, such as increasingly frequent and severe floods and extreme heat. Electrifying emerging applications, including medium- and heavy-duty vehicles and passenger vehicles towing trailers, will provide significant benefits to LIDACs:

- CAP, HAP, and GHG emissions will be substantially reduced as described in sections 2 and 3, leading to cleaner and healthier air. As surrounding air quality improves, LIDACs will experience fewer respiratory and cardiovascular health risks, asthma, and hospital admissions. For example, air pollutants including PM2.5, sulfur dioxide, nitrous oxide, and ozone have nearly tripled asthma and hospitalizations in southwest Detroit, Michigan and surrounding areas compared to the rest of the state.⁹ The State of Michigan also noted in its PCAP that millions of adults 18 or older living in LIDACs experience asthma, diabetes, or heart disease.¹⁰ These would greatly be reduced as vehicles electrify and emit zero GHG emissions from the tailpipe.
- Jobs will be created throughout the supply chain (e.g., software developers, engineers, battery manufacturers, automotive manufacturers, and electricians) as the industry grows.¹¹ Already, there are 32,000 jobs in clean transportation in Michigan.¹² These job opportunities will be strengthened through coalition member workforce development laws, such as those passed by the State of Michigan in 2023 requiring strong labor standards for clean energy projects, prioritizing worker benefits, and encouraging diverse hiring.¹³
- Electricity rates for all consumers will lower due to increased revenue to electric utilities.¹⁴ Less money spent on electricity means more money in the pockets of LIDAC residents. Since LIDAC residents spend a disproportionate amount of their income on energy costs, alleviating this burden would be of great benefit. The US Department of Energy LEAD tool reported that Michigan households below the federal poverty line spent 18 percent of their income on energy costs compared to 3 percent for the rest of the population.¹⁵

Table 9 shows the number and percentage of LIDAC census tracts across the REV Midwest Coalition, calculated using the Climate and Economic Justice Screening Tool (CEJST) and Environmental Justice Screening and Mapping Tool (EJScreen). At this time, all LIDAC census tracts in each state are expected

⁸ Low-income and disadvantaged communities are defined by the US EPA as communities meeting one of the following characteristics: 1) census tract identified as disadvantaged in the Climate and Economic Justice Screening Tool, 2) census block group at or above the 90th percentile for any of EJScreen's Supplemental Indexes when compared to the nation or relevant state, or 3) any geographic area within tribal lands as included in EJScreen.

⁹ <https://www.iqair.com/us/usa/michigan>

¹⁰ State of Michigan Priority Climate Action Plan, pages 50-51

¹¹ <https://www.nrdc.org/stories/demand-grows-electric-cars-does-market-green-jobs-ev-industry>.

¹² State of Michigan Priority Climate Action Plan, pages 82-83

¹³ State of Michigan Priority Climate Action Plan, pages 53-54

¹⁴ <https://www.nrdc.org/bio/miles-muller/electric-vehicles-are-driving-rates-down>

¹⁵ <https://www.energy.gov/scep/slsc/lead-tool>

to receive benefits from this application. A list of all LIDAC census tracts affected by this proposal is included as an attachment to this application.

Table 9. Summary of LIDACs across the REV Midwest Coalition states

State	Number of LIDAC census tracts	Percentage of LIDAC census tracts
Michigan	996	35%
Minnesota	216	16%
Wisconsin	1,475	34%

Coalition members do not anticipate any negative impacts or disbenefits that would affect LIDACs. Ensuring LIDACs receive direct and indirect benefits is a top priority for each state involved in the coalition. States will ensure LIDACs are engaged throughout the project design and deployment to reduce any potential disbenefits or negative impacts.

Coalition partners will assess, quantify, and report a more thorough analysis of associated community benefits based on actual data collected during implementation. The coalition partners will track the deployment of the multi-use charging hubs in and near identified LIDAC census tracts to quantify reduction in GHG emissions and co-pollutant emissions and other community benefits. The coalition partners will include results of these assessments in semi-annual reports to EPA and make the information publicly available.

b. Community Engagement

Each coalition partner performed community outreach, including to LIDACs, when developing their priority climate action plans, resulting in prioritizing the measure in this application. Coalition members identified LIDACs using CEJST and EJScreen. They used the following strategies to engage with LIDACs and seek their input on creation of the measure included in this proposal:

