PITTSBURGH REGION CLEAN CITIES

GAZETTE

DRIVING THE WAY TOWARD ENERGY INDEPENDENCE

OCTOBER 2023 | VOLUME 5, ISSUE 47

PRCC's 2023 Odyssey Day Celebration marked the 30th Anniversary of the U.S. Department of Energy's Clean Cities Program

ODYSSEY DAY CONVENES ALTERNATIVE FUELED VEHICLES

ISSUE CONTRIBUTORS:

Rick Price, Executive Director
Kristen Sabol, Co-Director
Jeff Twardy, Webmaster
Kumari Divya Singh, PRCC Intern
Alexander de Almeida, PRCC Intern

On October 6th, Pittsburgh Region Clean Cities (PRCC) hosted its annual Odyssey Day celebration to provide a full day of interactive and experiential educational activities dedicated to promoting the use of alternative fuels and advanced technology vehicles.

PRCC Executive Director Rick Price explained Odyssey Day explores sustainable, climate-friendly transportation solutions while providing opportunities to learn more about the many collaborative opportunities available throughout the Western PA region.

The theme for this year's Odyssey Day was the 30 Years Celebration of the Clean Cities Coalition Network. For thirty years, the U.S. Department of Energy (DOE) sponsored Clean Cities Network has been boosting the country's energy security, economic vitality, and quality of life by advancing affordable, efficient, and clean transportation fuels and technologies. More than 75 Clean Cities coalitions act locally in urban, suburban, and rural communities throughout America to help businesses and consumers meet their climate, financial, and energy goals.

The U.S. DOE designated the first coalition in 1993, and Pittsburgh Region Clean Cities (PRCC) joined the network in 1995. Since then, PRCC has been a key contributor in building bipartisan support, deep connections within the transportation industry, and active partnerships with public and private stakeholders.

The Odyssey Day gathering was first coordinated by the National Alternative Fuels Training Consortium (NAFTC) headquartered at West Virginia University in Morgantown, West Virginia, in partnership with the U.S. Department of Energy (DOE) in 2002. But the event continues to pick up speed!

This year more than 120 attendees benefited from the full day of activities, including speaker presentations, a networking luncheon, a vendor fair, an alternative fueled vehicles display, ride-n-drives, ice cream and more!

More than 30 alternative fueled vehicles were on display at the event. Highlights included an Electric Truck from Bollinger Motors and an electric bus from Pittsburgh Regional Transit. Within the Vendor Fair, Adam Solar Rides offered opportunities to try out a range of e-bikes, one-wheels and e-scooters. West Virginia University showcased a unique research-based cutaway car.

PRCC hosts Odyssey Day every Fall at the Community College of Allegheny County's (CCAC's) West Hills Center. Planned activities and presentations are designed to educate the public about cleaner transportation technologies while highlighting the unique features of CCAC's facilities.

At the event, CCAC Automotive Instructor Bob Koch detailed how alternative fuel vehicles are creating demand for more technicians and mechanics with new skillsets to service this fast-growing segment. He recently

An Electric Bus from PRT on display.

Participants in the Alt-Fuels Panel Presentation.

returned from Germany where he toured a Porsche apprenticeship program that is training the next generation of techs and mechanics.

Visit the Pittsburgh Technology Council's website, to listen to two podcasts captured the morning of the event with Rick Price and Bob Koch.

Sponsors for the 2023 Odyssey Day included Duquesne Light Company, National Car Charging, Highland Fleets and Bollinger Motors.

PRCC would like to thank our event hosts, sponsors, speakers, vendors, drivers, volunteers and other participants for making the event a great success this year! Send us your feedback for next year's event at coordinator@pgh-cleancities.org.

KUMARI DIVYA SINGH JOINS PRCC AS INTERN

This Fall, Kumari Divya Singh joins PRCC as our Clean Cities University (CCU) Workforce Development Program (WDP) Intern.

Divya is a dual degree MBA and MS in MIS graduate student at the University of Pittsburgh, specializing in Strategy and Operations. She has 5 years of work experience with Accenture and Infosys as an IT consultant. Divya is passionate about the topic of sustainability, having previously worked on projects that align with her interest

in ESG concerns. Divya will support PRCC's efforts on marketing, social media outreach, EEJ, Strategic Planning, and Public Policy.

BIDEN-HARRIS ADMINISTRATION MAKING $100 MILLION AVAILABLE TO IMPROVE EV CHARGER RELIABILITY

Funding from the Bipartisan Infrastructure Law targets gaps in the growing electric vehicle charging network, helping ensure more reliable publicly accessible chargers

WASHINGTON – The Biden-Harris Administration opened applications for the Electric Vehicle Charger Reliability and Accessibility Accelerator which will provide up to $100 million in Federal funding to repair and replace existing but non-operational, electric vehicle (EV) charging infrastructure. These targeted investments will complement hundreds of billions in private sector investment, support good paying jobs across the country installing, maintaining, and repairing EV infrastructure, and make our current charging network more reliable. Reliability is a critical component to the Biden-Harris Administration's comprehensive approach to build a convenient, affordable, reliable, equitable, and Made-in-America national EV charging network.

"Under President Biden's leadership, America is leading the electric vehicle revolution. This funding represents the latest step toward building a convenient, affordable, reliable charging network that reaches every corner of our nation," said U.S. Transportation Secretary Pete Buttigieg

The National Electric Vehicle Infrastructure (NEVI) Formula Program, a $5 billion program created by the Bipartisan Infrastructure Law and administered by the Federal Highway Administration to help states build out EV charging sites, stipulates a 10% set-aside for grants to States and localities that require additional assistance to strategically deploy electric vehicle charging infrastructure. The first round of funding will focus on improving the reliability of the current network by repairing or replacing existing EV charging infrastructure at the same time the Biden-Harris Administration is making larger-scale investments to deploy new charging stations.

"Thanks to President Biden's Investing in America agenda, we are building up a national EV charging network with chargers Made in the U.S.A.," said U.S. Secretary of Energy Jennifer M. Granholm. "Today's investment is a pivotal step toward revitalizing our current charging infrastructure making EV driving cheaper, more reliable, and more convenient."

Based on initial estimates of non-operational chargers, FHWA anticipates that the available $100 million in funding will likely cover the repair or replacement costs of all eligible projects, which will

be awarded through a streamlined application process. This includes both publicly and privately owned chargers – so long as they are available to the public without restriction.

"Charging your electric vehicle should be as easy and convenient as filling up a gas tank – and this investment will make our EV charging network more reliable, full stop," said Federal Highway Administrator Shailen Bhatt. "We're building a bigger EV charging network to keep up with driver demand, and we're also going to make sure the currently available network is working when you need a charge."

The program is informed by the U.S. Department of Energy's **Alternative Fuels Data Center (AFDC) Station Locator,** which identifies offline stations as temporarily unavailable. A charger can be identified as temporarily unavailable for several reasons, ranging from routine maintenance to power issues. On September 11, 2023, the AFDC indicated that out of 151,506 public charging ports, 6,261 (4.1%) were temporarily unavailable.

Eligible applicants and projects for the EV Reliability and Accessibility Accelerator are outlined in a **Notice of Funding Opportunity**.

Applications are due by November 13, 2023.

