

GAZETTE

DRIVING THE WAY TOWARD
ENERGY INDEPENDENCE

NOVEMBER 2023 | VOLUME 5, ISSUE 48



PRCC's Rick Price Introduces the Charge@Work Workplace Charging Program during a Lunch-N-Learn Ride-N-Drive Event at S&B USA in November.

PRCC JOINS CALSTART IN OFFERING CHARGE@WORK PROGRAM

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October and November marked the kick-off for Pittsburgh Region Clean Cities (PRCC)'s new [Charge@Work](#) initiative which raises awareness and support for workplace charging programs (WPC) across Western Pennsylvania. The new program,

which aims to supercharge electric vehicles (EV) uptake by accelerating workplace charging adoption, is being led by [CALSTART](#) with support from the Department of Energy.

Workplaces are critical sites for encouraging the transition to EVs in the United States. Of existing EV owners, the vast majority state that they prefer to charge either at home or at work.

The newly launched Charge@Work program aims to help workplaces plan, build and implement critical EV infrastructure for workers across the country. Top brands like IKEA, Siemens, Prologis, The Ohio State University, Michigan State University, and others agree that the time for workplace EV charging has come, and all are growing workplace charging infrastructure.

“EV sales in the U.S. are [breaking records in 2023](#), but zero-emission vehicles still represent less than 10% of the overall car sales market,” said Jason Zimble, Light-Duty Vehicle Director at transportation accelerator CALSTART. “Workplaces have the power to supply EV charging to workers who lack home charging and to ensure that all workers — even those with long commutes — can make it to and from work in an EV without worry.”

“As part of CALSTART’s Charge@Work program, PRCC is tasked with engaging employers and public officials in the Western Pennsylvania region in learn-

-ing about the benefits of workplace charging and then signing a [pledge of support](#) for building new workplace charging infrastructure in the region,” said PRCC Executive Director, Rick Price.

The goal for Western PA is to rally at least 50 Employers and/or Legislators to sign the Charge@Work pledge. In addition to signing the pledge, participants are also invited to join tours of existing workplace charging sites and/or to sign up to host a Ride-N-Drive event.

Just two months into the regional campaign, early pledge support has already been received by EPIC Metals and Michael Baker International. But PRCC encourages others to sign on soon to continue to create positive



Touring the WPC facilities at EPIC Metals.

momentum.

At the National level, Siemens and Prologis were among the first workplaces to publicly affirm their commitment to workplace charging via the Charge@Work program's pledge.

"At Siemens, we have set a goal to electrify our fleet of 10,000 vehicles by 2030, which will require the EV charging infrastructure in place to support them where our drivers work and live," said Matt Helgeson, Head of Sustainability, Siemens USA. "We're proud to be installing Siemens chargers at both our facilities and employees' homes across the United States and joining the Charge@Work program is one of the many ways we are investing in our workforce, encouraging the EV transition, and supporting a cleaner future for all."

"As a global leader in logistics real estate, Prologis aims to achieve net-zero emissions in our operations by 2030, and across our value chain by 2040. Workplace charging is a priority for us as part of our commitment to creating a sustainable, supportive, and attractive environment for our team and customers' employees," said Henrik Holland, Global Head of Mobility for Prologis.

PRCC first announced its participation in the Charge@Work program on Oct-

ober 6th at its annual Odyssey Day Event at the Community College of Allegheny County's (CCAC) West Hills Campus. The announcement was followed by a tour of workplace charging facilities at EPIC Metals in Braddock on October 24th. November marked the first statewide collaboration as PRCC and Eastern Pennsylvania Alliance for Clean Transportation (EP-ACT) co-hosted a [Charge@Work in PA Webinar](#) with CALSTART, EV Noire and others on November 15th. A Lunch-N-Learn Ride-N-Drive Session hosted by S&B USA at NOVA Place on the Northside followed on November 16th.

Although the pledge is non-binding, CALSTART hopes that some employers will take the next steps to move towards installing workplace charging infrastructure at their workplaces.