- Online engagement platforms (i.e., EngagementHQ)
- Outreach through press releases, social media posts, public notices, emails, and more
- Public comment period on draft plans
- Publicly available information via websites:
 - [Michigan Department of Environment, Great Lakes, and Energy](#)
 - [Minnesota Pollution Control Agency](#)
 - [Wisconsin Office of Sustainability and Clean Energy](#)
- Stakeholder meetings, small group meetings and workshops, interviews and focus groups, and virtual presentations with daytime and evening options to enable greater participation. In-person meeting locations were selected based on population and proximity to LIDACs.
- Surveys in multiple languages

See each coalition member's priority climate action plan for additional details on the results of this engagement effort.

As described in coalition member PCAPs and this application, engaging LIDACs and ensuring they receive direct and indirect benefits is a priority. The REV Midwest Coalition will ensure LIDACs receive benefits by meaningfully engaging them throughout and following implementation. The following engagement activities are planned:

DRIVE Midwest

- Development of a webpage or website to house information about the project and engagement opportunities in each state
- In-person and virtual stakeholder and community engagement to understand needs before the optimization study begins. Coalition members will oversee engagement efforts, carried out by a consultant selected through a competitive process. The consultant must demonstrate engagement with LIDACs and may contract community-based organizations to conduct some or all the engagement. The consultant will be encouraged to use translation and interpretation services to ensure broad participation from LIDACs. Input received through the stakeholder and community engagement phase will inform the development of the optimization map, technical and safety standards, and regional infrastructure plan. The consultant will also engage stakeholders and community members throughout the development of these items to ensure broad buy-in and input on the finished products. Engagement efforts will also help identify candidate sites for the pilot multi-use charging hubs.
- Public awareness campaigns following the development of the optimization map, technical and safety standards, and regional infrastructure plan. This engagement will focus on informing stakeholders and community members of the finished products so that they can use them in planning efforts.
- In-person and virtual stakeholder and community engagement conducted by the contracted charging hub developers to address questions and concerns about the hubs. The input received may alter the site design.
- In-person and virtual stakeholder and community engagement following charging hub installations to evaluate utilization and satisfaction. Feedback received during this phase will be publicly shared, informing future charging hub developments regionally and nationally.

To ensure LIDAC residents can meaningfully engage in project activities, the application budget includes dollars for interpretation, translation, travel assistance, childcare, and other support. These costs are embedded under contractors.

Several REV Midwest Coalition partners regularly engage with LIDACs, including the Minnesota Clean Cities Coalition, University of Minnesota Center for Transportation Studies, and Xcel Energy. These entities have provided letters of commitment demonstrating their support for the project and involvement in workforce development and community engagement.

5. JOB QUALITY

As described in section 4, accelerating vehicle electrification through the installation of multi-use charging hubs in this application will support the creation of many types of jobs (e.g., software developers, engineers, battery manufacturers, automotive manufacturers, and electricians).¹⁶ Section 4 also described efforts in coalition states (e.g., Michigan) that are already supporting the creation of high-quality, family-sustaining jobs. This project will continue to provide quality jobs throughout the region. Specifically, coalition members will use the following strategies to ensure CPRG implementation grant funds generate high-quality jobs with a diverse, highly skilled workforce:

- The Minnesota Department of Labor and Industry Registered Apprentice Program (RAP) is providing grants to electricians and other RAPs through the Clean Economy Occupations Grant program.
- The Minnesota Pollution Control Agency is funding a labor market information study with the Minnesota Department of Employment and Economic Development through EPA planning funds.
- One of Michigan's core objectives is to enable its mobility workforce by assuring that entities and individuals working on electric vehicle charging infrastructure are appropriately trained and qualified to perform such work. The Electric Vehicle Jobs Academy is a cooperative of over 100 public and private partners identifying needed electric vehicle skills and developing postsecondary training programs. It is focused on transitioning the automobile manufacturing workforce and training utility workers and electricians. The Michigan Department of Labor and Economic Opportunity awarded a grant to the Southeast Michigan Community Alliance, which will use the five-million dollars to create and improve training academies focused on providing industry-based skills. The academy will attract and train the workforce, especially historically underserved populations, to support the electrification of vehicles in Michigan.

¹⁶ <https://www.nrdc.org/stories/demand-grows-electric-cars-does-market-green-jobs-ev-industry>.