Read more about the Biden-Harris Administration's $7.5 billion investment to make our EV charging network bigger and more reliable and has helped spur more than $130 billion in new private sector investment in electric vehicle, battery, and EV charging manufacturing – including over $100 billion in US EV battery manufacturing alone.

The announcement builds on a comprehensive series of EV-related actions taken by the Biden-Harris Administration.

- **In May 2023**, the Joint Office of Energy and Transportation with three national laboratories launched the National Charging Experience Consortium (ChargeX) to improve the existing charging experience and released its Ride and Drive Electric FOA which will support workforce development, an equitable transition, and American-made EV chargers.
- **In March 2023**, FHWA announced it had opened applications for the first round of the CFI Discretionary Grant Program with up to $700 million available from FY22 and FY23 to strategically deploy EV charging in communities and neighborhoods nationwide.
- **In February 2023**, FHWA announced finalized standards to make charging electric vehicles convenient, affordable, reliable, equitable, and safe for all Americans – no matter what car you drive or what state you charge in.
- **In February 2023**, the White House announced an implementation plan for President Biden's Build America, Buy

America requirements that will incentivize companies to invest in domestic production of EV charging components, positioning U.S. workers and businesses to compete and lead globally in a critical industry while providing a common-sense transition period for companies to onshore complex supply chains.

• **In September 2022**, FHWA approved all 52 EV charging plans from States, Puerto Rico, and DC – unlocking approximately $1.5 billion in FY22 and FY23 NEVI formula funding that can be used to implement those plans.

For more information on President Biden's Bipartisan Infrastructure Law and investments in electric vehicles, please visit **FHWA's BIL web site**.

NREL DIALS IN ON SOLVING ELECTRIC VEHICLE DRIVERS' CHARGING CHALLENGES

The National Charging Experience Consortium (ChargeX Consortium) is a new **collaborative effort** between three U.S. Department of Energy national laboratories, including the National Renewable Energy Laboratory (NREL). As part of the consortium, the labs are working to rapidly solve complex electric vehicle (EV) public charging challenges in the next two years.

The ChargeX Consortium will directly contribute to the Joint Office of Energy and Transportation mission to accelerate an electrified transportation system that is affordable, convenient, equitable, reliable, and safe and fulfills a specific mandate to plan, coordinate, and implement data sharing to inform the buildout of a national charging network.

NREL's efforts to solve EV charging challenges include solutions for payment processing, hardware testing, best practices, error codes, diagnostic definitions, understanding customer pain points, and more.

WHERE EVs AND EV CHARGERS ARE IN PENNSYLVANIA

By Hugh Morley
First published in *NetZero Insider,*
Aug. 23, 2023

Pennsylvania has announced an investment of federal funds totaling $33.8 million to install 54 electric vehicle charging projects as the state seeks to put more EVs on state roads.

It's the first award from $171.5 million in federal money allocated to the state under the National Electric Vehicle Infrastructure (NEVI) program. The award will put 216 charging ports on or close to more than a dozen highways across the state, including Route 80, Route 84 and Route 95.

Twenty-two of the projects will be in or near disadvantaged communities, and construction of the first projects, all of which include four charging ports, is expected to begin by the end of 2023.

"This funding will allow us to deploy electric vehicle charging stations across our Commonwealth, from cities to suburbs to rural areas, promoting energy security, creating jobs and reducing our carbon footprint," U.S. Sen. Bob Casey (D) said in a release from the state Department of Transportation (DOT).

Richard Price, executive director of the Pittsburgh Region Clean Cities Coalition, a federally funded advocacy group, said once the 54 projects are implemented, "a lot of the range anxiety" will go away.

Most EV owners now must charge their vehicle at home or work using a Level 2 charger, rather than a Direct Current Fast Charger, he said. It takes several hours to charge a vehicle with a Level 2 charger, compared to less than an hour with a fast charger.

"Now this allows somebody with a battery electric vehicle that can take the DC fast charge to travel long distances and be able to know that they can go outside their local area and be able to charge or refuel — all along all these corridors," Price said**.**

The state has 3,668 publicly available EV charging ports at 1,481 sites, about one-quarter of which are direct current fast chargers. Most of the rest are Level 2 chargers, according to DOE figures. It's unclear how many non-public chargers are in the state. The state's EV Mobility Plan, released in July 2022, set a goal for the state to add 2,000 new EV charging ports at 800 sites by 2028.

Increasing Charger Accessibility

The focus on charger installation is part of the state's effort to reduce greenhouse gas emissions by 80% below 2005 levels by 2050. The state's two largest sources of greenhouse gas

emissions are electricity transmission and industrial facilities, which account for 34% and 30%, according to the state's Electric Vehicle Roadmap. Transportation, which is third with 20% of greenhouse gas emissions, is the focus of a variety of state programs designed to motivate residents to adopt EVs.

Pennsylvania, with 47,400 EVs on the road in 2022, about double the 2021 figure, was ranked the 13th state in the nation by the number of EVs, according to the U.S. Department of Energy.

A year ago, the DEP increased the incentive available for EV buyers from $750 to $2,000-$3,000, depending on household income.

The annual "transportation electrification" scorecard compiled by the American Council for an Energy-Efficient Economy (ACEEE) ranked Pennsylvania 16th, with a strong assessment for its incentive programs and middling grades for its grid optimization efforts. The scorecard gave Pennsylvania low grades for its planning and goals, efficiency of its transportation system and the outcome of the state's policies and whether they were influencing putting more EVs on the road.