One of the program's premier new offerings is the [Charge@Work Project Builder](#), which is free and available to anyone looking to build a workplace charging program. The Charge@Work Project Builder takes the user on a virtual journey through creating a workplace charging program. Users are guided through critical steps like choosing the number of plugs to install, choosing the right technology for the job, estimating costs, and much more.

The United States Department of

Energy-backed program can also help:

- Offer participants **free site assessments** by workplace charging experts
- Identify relevant **federal and local incentives**
- Create a **site plan**
- **Identify the technologies** that work best for individual workplaces
- **Measure worker interest** in EVs
- **Create a plug-share plan** for workers

“We like to call ourselves your workplace charging concierge — because we and our partners can help support your workplace charging project from idea to implementation,” said Zimbler.

Public officials from across the country are also voicing their support for growing workplace charging — see what they have to say [here](#).

For a full list of companies, municipalities, and public officials supporting Charge@Work’s pledge to accelerate workplace charging, visit the Charge@Work website (and take the pledge yourself!).

To learn more about the regional effort, please reach out to **Rick Price** at coordinator@pgh-cleancities.org. Or visit the www.chargeatwork.org website to learn more and sign the online pledge.



Participants in S&B USA’s Lunch-N-Learn Ride-N-Drive Event had the chance to explore the City of Pittsburgh’s electric truck (above); many also took a testdrive of an electric SUV by Cadillac (right).



BIDEN-HARRIS ADMINISTRATION ANNOUNCES NEW CLIMATE AND TRANSPORTATION RESEARCH FUNDING

The first-of-its-kind Department of Transportation (DOT) Climate and Transportation Research Initiative will support efforts to address climate change and transportation challenges

WASHINGTON – U.S. Transportation Secretary Pete Buttigieg announced a [funding opportunity](#) to establish the U.S. DOT Climate and Transportation Research Initiative funded at \$2.5 million for the first year. This funding supports a partnership between U.S. DOT and a university or other eligible organizations to conduct research advancing solutions to the Nation's climate and transportation challenges.

"In the past few months alone, Americans from Vermont to Hawaii have faced the devastating impact of so-called 'once-in-a-century' disasters that are now becoming more frequent, more deadly, and more destructive to our economy than ever," said U.S. Transportation Secretary Pete Buttigieg. "As we face the profound and urgent threat of the climate crisis, we need cleaner transportation systems, and this investment will help deliver that by harnessing research and technology to find new solutions."

The Climate and Transportation Research Center will advance research

and technologies to support the Nation's clean energy goals, strengthen the resilience of the Nation's transportation infrastructure, and address environmental impacts created by the transportation system.

"When it comes to climate change and transportation, research and technology have a lot to bring to the table," said Dr. Robert C. Hampshire, Deputy Assistant Secretary for Research and Technology and Chief Science Officer. "This unprecedented funding opportunity will help us advance climate solutions for the entire transportation sector."

The funding opportunity will fund a university or nonprofit and at least one partner organization for \$2.5 million in year one, and up to \$2.5 million in years two and three, subject to availability of funds. The partnership can be renewed for a total of five-years, totaling \$12.5 million, subject to availability of funds.

An informational webinar on the U.S. DOT Climate and Transportation Research Initiative was held in late October. For more information on the [U.S. DOT Climate and Transportation Initiative Funding Opportunity](#), reach out to ClimateResearch@dot.gov.

EPA'S MOTOR VEHICLE EMISSIONS SIMULATOR MODEL MAJOR RELEASE

The Environmental Protection Agency (EPA) announced the latest version of the emissions model, Motor Vehicle Emissions Simulator (MOVES4) for official use in State Implementation Plan submissions, and for transportation conformity analyses, for all States except California. EPA also announced a 2-year conformity grace period for the use of MOVES4 for conformity purposes, that will end on September 12, 2025. Conformity analyses started before the end of the grace period may continue to use the [MOVES3 series](#) of the model.

MOVES4 incorporates several updates that will have an impact on emissions estimates of criteria pollutants, air toxics, and greenhouse gases (GHG) from mobile sources. This new version includes major updates to incorporate new and changed emissions rules, updates the modeling of electric vehicles (EVs), updates vehicle population and activity defaults, improves fuel properties data and projections, and improves emissions rates and adjustments.