6. PROGRAMMATIC CAPABILITY AND PAST PERFORMANCE

The Minnesota Department of Transportation (MnDOT) and the coalition partners have successfully implemented other federal grants within their jurisdictions. Federally funded assistance agreements that MnDOT is performing or has performed within the last three years include:

- Clean Transportation Pilot Program
 - Funding agency: Federal Highway Administration
 - Assistance Listing Number: CFDA: 20.205
 - Description: The Clean Transportation Pilot Funding Program provided up to \$2 million annually in grants ranging from \$25,000 to \$500,000 to pilot, test, and increase adoption of clean transportation technologies, especially where cost was a barrier to implementation.
 - Funding Agency Contact: Phil Barnes, philip.barnes@dot.gov, 651-291-6113
 - Status: The project is in progress. Mobility hub and electric vehicle carsharing projects are complete. Electric transit projects, an electric vehicle charging station project, and an electric vehicle ready communities project are underway.
 - Reporting History: Grantees submitted semi-annual reports to MnDOT about progress toward achieving the expected outputs and outcomes. Due to the pilot nature of the program, many of the projects are new, unique, and do not fit within existing MnDOT processes. There have been delays and errors, and MnDOT has actively worked to address these challenges by documenting lessons learned, establishing a checklist for similar projects going forward, verifying the steps on the checklist with appropriate functional areas within MnDOT, and hiring a Grants & Contracts Coordinator.

MnDOT's Office of Sustainability and Public Health (OSPH) develops and coordinates sustainability and public health activities for MnDOT and leads sustainable transportation efforts for the state. Sustainability at MnDOT includes diverse efforts focused on maximizing the health of people, the economy, and the environment. A focus area for this office is to reduce transportation carbon pollution. OSPH staff are leading the implementation of the Infrastructure Investment and Jobs Act electric vehicle charging for MnDOT through the National Electric Vehicle Infrastructure Formula funds program and the Carbon Reduction Program. MnDOT is also dedicated to efficiently moving freight and commodities within Minnesota, including freight movement by truck, rail, water, and air. The agency's freight office is engaged in many activities related to both freight planning and operations. Staff from both these offices will work with REV Midwest to carry out the project. MnDOT's Grant Unit in the Office of Financial Management and the Office of Chief Counsel will support grant management and contracting.

The Division of Budget and Strategic Initiatives at the Wisconsin Department of Transportation houses an Electric Vehicle Unit that specializes in the planning and implementation of transportation electrification infrastructure. The unit developed the Wisconsin Electric Vehicle Infrastructure Plan, which represents the State of Wisconsin's foundational planning document for the electrification of the transportation system. The unit currently administers the National Electric Vehicle Infrastructure Program.

The Michigan Department of Transportation (MDOT) has 2000+ engineers, planners, and contract specialists. The department has generations of experience working with federal funds. MDOT is also greatly involved in the emerging field of electric vehicle infrastructure. MDOT leads or partners with other state of Michigan departments and universities implementing and researching electric vehicle opportunities. There is also a close connection to automotive manufacturers located in the state.

MDOT's Department of Environment, Great Lakes, and Energy (EGLE) safeguards the state's environment while supporting the economic growth and development crucial for Michigan's future. EGLE has experience supporting electric vehicle charging infrastructure deployment. EGLE developed the Optimized Electric Vehicle Charger Placement Plan and leveraged it to identify eligible locations for grant funding through Charge Up Michigan. EGLE also supported the Lake Michigan Circuit, which is a multi-state initiative to build electric vehicle infrastructure along Lake Michigan to support coastal tourism. Additionally, EGLE is working with businesses, townships, counties, cities, and villages throughout the state to help them become electric vehicle ready. To become electric vehicle ready requires a community-wide effort requiring planning, charging infrastructure policies, and support services for electric vehicles.

Michigan's Office of Future Mobility and Electrification (OFME) works across state government, academia, and private industry to enhance Michigan's mobility ecosystem, including developing dynamic mobility and electrification policies, infrastructures, and innovation ecosystem. The OFME has expertise and experience developing electric vehicle infrastructure strategy, analysis, and implementation. OFME is the leading partner with Daimler North America and DTE Energy to implement a "Truck Stop of the Future" project that will implement a real-world prototype of a medium- to heavy-duty vehicle charging hub in Michigan.