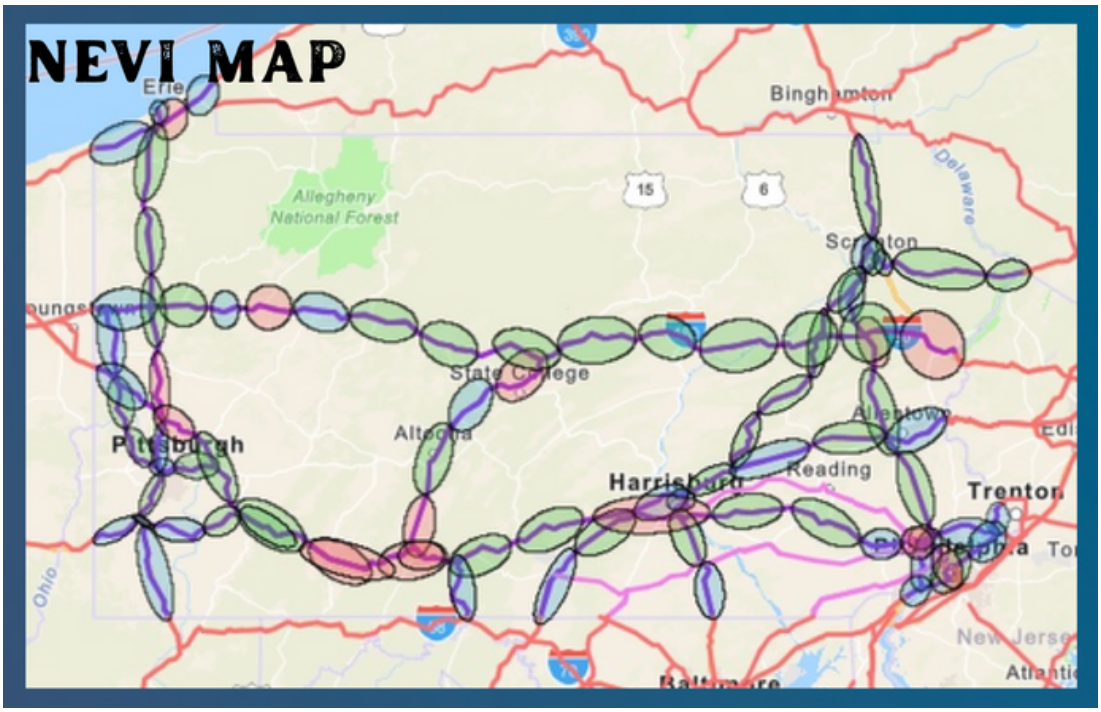
Fuel Corridors

NEVI funds support the planning, design, construction, operation and maintenance of charging sites. Under NEVI, states are required to identify alternative fuel corridors (AFCs), major state and interstate highways where EV charging stations would be located every 50 miles. The Biden administration eventually will award $5 billion in NEVI funds, with money for all states. The administration in July released a report stating the first year of the program showed it's working as planned. (See Federal Plans to Electrify Highway Corridors Advancing.)

Goals set out in the NEVI plan for Pennsylvania, which has 1,800 miles of AFCs, include making sure direct current fast chargers are located within a mile of a highway intersection, and to "build redundancy" to ensure sufficient chargers where demand is high. The plan also seeks to ensure 95% of Pennsylvanians live within 15 miles of a public EV charging station and for 50% of municipalities to have at least two Level 2 plugs open to the public 24/7 by 2027.

The plan requires developers to put up at least 20% of the investment, according to the Pennsylvania DOT.

The first round of NEVI money focused on "building out the AFC network," the DOT release said. When that task is accomplished, NEVI will "fund right-sized EV chargers for Pennsylvania's community charging," the department said.



Round 1 of Pennsylvania's NEVI Funding addresses prioritized gaps along the State's designated Alternative Fuel Corridors (AFCs).

Price said he expects the next round of funds to be spent on putting chargers every 25 miles, instead of every 50 miles, and in creating "redundancy," so there are enough chargers at each site, so drivers don't have to wait long to get connected.

The state, which received 271 applications for first-round funding, selected the winning projects based on ones that:

◦ Provided a variety of amenities and services to improve customer experience (such as varied payment options);

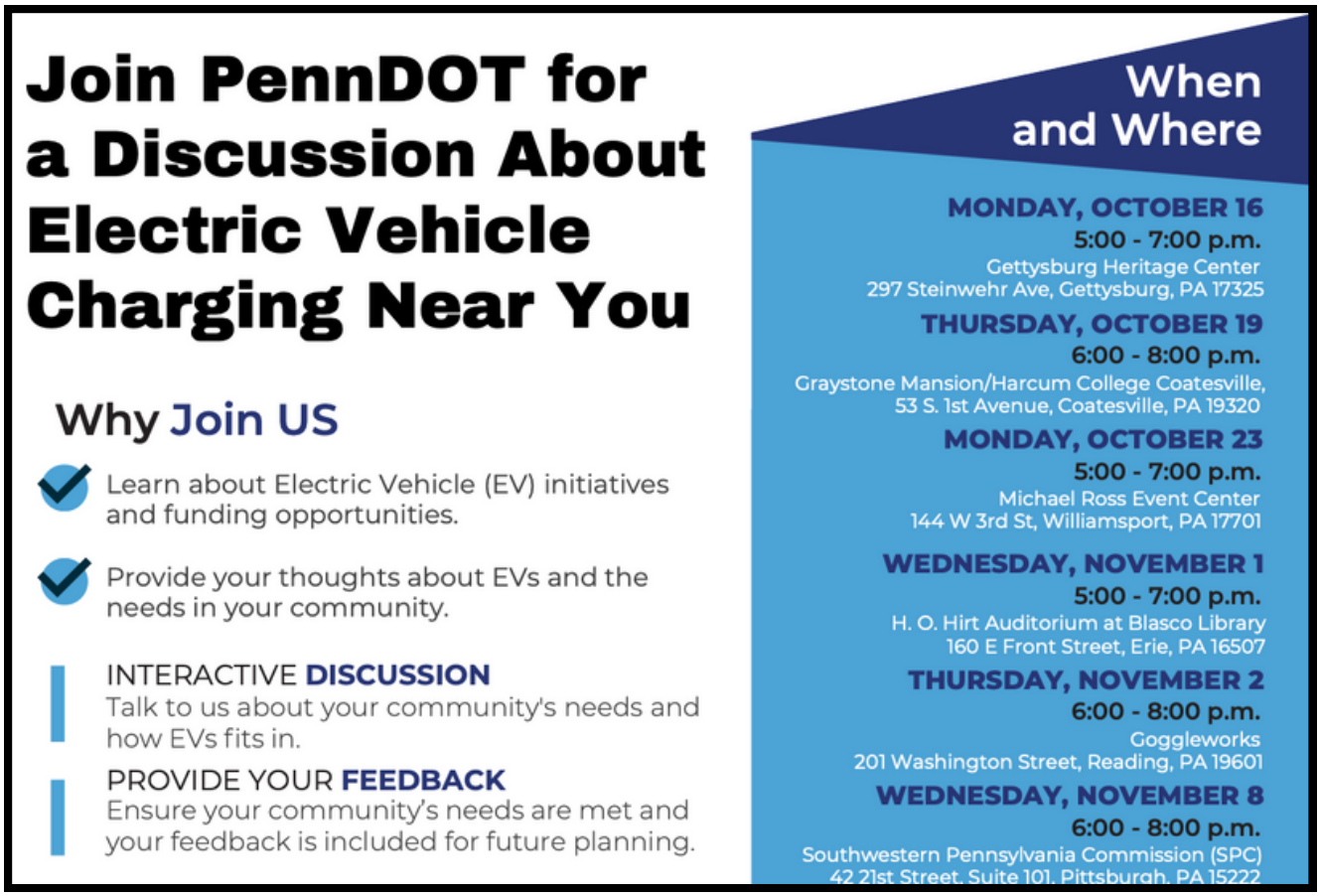
◦ Offered local economic development and workforce opportunities; and

◦ Featured locations that are "welcoming, safe, and accessible for all."

The chosen projects will put chargers at various convenience stores such as Wawa, Sheetz, KwikFill and Al's Quick Stop, and at truck stops and travel plazas. Twelve of the awards are for Tesla charging stations.

Read more about the first projects awarded in PA:

- **Millions of Federal Dollars Slated for 54 EV Charging Projects Across Pennsylvania**
- **Pennsylvania begins awarding millions for EV infrastructure charging**
- **Eleven Locations in Southwestern PA Tapped for Federal EV Charging Station Funding**



BIDEN-HARRIS ADMINISTRATION ANNOUNCES NEXT PHASE OF THRIVING COMMUNITIES GRANT PROGRAM TO HELP MORE COMMUNITIES UNLOCK ACCESS TO HISTORIC INFRASTRUCTURE INVESTMENTS

Technical assistance and Capacity Building program helps guide disadvantaged, rural and Tribal communities as they navigate the federal funding process

The U.S. Department of Transportation (DOT) released a Notice of Funding Opportunity (NOFO) for up to $22 million in grants to provide technical assistance and a Call for Letters of Interest from communities seeking support through the **Thriving Communities Program**. The Biden-Harris Administration launched the program in 2022 to prepare state, local, Tribal and territorial governments to better access historic levels of federal funding for projects in their communities. Earlier this year, **DOT announced** that four Capacity Builder teams received $21.15 million to pro-

technical assistance to 64 communities.