The MOVES4 software and associated guidance and technical reports are available on [EPA's website](#).

FHWA UPGRADES *IT ALL ADDS UP TO CLEANER AIR* WEBSITE

The Federal Highway Administration (FHWA) has updated materials on the It All Adds Up to Cleaner Air website. The program is a public education and partnership-building initiative developed by several federal agencies for the purpose of informing the public about the impact of their transportation choices on traffic congestion and air quality.

It All Adds Up to Cleaner Air provides State and local agencies free commercial-quality promotional [materials](#) that emphasize simple, convenient actions people can take to improve air quality. Organizations can access free customizable materials, including advertisements, billboards, and television public service announcements. Tutorials in the [Education Center](#) assist with planning, implementing and [evaluating](#) an air quality campaign.

For more information, contact Victoria Martinez, (787) 771-2524.

'A SKILLS GAP': HOW GERMANY IS HELPING LOCAL AUTO TECHNICIANS GET UP TO EV SPEED



A visit with the German American Chamber of Commerce to address plans for an EV Workforce Development Initiative. (Photo Credit: Pittsburgh Post-Gazette)

By Ciara McEneaney

*Originally appeared November 10, 2023
Pittsburgh Post-Gazette*

As electric vehicle sales continue to grow and car manufacturers set voluntary electric vehicle targets, automotive dealers and technicians in Pennsylvania see a void forming.

And they're asking: Who's going to service these cars?

"We've heard from several dealers that they're behind the ball on this," said Rachel Mauer, president of the German American Chamber of Commerce, Pittsburgh chapter. "And that the volume of electric vehicles is going to increase and they just were not prepared to have in-house technicians to service these vehicles."

The Pittsburgh chapter is one organization stepping up to prepare current and prospective automotive technicians as electric vehicles gain traction across the U.S. In partnership with the Community College of Allegheny County, they are developing an EV Automotive Technician apprenticeship program.

Open to those with previous automotive experience, the program aims to mimic the EV training model used in Germany, which has been leading the electric vehicle charge since 2013, Ms. Mauer said.

"We're a little bit behind Germany," she said. "How do you train technicians for something that's coming up and do it safely? Because we're talking about high voltage. So it's not just a minor skill set

but a very difficult skill set that requires a lot of hands-on training, safety, and emphasis. Also, the dealers don't have electric vehicles all the time and you don't want them to work on a live electric vehicle when they've never done so."

Nationally, total electric vehicle sales have more than tripled in three years, from 4% in 2020 to 14% in 2022, according to the International Energy Agency. Sales are expected to grow through 2023 with over 2.3 million electric cars sold in the first quarter — 25% more than the same period last year, the IEA reported.

The Chamber's Pittsburgh chapter, is recreating a "German classroom" at CCAC's West Hills Center where technicians will learn the intricacies of electric vehicle servicing, said Jennifer Cowans, the center's executive director.

Apprenticeship instructors in August traveled to Germany where local dealers, technicians and guild members taught them as part of a "train the trainer" program, officials said. Through a partnership with the German organization BMBF — in English, the German Federal Ministry of Education and Research — the Chamber and CCAC hosted a German Opel dealership owner and "automotive mechatronic master" to provide insights in developing the EV program.

We have a wonderful partnership that is really supporting this transatlantic skill initiative," Ms. Mauer said. "Which is bringing some of the German apprenticeship programs here and helping us model and build them. And the BMBF actually funded the master to come over. He has a really wonderful perspective and expertise."

Ms. Mauer did not say which local dealerships will partner with the apprenticeship program, but said that "several" will be involved.

Other automotive programs in Pennsylvania have also jumped on the EV bandwagon as demand heightens.

Pennsylvania College of Technology introduced an electric vehicle course after multiple discussions with local dealerships, garages, state and college leaders, and other stakeholders, said Steven Keen, the school's assistant dean of transportation technologies, in an email to the *Post-Gazette*.

"We decided to take a leading position in preparing future technicians for a growing skills gap in the automotive industry," Mr. Keen said. "We have a total of 10 hybrid-electric vehicles: six hybrid and four electric. All of the Automotive Technology students at Pennsylvania College of Technology will learn how to service the electric vehicles as they progress through the program."

Funding for the EV Automotive Technician apprenticeship program comes from grants from the Department of Labor, Ms. Mauer said. Additional support comes from local organizations including Pittsburgh Clean Cities and the Greater Pittsburgh Automobile Dealers Association.

"We're looking at summer 2024 to start enrolling apprentices into the program," Ms. Mauer said. "So we're almost there. The German model has been very successful in keeping apprentices safe, and teaching the skill sets that are really going to be required. Even if it's not the scale of what Germany's looking to have."

NATIONAL ELECTRIC VEHICLE INFRASTRUCTURE (NEVI) PROGRESS UPDATE

Oct. 27, 2023

Joint Office of Energy and Transportation

An initial wave of 26 states is leading efforts to build new convenient, reliable electric vehicle (EV) charging stations under the National Electric Vehicle Infrastructure (NEVI) Formula Program. NEVI is administered by the Federal Highway Administration and supported by the Joint Office of Energy and Transportation (Joint Office) and invests \$5 billion to deploy fast chargers along more than 79,000 miles of designated alternative fuel corridors. Already, seven states have issued conditional awards for new NEVI stations amounting to \$101.5 million, two states have agreements in place, and 17 states are soliciting proposals for new stations. On Oct. 18, 2023, Ohio was the [first state in the nation to break](#)

[ground](#) on a NEVI station, which will be located west of Columbus. States are rolling out this national system with increasing speed.

Below you will find a summary of the seven public conditional NEVI award details. More is to come, so stay tuned!

Hawaii

On July 11, 2023, Hawaii Department of Transportation (HDOT) announced awards for its initial round of FY 22 NEVI funding to procure eight charging stations across two sites. HDOT utilized an existing contract with Sustainability Partners, a public benefit company mandated to form reliable and enduring partnerships with public institutions for the advancement of their critical infrastructure. Hawaii will have an estimated \$17.7 million in total funding

under the NEVI program.

Ohio

On July 13, 2023, Ohio DOT (ODOT) awarded more than \$18 million in conditional NEVI funds for 27 electric vehicle fast charging stations along seven of Ohio's interstate corridors, including I-70, I-71, I-74, I-75, I-76, I-77, and I-90. ODOT has mentioned that they intend to issue the second request for proposals to install an additional 16 charging stations along Ohio's major U.S. and state routes. Ohio will have an estimated \$140.1 million in total funding under the NEVI program.

Maine

On Aug. 1, 2023, Recharge Maine, the state's initiative to develop a statewide network of public, high-speed EV chargers, announced more than \$6 million in conditional NEVI awards at seven station locations. Through a separate competitive solicitation to deploy funds from the Maine Jobs and Recovery Plan (MJRP), Recharge Maine simultaneously announced awards to an additional five sites. Maine will have an estimated \$19.3 million in total funding under the NEVI program.

Colorado

On Aug. 3, 2023, the Colorado Energy Office (CEO) announced \$17 million in grant awards through its Direct-Current Fast-Charging (DCFC) Plazas program. With funding from the NEVI Program and the state's Community Access

Enterprise, these grants will expand Colorado's existing network of 871 fast-chargers by more than 20%, adding 188 publicly accessible chargers. Funding for the NEVI program comes to CEO from the federal government through the Colorado Department of Transportation. Colorado will have an estimated \$56.5 million in total funding under the NEVI program.

Pennsylvania

On Aug. 14, 2023, Pennsylvania Department of Transportation announced the first round of conditional awards for NEVI funding and amended on Sept. 21 to include 57 selected projects in 38 counties to expand access to and reliability of electric vehicle charging in Pennsylvania. The 57 projects conditionally awarded amount to a total federal investment of \$35.8 million the first round of NEVI funding. Pennsylvania will have an estimated \$171.5 million in total funding under the NEVI program.