The Thriving Communities Program (TCP) provides intensive technical assistance to under-resourced and disadvantaged communities to help them identify, develop, and deliver transportation and community revitalization opportunities. Those communities receive in-kind support from Capacity Builders funded through the TCP to prepare grant application materials and undertake pre-development and project delivery activities including deploying innovative community engagement, workforce development, and clean technology strategies. There is no cost for communities to receive support through the program.

"No one understands a community's unique transportation needs better than the people who actually live there--yet many small communities don't have the resources or capacity to secure the funding for infrastructure projects," said U.S. Transportation Secretary Pete Buttigieg. "The Thriving Communities Program is all about empowering communities to better access federal dollars so they can realize their own visions for better infrastructure and transportation."

For the FY2023 program, DOT has added a Thriving Communities Regional Pilot Program set-aside to which states, Tribes, and regional planning organizations can apply. This set-aside will allow pilot program participants to provide TCP activities at a state or regional scale to communities within their jurisdictions. This year, DOT anticipates funding at least four pilots at approximately $1 million each.

DOT also anticipates funding at least three National TCP Capacity Builder Program teams, at approximately $5 million each, to collectively support approximately 50 communities that are selected and assigned by DOT into one of three "Communities of Practice" based on their unique technical assistance needs. The TCP will prioritize those communities working to advance projects to improve health outcomes; reduce housing and transportation costs; preserve or expand jobs and increase reliable mobility options for disadvantaged households to better access health care, food, education, and other essential destinations.

"The regional approach offered under TCP is an excellent complement to other capacity building opportunities offered by the **Build America Bureau**," said DOT's Build America Bureau Executive Director Morteza Farajian. "Building capacity at the local level and creating peer exchanges will help communities leverage every resource possible to advance their projects using innovative solutions."

The **call for Letters of Interest (LOI)** from communities seeking support from the program is open until November 15, while the NOFO for Capacity Builders is open until

November 28. The **NOFO** will provide funding for organizations to provide technical assistance, planning and capacity building support to recipients under the Thriving Communities Program. Capacity Builders are encouraged to apply as a team and may include non-profits, philanthropic organizations, and other qualified technical assistance providers including academic and for-profit organizations.

More information on how to submit a LOI to participate in the Thriving Communities program can be found **here**.

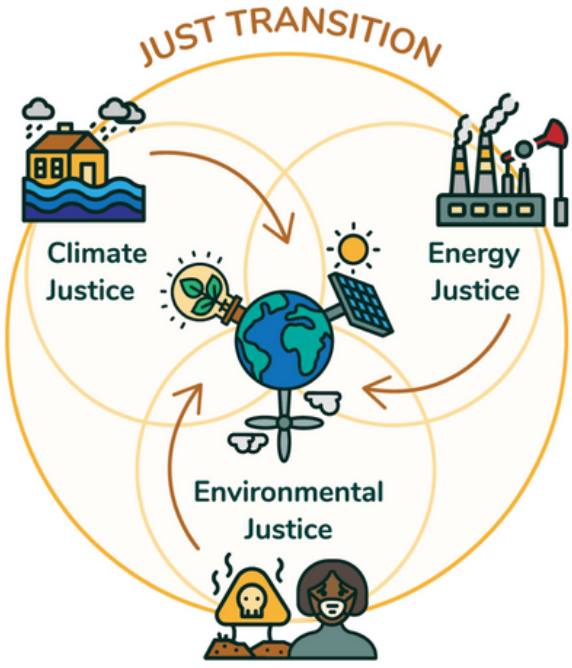
Thriving Communities follows through on the commitment by the Biden-Harris Administration to ensure that all communities have an equal opportunity to benefit from federal infrastructure funding. DOT's technical assistance is part of the **Thriving Communities Network**, an interagency initiative among the Departments of Transportation, Housing and Urban Development, Energy, Commerce, and Agriculture, as well as the General Services Administration, FEMA, and the Environmental Protection Agency.

DOT will host a series of webinars to provide more information both to interested communities and capacity builders. More information on the series can be found **here**. DOT anticipates announcing recipients in early 2024.

FHWA EQUITY AND JUSTICE40 IN ACTION WORKSHOP REPORT AVAILABLE

The Federal Highway Administration released the proceedings report of the **Equity and Justice40 in Action Workshop** held during the American Association of State Highway and Transportation Officials 2023 Geospatial Information Systems for Transportation (GIS-T) Symposium.

The workshop explored the application of GIS tools and analysis to advance transportation equity and the **Justice40 Initiative**, with attendees from local, government, and private industry organizations. The report offers key workshop findings, presentation overviews, and tools and resources for transportation equity screening.



JUSTICE40 INITIATIVES BRING FUNDING, BENEFITS TO LOCAL MUNICIPALITIES

By Alexander de Almeida,
PRCC Clean Cities University Workforce Development Program Summer Intern

Energy and environmental justice (EEJ) are two of the most important issues facing our world today. Climate change is a real and present danger, and it is disproportionately impacting low-income communities and communities of color. Local governments today must protect their residents from the harmful effects of climate change while promoting environmental justice for all.

Today, we will discuss some examples of how local governments have successfully implemented EEJ policies and transformed their communities.

First, **Justice40** is an initiative by the Biden Administration which mandates that 40% of the benefit from certain federal investments must flow to disadvantaged communities that are currently marginalized, underserved, and overburdened by pollution. There is real money available for your community to take advantage of these emerging opportunities. Pittsburgh Region Clean Cities and its partners can help your community identify those opportunities.

Second, **Greensburg Green Town** is a project which shows the power of transformation possible with the right vision and resources. The project aimed to make the town of Greensburg, Kentucky, a zero-waste, zero-carbon community. After being destroyed by a tornado in 2007, the town implemented a number of initiatives to promote energy efficiency, renewable energy, and sustainable transportation.

Some of the specific initiatives that are part of the Greensburg Green Town project include:

- **Investing in renewable energy**: Greensburg installed solar panels and wind turbines, absorbing a large initial investment, but eventually becoming a net-zero energy community.
- **Upgrading infrastructure:** Greensburg upgraded its municipal infrastructure to make it more energy efficient. This included rebuilding buildings to LEED standards, replacing street lights with LED lights, and reimagining the city layout to reduce sprawl.
- **Promoting sustainable transportation**: Greensburg invested in public transportation and bicycle infrastructure to make it easier for people to get around without cars.
- **Reducing waste:** Greensburg reduced its waste by creating policies which reduced single-use plastics,

promoted re-use & recycling, and even composting in community gardens.

The Greensburg Green Town project is a model for other communities that are looking to become more sustainable. The project has shown that it is possible to make a significant impact on climate change and environmental justice while also improving the quality of life for residents.