Alaska

On Sept. 24, 2023, the Alaska Energy Authority (AEA) and the Alaska Department of Transportation and Public Facilities (DOT&PF) announced their first round of awards for NEVI funding. AEA and DOT&PF selected projects in nine Alaskan communities, conditionally awarding \$6.4 million in first round NEVI funding matched with \$1.6 million from private entities selected to install, own, and operate the new electric vehicle (EV) charging stations. Alaska will have an estimated \$52.4 million in total funding

under the NEVI program.

Kentucky

On Oct. 5, 2023, the Kentucky Transportation Cabinet (KYTC) announced conditional awards for \$10.9 million in funding under the National Electric Vehicle Infrastructure (NEVI) program. The funding will go toward the construction of 16 public charging stations along 11 Alternative Fuel Corridor groups by six qualified developers. On Oct. 23, Kentucky announced an additional eight public charging stations will be implemented by five developers, conditionally awarding another \$4.5 million in funding. Kentucky will have an estimated \$69.5 million in total funding under the NEVI program.



FHWA has published an [overview of the NEVI 5 Year Funding by State](#).

The Joint Office provides technical assistance to states that are creating and executing plans under the NEVI Formula Program through one-on-one meetings, public webinars, and coordination on resource materials. [Contact technical assistance](#) to learn more.

DIVERSITY AND INCLUSION

By Divya Singh

At Pittsburgh Region Clean Cities (PRCC), we recognize that the benefits of alternative fuel vehicles (AFVs) and clean transportation solutions should be accessible to everyone, including historically disadvantaged communities (DACs) that have long endured the impact of air pollution. Our commitment to diversity and inclusion is a critical part of our mission as a Department of Energy-affiliated non-profit organization.

Embracing Diversity Through Services

Our services are designed with the needs of diverse communities in mind. We understand that communities of color and low-income groups have disproportionately suffered due to environmental issues. By facilitating the adoption of AFVs in these areas, we aim to alleviate the health risks associated with poor air quality and ensure that all community members have equal opportunities to benefit from cleaner, more economical fuel options.

Facilitating Equitable Access and Education

To ensure equitable access to clean fuels, PRCC actively engages in:

- *Listening Sessions and Workshops:* We conduct these to understand the unique challenges faced by DACs and explore opportunities for AFV adoption, providing tailored education and support in securing funding.
- *Electric Vehicle (EV) Infrastructure Readiness:* We guide communities in developing the infrastructure necessary for EVs and help identify funding opportunities to make clean transportation infrastructure a reality.
- *Workforce Development:* Recognizing the power of knowledge, we offer initiatives and scholarships aimed at nurturing the next generation of clean energy professionals from diverse backgrounds.
- *Connecting Communities:* Our multimodal transportation and car-sharing pilot programs are just some of the innovative approaches we are piloting to ensure that the transportation revolution leaves no one behind.

Engaging with a Diverse Membership

PRCC takes pride in its diverse membership, including leaders in sectors ranging from energy and transportation to academia and the corporate world. As we celebrate the 30th Anniversary of the Department of Energy's Clean Cities Program, PRCC remains dedicated to this inclusive vision, ensuring that our journey towards sustainable transportation is shared by all.

IN 2024 IT WILL BE EASIER & CHEAPER TO BUY ELECTRIC VEHICLES (EVs)

Beginning on January 1, 2024 the New Clean Vehicle Tax Credit (30D) and Used Clean Vehicle Tax Credit (25E) will be [available at the time of sale from your local dealer](#) because the tax credit can be transferred to the dealer.

What does this mean? It means that if you meet the income requirements when you purchase an eligible electric vehicle (EV) or plug-in hybrid electric vehicle (PHEV), you get the FULL amount of the tax credit up front. Depending on the vehicle, you could get \$3,750, \$4000, or \$7,500 off the purchase price. This money can even be used as a down payment on the vehicle.

Besides giving buyers access to the tax credit instantly, people who have lower wealth and no tax liability will also be able to benefit from the credit, giving more people access to EVs.

The tax credit is also [now available for second-hand EVs](#). And, although "The U.S. Environmental Protection Agency just announced expanding the US EV subsidy programme to include second-hand vehicles, the measure applies retroactively for vehicles purchased after January 1, 2023."

UPCOMING EVENTS:

BOARD OF DIRECTORS MEETING SCHEDULE FOR 2024:

The PRCC Board of Directors meeting schedule is as follows:

January 10, 2024
10:00 a.m. - 11:30 a.m.
Southwestern PA Commission (SPC)

March 6, 2024
May 1, 2024
July 10, 2024
September 4, 2024
November 6, 2024

OTHER UPCOMING EVENTS:

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

Webinar: The EPA Clean School Bus Program
December 5, 2023
11 a.m. - 12 p.m.

THREE RIVERS EVA CLUB MEETINGS:
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.

ON TRACK: U.S. STEEL CONVERTS 2 DIESEL LOCOMOTIVES TO BATTERY POWER

By Stephanie Ritenbaugh

Originally appeared October 30, 2023

Pittsburgh Tribune Review

Within U.S. Steel's Mon Valley Works, diesel-powered locomotives chug along the plant's rail lines, hauling tons of steel, coke, scrap metals and iron ore for steel production.

Now, those engines will be a little cleaner.

U.S. Steel converted two of its diesel switcher locomotives at the Mon Valley Works' Edgar Thomson and Clairton plants to battery-operated locomotives.

"This project is a big step in U.S. Steel's push toward achieving net-zero emissions by 2050," said Kurt Barshick, vice president of Mon Valley Works. "Our once-diesel locomotives have been given new life. We've repurposed them to run on battery power. That means we'll be using less fuel and lowering our emissions.

"The future of transportation is electric," Barshick said.

The conversion was a public-private



partnership between the 122-year-old steelmaker and the Pennsylvania Department of Environmental Protection.

Accompanied by a playlist of train-themed songs — Johnny Cash's "Folsom Prison Blues" and Gladys Knight and the Pips' "Midnight Train to Georgia," of course, were included — the company showcased the technology Monday afternoon.

The electric-powered locomotives are expected to reduce airborne particulate matter emissions by .385 tons, the equivalent emissions of 7,000 gasoline-powered passenger vehicles, and cut about 40,000 gallons of fuel, according to U.S. Steel, which spent more than \$2.3 million on the project.

Washington D.C.-based Innovative Rail Technologies designed the train engines. Its lithium-ion tech, called Atlas (Advanced Technology Li-Ion Adaptive System), is aimed at the rail market.

“Battery propulsion technology is already in use throughout many modes of transportation, and rail transportation is the next step,” said Ira Dorfman, principal of IRT.

IRT, which was established in 2019, is working with another steelmaker. It plans to deliver the first of two battery-electric switcher locomotives to Nucor Corp.’s Hertford County, N.C., steel mill in the first quarter of 2024.

U.S. Steel hopes to replace its eight other diesel-powered locomotives with batteries, according to Mark Jeffrey, plant manager.

“As we prove out this technology, we’re looking at additional opportunities to expand the battery-powered indoor fleet,” Jeffrey said.

President and CEO David Burritt nodded to the interest from other companies in buying the Pittsburgh steelmaker.

Rival Cleveland-Cliffs offered \$7.3 billion to acquire U.S. Steel, which the company rejected Aug. 13, saying Cleveland-Cliffs was pushing it to accept the terms without being allowed to conduct proper due diligence. It also said it had received “multiple unsolicited proposals” for the company’s assets.

Sewickley-based industrial conglomerate



*IRT's Battery-Powered Locomotive
(Photo Credit: Tribune Review)*

erate Esmark made an offer of \$7.8 billion, but withdrew from bidding on Aug. 23.

“You’ve seen all the things that are going on with us,” Burritt said. “We’re getting a little help from all the interest in U.S. Steel. Our stock values are the highest in the industry. It’s great to have our shareholders rewarded in this whole process.”

Over the years, Mon Valley residents and environmental activists have been calling on the plant to reduce emissions.

U.S. Steel, which has a market cap of \$7.55 billion, announced in March that it would shut down three of Clairton Coke Work’s 10 coke batteries this month, which it projects will reduce emissions from the plant.