Third, here in Pennsylvania, there are **new grants opening every day** which promote a sustainable future which incorporate EEJ principles. These funds are earmarked to support everything from designing municipal waste plans to installing electric vehicle infrastructure to installing renewable energy collectors and building green spaces. The Pennsylvania Department of Community's **Municipal Assistance Program (MAP)** is yet another resource which can help direct municipalities to funding for their goals and through every stage of grant applications.

Though climate change represents one of the greatest challenges of our age, a bright future is possible through initiatives and programs working to make Pennsylvania a cleaner, healthier, and more equitable place to live.

PRCC is building collaborative partnerships to assure that Justice40 benefits impact Western Pennsylvania. If you'd like to get involved, please email us at:
coordinator@pgh-cleancities.org

U.S. DEPARTMENT OF TRANSPORTATION (DOT) MAPPING TOOLS FOR GRANT APPLICATIONS

The **Screening Tool for Equity Analysis of Projects (STEAP)** is developed by the Federal Highway Administration (FHWA) and allows users to estimate the socioeconomic characteristics of the resident population surrounding a proposed project location. Users can generate a project profile equity analysis report that may also be useful in grant applications. **The Equitable Transportation Community (ETC) Explorer** is an interactive web application that uses 2020 Census tract data to explore the cumulative burden communities experience as a result of underinvestment in transportation, in the following five components: Transportation Insecurity, Climate and Disaster Risk Burden, Environmental Burden, Health Vulnerability, and Social Vulnerability. Users can utilize the ETC Explorer to gain insight into how DOT's investments can address the transportation related causes of disadvantage. The ETC Explorer is not a binary tool indicating whether a census tract is considered disadvantaged; it is a dynamic tool that allows every community to understand how it is experiencing burden that transportation investments can mitigate or reverse.

UPCOMING EVENTS:

BOARD OF DIRECTORS MEETING SCHEDULE FOR 2023:
The PRCC Board of Directors meeting schedule is as follows:

November 1, 2023
10:00 a.m. - 11:30 a.m.

OTHER UPCOMING EVENTS:
Converging Megatrends of Autonomy and Vehicle Electrification
Pittsburgh Technology Council & Aurora
November 2, 2023
9 a.m. - 12 p.m.

Webinar: Charge@Work in PA
November 15, 2023
12 p.m.

Transportation Camp PGH
Benedum Hall, University of Pittsburgh
November 18, 2023
10 a.m. - 5 p.m.

Webinar: PRCC Coalition Building
November 30, 2023
10 a.m. - 12 p.m.

THREE RIVERS EVA CLUB MEETINGS:
November 18, 2023
December 16, 2023

For details, contact Jonathan and Bonnie Belak, 724-387-8210.

TRAINING COURSES:

PRCC joins the National Alternative Fuels Training Consortium and the Community College of Allegheny County – West Hills Center in offering training classes.

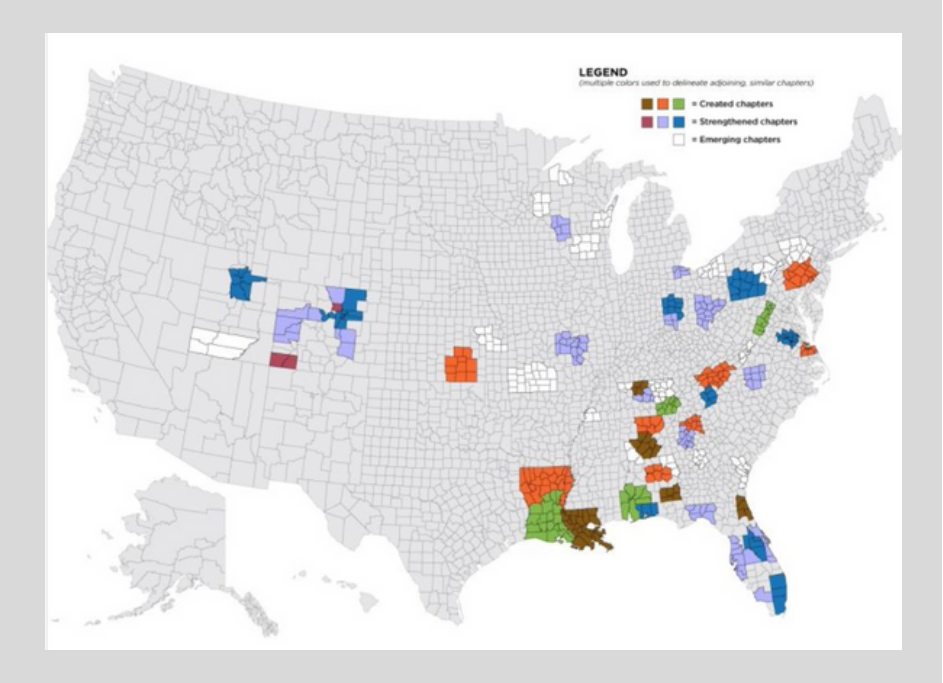
This year, we are expanding our curriculum offerings focused on alternative fuels and we'd love to hear from you!

Please join us for our upcoming course offerings:

Hands-On Workshop:
Propane Vehicles
TBA

Hands-On Workshop:
Natural Gas Vehicles
TBA

To register for these classes, contact Bob Koch at 412-788-7378 or **rkoch@ccac.edu**.



Electric Vehicle Clubs Are On The Rise Throughout the U.S.

THE GROWTH OF EV ENTHUSIAST CLUBS

One of the deliverables in the *Drive Electric USA (DEUSA) project* was for all of the 14 states to create two new "Drive Electric" chapters in their state, led by local EV owners or other interested leaders. The purpose of these chapters is to provide communities with LOCAL, in-person EV education.

Being able to sit in and/or drive an EV is a critical barrier to the adoption of EVs, and this chapter work is directly attacking that barrier. As essential as this work is to realizing our needed carbon reduction goals in the U.S., we are very proud of the hard work these states have put in to achieve this progress!

The shown map is a visual of all of the chapter work that DEUSA states have done to create new chapters, or strengthen chapters in need of help. In this map, “created” means a totally new chapter was started, or one may have existed there in the past, but it had become nonfunctional and a new leadership group was established and events now planned. “Strengthened” means there were some owners operating a chapter, but they were in need of significant assistance to get back on the right track to holding events or other outreach mechanisms regularly. Lastly, “emerging” are chapter efforts wherein the coalition/state has begun chapter development work but more effort is needed to bring that chapter to a fully functioning state.

Last but not least, this map is fluid as work continues in our states. Expect to see updates to this map from time to time as coalitions and all their partners gain more ground in developing

chapters.

In the Western PA Region, the Pittsburgh Region Clean Cities Coalition and the Drive Electric PA Coalition partner closely with both the Three Rivers Electric Vehicles Association (EVA) and the Tesla Owners Club of Western PA. In recent months, we have begun collaborations with both the Erie EV Car Club and some EV Stakeholders located near State College, PA where we hope to help establish a new EV club.

If you are interested in supporting these efforts and would like to learn more, please reach out to **Rick Price** at **coordinator@pgh-cleancities.org** for more information on how to get involved.

NEW CCU COURSES TARGET EV SPACE

Two updated Clean Cities University courses are now available to help coalition directors, staff, and stakeholders stay up-to-date on their EV expertise.

- *Electric Vehicles and Infrastructure: Basics* covers the history and benefits of electric drive vehicles, the different types of vehicles, and the different types of EV charging infrastructure.
- *Electric Vehicles and Infrastructure: Advanced* covers electricity production, vehicle batteries and grid integration, incentives and policy considerations, and more.

Courses are available to PRCC Members. Email us at **coordinator@pgh-cleancities.org** for access.

Are you an EV Driver and Enthusiast? Get Involved!

PRCC offers numerous opportunities throughout the year to showcase the latest EV models or offer Ride-N-Drives for those who have never driven an electric vehicle yet!

Share your joy with other drivers in the region! Tell family and friends about the Drive Electric PA website at ***www.driveelectricpa.org***

NREL STUDY IDENTIFIES NATIONWIDE CHARGING NEEDS FOR ACCELERATING EV ADOPTION

By Anna Squires

Nearly 70 years ago, the United States began construction on the Interstate Highway System, setting in motion an effort that has been called the greatest public works project in American history. Now, the country's next great public works project is underway: an electric vehicle (EV) charging network that will reach the farthest corners of the nation, helping to make convenient, reliable, and affordable charging a reality for all Americans.

But while plans for the nation's highways began with a booklet of paper maps, plans for the national EV charging network are leveraging data models and high-performance computing to draw the contours of the nation's infrastructure needs. These plans will be shaped by a seminal study from the National Renewable Energy Laboratory (NREL), which has been at the forefront of assessing EV charging needs and developing state-of-the-art analytical tools for over a decade.

In the study, researchers estimated the number, type, and location of chargers needed to create a comprehensive network of EV charging infrastructure, one that can support an anticipated 30–42 million EVs on the road by 2030.

NREL Analysis Supports U.S. Administration's Clean Energy Goals

Between ambitious federal clean energy policies, pledges by automotive companies to transition to zero-emission vehicles, and accelerating consumer demand for EVs, analysts have projected that by 2030, EVs could account for 30–42 million light-duty vehicles on the road. Now, NREL researchers have released **The 2030 National Charging Network: Estimating U.S. Light-Duty Demand for Electric Vehicle Charging Infrastructure**, a quantitative needs assessment for a national charging network capable of supporting the U.S. transition to EVs.

The study was created in collaboration with the **Joint Office of Energy and Transportation** (Joint Office) and the U.S. Department of Energy's Vehicle Technologies Office. In turn, it will support the Joint Office's work to deploy a network of EV chargers, zero-emission fueling infrastructure, and zero-emission transit and school buses nationwide. As the Joint Office works with all 50 states, Washington, D.C., and Puerto Rico to develop **state- and community-level plans for EV charging infrastructure**, the study's findings will fuel the office's vision of building a future where "everyone can

ride and drive electric."

"The 2030 National Charging Network study ties together two of the administration's priorities: building a national EV charging network and working toward the 2030 goal for the majority of all new car sales to be battery-electric vehicles," said Gabe Klein, executive director of the Joint Office. "It's a framework for what is needed nationally, in terms of the types of charging required, their number, and where those chargers should go."

To Build an EV Network, Start With Data

Estimating the EV charging infrastructure needs of an entire nation required NREL researchers to consider a vast array of data—from projecting drivers' typical charging needs and EV adoption rates 7 years into the future to examining how different climates across the United States might affect energy requirements. The result is a framework with a never-before-seen level of detail, focused on low-, medium-, and high-adoption scenarios where 30–42 million EVs drive U.S. roads by 2030.

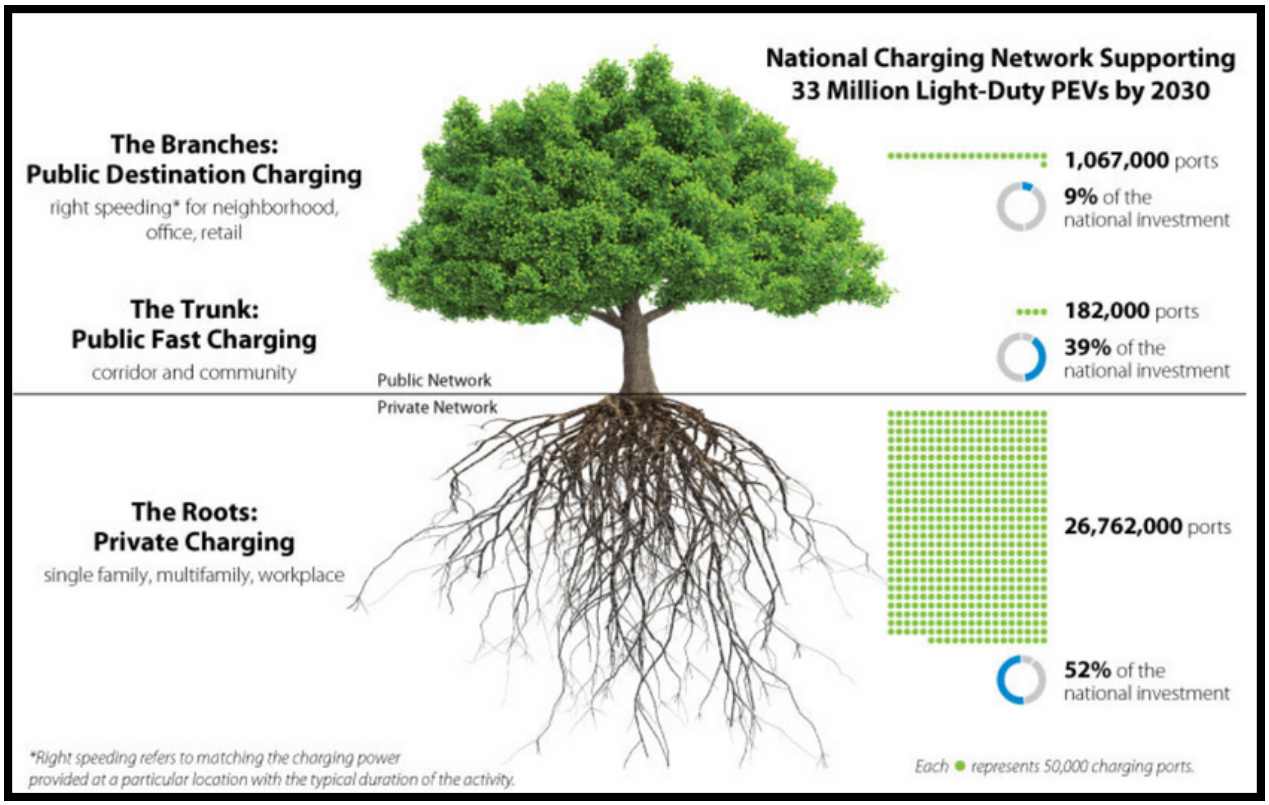
The study's "mid-adoption scenario" considers 33 million vehicles on the road by 2030, according to NREL's Eric Wood, a senior EV charging infrastructure researcher who led the study's research team.

"The framework we built for the 2030 National Charging Network study exhaustively considers how people in the U.S. use light-duty cars to travel, what their energy needs are for that travel, and how we can meet those needs, given projected EV adoption rates," Wood said. "But what really makes the framework novel is the ability to create infrastructure estimates for specific locations using detailed transportation data. This enabled the team to answer questions like: How will EV adoption in neighboring states impact the demand for public fast charging along highway corridors in my area? And how might that out-of-state demand compare to charging needs from residents in my area?"

"Together," Wood continued, "the study's data create a snapshot of what we think an EV charging network would need to look like by 2030 to support 30–42 million passenger EVs."

That "snapshot" captures the many ways Americans travel—including commuting, running errands, using ride-hailing apps, and taking long road trips—and estimates the energy demands for each.

CLICK TO VIEW THE 2030 NATIONAL CHARGING NETWORK FACT SHEET



NREL Study (Graphic credit: NREL)

For instance:

• Using **EVI-Pro**, Wood and the NREL team calculated the typical daily charging needs for running errands and commuting. The analysis considered energy demands for those who do and do not have access to convenient home charging.

• Using **EVI-RoadTrip**, the researchers projected the charging infrastructure needed to make long-distance travel along national highways feasible.

• Using **EVI-OnDemand**, the researchers estimated the charging infrastructure needed for ride-hailing fleets like Uber and Lyft to electrify their operations.

• Using NREL's **Transportation Energy & Mobility Pathway Options (TEMPO)** model, the team was able to estimate the number of EVs that might be on the road under different adoption scenarios.

And rather than creating a one-size-fits-all approach to charging, the study considers the realities of life across the United States: differences in weather, housing types, travel behaviors, and preferences in charging options.

For instance, EV drivers in very hot climates, like Arizona, and in very cold climates, like North Dakota, may both see their cars' charging speeds and range impacted by climate. Drivers living in areas with more EVs, like Southern California, may have to

grapple with busier charging stations. The researchers even factor in bad charging etiquette: the slowdowns that occur at charging stations when drivers neglect to unplug and move a fully charged car.

This **detailed region-specific analysis**, Wood said, is now available to states and communities, who can break out the estimates for their area and use the data to guide local investments into EV charging infrastructure.

"City-to-city differences in climate, travel patterns, housing, charging preferences, and demographics aren't considerations captured in other infrastructure assessments that we've seen," Wood said. "We believe that making that data publicly available, and having it customized to each of these regions, will prove pivotal as cities work to determine their network needs."

Key Findings for the Future EV Network

The 2030 National Charging Network report finds that to support a mid-adoption scenario of 33 million EVs on the road by 2030, the nation will need 28 million charging ports. Because EV drivers strongly prefer the convenience of overnight charging, private residential chargers will form the core of the national ecosystem, but they will need to be complemented with reliable public fast charging.

Researchers project the national charging infrastructure will require:

- 182,000 publicly accessible fast charging ports to enable long-distance travel and ride-hailing electrification and to support those who lack access to residential charging.
- 1 million Level 2 charging ports at publicly accessible locations—including high-density neighborhoods, office buildings, and retail outlets.
- 26 million Level 1 and Level 2 charging ports at privately accessible locations—including single-family homes, multifamily properties, and workplaces.

According to Wood, one of the study's key takeaways is an understanding of what it will take to build the EV charging network of the future. "In just the past few years, we have seen historic investments into national EV infrastructure, including the **National Electric Vehicle Infrastructure Formula Program** and the **Charging and Fueling Infrastructure Discretionary Grant Program,** both of which are supported by the Joint Office," Wood said. "At the same time, the study reinforces the notion that we're going to need to continue to work together—both public and private entities—to build the national network that we'll need for 2030 and beyond.

"The great news is that now we have detailed estimates of what infrastructure will be needed," Wood continued. "American drivers' interest in electric vehicles is accelerating

year over year, and we're already seeing the market respond with new investments to meet that rising demand. Key players in this space—from automakers, charging providers, local governments, and utility companies to retailers, real estate developers, and private firms—can all see this as motivation to keep going, with insights from the 2030 National Charging Network report to help them target the needed infrastructure."

Estimates Change, but Impact Lives On

Of course, the national charging landscape has changed dramatically, even since Wood's team published their **first national EV charging analysis** in 2017. Depending on variables as diverse as the changing cost of EVs, technology adoption curves, and even Americans' preferences for large cars, the estimates of the study will likely change.

But according to Klein, while estimates change, impact lives on. "The 2030 National Charging Network study is a crystal ball reflecting a moment in time," Klein said. "You might look into the crystal ball a year from now and see something slightly different. But the work of this study is generated by such a sophisticated set of models that it will continue to be relevant. It can be updated with future assumptions and can track aspects of the charging network and of infrastructure as they evolve.

"The fundamental contributions that Eric and the team at NREL have made will outlive the study," Klein continued. "They will likely go on to shape policy and programs for many years to come."

POWERING UP EV CHARGING STATION IMPLEMENTATION

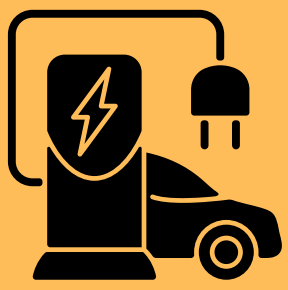
As stakeholders across the nation tirelessly collaborate on planning and developing EV charging stations, Clean Cities coalitions have been seeking insights into best practices to inform local efforts. EV charging infrastructure best practices and guidance are among the top requests in the DOE's TRS inbox, with common themes including business models and procurement/site design tips. As exciting EV charging developments have unfolded in recent weeks, some key resources and announcements to help address these requests are highlighted below.

NREL released a report to assess the needs for a national charging network, The 2030 National Charging Network: Estimating U.S. Light-Duty Demand for EV Charging Infrastructure.

Argonne National Laboratory released the **CHECT Tool** for property owners, private companies, or utilities considering the installation of electric vehicle (EV) charging hubs. Users can develop their own charging hub scenarios to estimate costs. The tool is location (state) specific and facilitates informed decision making for owning and operating EV charging infrastructure.

DOT, DOE, and the Joint Office of Energy and Transportation released **Charging Forward: A Toolkit for Urban Electric Mobility Infrastructure,** which empower stakeholders to identify key partners, leverage planning tools, and secure funding for their EV charging projects. The free technical resource is designed to help larger communities take full advantage of Federal funding for EV charging stations and other forms of electric transportation. It follows the popular **Rural EV toolkit** that was released last year and updated this past summer.

SAE International embraced the Tesla-developed North American Charging Standard (NACS) connector, ensuring seamless compatibility and convenience for EV users nationwide. This is critical as Ford Motor Company, General Motors, Rivian, and a number of auto manufacturers and EV charging companies recently announced plans to adopt the NACs connector.



QUESTION OF THE MONTH: WHAT ARE THE COST RANGES FOR LEVEL 2 AND DIRECT CURRENT (DC) FAST CHARGING EQUIPMENT?

Equipment costs will vary based on factors such as application, location, charging level, charging speed, number of connectors and vehicles that can simultaneously charge, and additional features (e.g. connectivity and smart features). The **Alternative Fuels Data Center Charging Infrastructure Procurement and Installation page** provides for a ggeneral overview of considerations when procuring EV charging equipment. Based on publicly available resources, Level 2 EV charging equipment costs can range from $550 to $4,900 per unit, while DC fast equipment can range from $20,000 to $150,000 per unit. Please see below for some resources on EV charging station equipment costs.

As you are likely aware, Argonne National Laboratory's **Alternative Fuel Life-Cycle Environmental and Economic Transportation (AFLEET) Tool** provides assumptions for Level 2 and DC fast charging hardware equipment costs depending on the site type. In particular, see Table 1 for a summary of the Level 2 and DC fast charging equipment cost data for residential, parking garages, and curbside locations.

Note that AFLEET primarily sources its equipment and data connectivity cost information from the Rocky Mountain Institute (RMI) report, ***Reducing EV Charging Infrastructure Costs***. The Executive Summary of the RMI report provides cost ranges for the EVn charging infrastructure components. For your convenience, we have summarized Level 2 and DC fast charging EV charging station costs information in Table 2.

For more recent public EV charging equipment costs, see an article published based on real-world data acquired by the U.S. Department of Energy's National Laboratories, ***Levelized Cost of Charging EVs in the United States***. Specifically, on page 14, see Table 1: Median Capital Costs of Electric Vehicle Supply Equipment from Collected Billing Data. Table 3 below

EV Charging Station Costs	Level 2: Home	Level 2: Parking Garage	Level 2: Curbside Single Station	DC Fast: 50 kW Single Station	DC Fast: 150 kW Single Station	DC Fast 350 kW Single Station
Total Hardware Cost	$689	$2,500	$2,500	$27,900	$87,800	$139,000

Table 1: Overview of EV Charging Station Costs

Item	Cost Range Estimate (per EVSE)
Level 2 (Residential)	$380 (2.9 kW) - $689 (7.7 kW)
Level 2 (Commercial)	$2,500 (7.7 kW) - $4,900 (16.8 kW)
DC Fast Charging (50 kW)	$20,000 - $35,800
DC Fast Charging (150 kW)	$75,600 - $100,000
DC Fast Charging (350 kW)	$128,000 - $150,000

Table 2: Level 2 and DC Fast Charging Station Costs

summarizes the Level 2 and DC fast charging station data. Note that the power of Level 2 EV charging equipment is not specified.

Further, for general information about the cost of charging infrastructure, The International Council on Clean Transportation (ICCT) report ***Estimating EV Charging Infrastructure Costs Across Major U.S. Metropolitan Areas*** provides a review of charging infrastructure costs for various access types (e.g. residential, workplace, public) and equipment types (e.g. Level 2, DC fast charging). ICCT's 2019 report also covers an overview of the various factors that influence equipment costs, including mounting pedestals and networking fees. Information about public and workplace charging hardware can be found on page 2 of the report.

Lastly, you may be interested in an Idaho National Laboratory report, ***Breakdown of Electric Vehicle Supply Equipment Installation Costs***, which provides a summary of EV charging equipment costs based on the above reports and prices listed on Amazon in July 2022. Specifically, see the Summary for EVSE Cost Estimations on page 21.

PRCC can work with the DOE's TRS team on your behalf should you have any additional questions.

Power Output	Equipment Cost
Level 2 (Residential)	$550/plug
Level 2 (Public)	$3,500/plug
DC Fast Charging (Public): 50 kW	$38,000/plug
DC Fast Charging (Public): 150 kW	$90,000/plug

Table 3: Summary of Median Capital Costs for EVSE

CALL FOR NEW PRCC BOARD MEMBERS:

🌟 **Join Our Mission: Become a Catalyst for Change**
🌟 Are you passionate about making a real impact in Western Pennsylvania? Do you have a desire to drive positive change and help those in need? If so, we invite you to join Pittsburgh Region Clean Cities (PRCC) as a Board Member and become an integral part of our mission!

🌍 **About Us:**
At PRCC, we are dedicated to advancing the energy, economic and environmental security of Western Pennsylvania by supporting a just transition to clean fuels. Over the years, we've made a significant difference in the reduction of greenhouse gas emissions and gasoline gallon equivalency, but our journey is far from over. Now, we're looking for visionary individuals like you to help us take our mission to the next level.

🌟 **Why Become a Board Member?**
As a Board Member with PRCC, you'll have the opportunity to:
✨ *Shape Our Direction:* Contribute your expertise and ideas to guide our organization's strategy and growth.
✨ *Make a Difference:* Be a driving force behind meaningful initiatives that transform lives and communities.
✨ *Build a Network:* Connect with like-minded individuals who share your passion for philanthropy and social impact.
✨ *Enhance Your Skills:* Develop leadership, governance, and decision-making skills that are valuable both personally and professionally.

🤝 **Who We're Looking For:**
At this time, we're especially seeking dedicated individuals who:
🌱 Are committed to our mission and values.
🧠 Bring diverse perspectives, skills, and experiences.
🤝 Are willing to collaborate and actively participate in board meetings and initiatives.
🌟 Are willing to dedicate time and effort to help us achieve our goals.

✨ **How to Apply:**
Submit your resume and a brief statement explaining why you're passionate about our mission and how your skills and experience align with our needs by December 31, 2023.
📧 Email your application to *Rick Price, Executive Director*, at **coordinator@pgh-cleancities.org**.
📞 For inquiries or more information, please contact *Mike Lickert, PRCC Board President,* at **mlickert.pa@gmail.com**.

Several PRCC Board Seats are currently open; but don't delay - apply today!

SUSTAINING MEMBERS

PLATINUM LEVEL MEMBERS:

GIANT EAGLE

PEOPLES NATURAL GAS

PITTOHIO SUPPLY CHAIN • GROUND • LTL • TL

S&B USA

ups

GOLD LEVEL MEMBERS:

BOLLINGER MOTORS

CCAC

CONNECT

DLC DUQUESNE LIGHT CO.

ingevity

IRT THE VALUE OF ZERO

PIONEER POWER SOLUTIONS

RANGE RESOURCES

RENEWABLE NATURAL GAS

UPMC LIFE CHANGING MEDICINE

SILVER LEVEL MEMBERS:

BLUE BIRD BUS SALES PITTSBURGH, INC.

Bruce & Merrilees Going beyond the expected, since 1948

BYD

THE CITY OF PITTSBURGH

Columbia Gas of Pennsylvania A NiSource Company

Lego-V RENEWABLE ENERGY

National Fuel

oring

PIOGA Pennsylvania Independent Oil & Gas Association

ProGas

SENECA RESOURCES

US Energy a U.S. Venture company

GREATER PITTSBURGH AUTOMOBILE DEALERS ASSOCIATION

PITTSBURGH
REGION CLEAN CITIES

THANK YOU FOR YOUR SUPPORT!

The Pittsburgh Region Clean Cities Board of Directors would like to thank all our members and stakeholders for supporting our coalition and mission.

PRCC Membership Levels:

Individual -- $150
Nonprofit -- $300
Bronze -- $500
Silver -- $1000
Gold -- $2000
Platinum -- $4000+

Learn more about membership at:
www.pgh-cleancities.org/membership/

Clean Cities

CONTRIBUTE YOUR NEWS:

Help us share success stories about the projects in our region!

Please feel free to contact:
Rick Price,
Executive Director/Coordinator
412-735-4114
coordinator@pgh-cleancities.org

LEARN MORE:

Learn more about Clean Cities at:
www.cleancities.energy.gov

Or get involved with the Pittsburgh Region Clean Cities coalition at:
www.pgh-cleancities.org

UNITED WE STAND:
REMEMBERING SEPTEMBER 11, 2001