The decision to close the site’s three oldest batteries at the Mon Valley’s biggest source of airborne pollutants was part of the company’s overall goal to cut emissions by 2050.

MORE COVERAGE:

[U.S. Steel Introduces First-Ever Electric Battery-Powered Locomotive in Mon Valley Works](#)

CBS News Pittsburgh

['A Significant Step': U.S. Steel Unveils Its New Battery-Operated Locomotive](#)

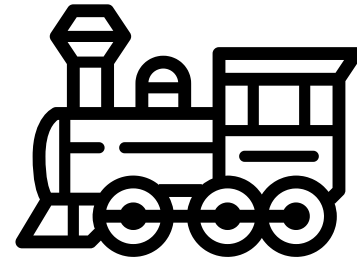
Pittsburgh Post-Gazette

WORLD'S FIRST COMPREHENSIVE, OPEN-SOURCE SOFTWARE FOR FREIGHT RAIL DECARBONIZATION RELEASED TO PUBLIC:

North America's largest freight railroads have committed to slashing their greenhouse gas emissions 40% by 2030--and a new tool developed by NREL researchers will lay the tracks for their work.

Researchers recently released the [Advanced Locomotive Technology and Rail Infrastructure Optimization System \(ALTRIOS\)](#) in open-source formats available to all. It is the world's first fully integrated, open-source software designed for exploring cost-effective, permanent decarbonization of the rail industry.

DID YOU KNOW?



Rail transit is the most fuel-efficient mode of travel on a per-passenger basis.



Clean Fuels Conference
February 5-8, 2024
Fort Worth, TX

The Clean Fuels Conference connects key players of the biodiesel, renewable diesel and sustainable aviation fuel industry for one can't-miss event. Clean fuels for land, sea and sky come together for a week of expert sessions, exhibits and showcases.

[Learn More](#)



The Hyundai Nexo Hydrogen Car

EAGLES MAKE HISTORY WITH HYDROGEN REFUELING STATION

by Owen Boyle

In February of 2020, the Eagles and PDC Machines announced a multiyear sustainability partnership. Just a few weeks later, the world shut down due to the COVID-19 pandemic. Fast-forward to September 22, 2023 as the Eagles became the first professional sports team in North America to install and utilize a hydrogen refueling station to power its passenger vehicles thanks to the relationship with PDC Machines.

"Today marks another milestone for Lincoln Financial Field, the Philadelphia Eagles Go Green program, the

Commonwealth of Pennsylvania, and the City of Philadelphia," said Eagles President Don Smolenski. "This is another stop on our sustainability journey as we continually strive to reduce our carbon footprint."

The refueling station was designed to take all the inputs of water and electricity to produce clean hydrogen. The unit produces green hydrogen energy by taking electricity from the stadium's 10,456 solar panels and adding water. The only emission from hydrogen energy is water vapor, which is a clean fuel compared to gasoline and diesel.

Green hydrogen is hydrogen produced by the electrolysis of water. The process is powered by renewable energy. Green hydrogen emits no pollution and is considered the cleanest and most sustainable form of hydrogen.

Pennsylvania Governor Josh Shapiro, who attended the ribbon-cutting ceremony, joked that the refueling station would contain Kelly Green hydrogen.

"Not only are the Eagles leading on the field, but they are setting an example for how companies throughout Pennsylvania and the country can act when it comes to addressing climate change and bringing clean energy into their business strategy," Shapiro said.

The newest Go Green initiative would not have been possible without PDC Machines.

Before the pandemic, the Eagles and PDC announced their partnership with an event at Lincoln Financial Field and a photoshoot with the hydrogen vehicle.

However, the collaboration did not stop. The PDC team worked diligently and purposefully to move forward and install the hydrogen refueling unit in the Stadium Control parking lot on the south side of the stadium.

"I want to thank the City of Philadelphia

for working with us to get this product permitted to be sitting here," said PDC Executive Chairman Kareem Afzal. "It is a very unique installation nationally and throughout the world. This is truly the first that I have seen at a stadium, producing hydrogen, and fueling vehicles on site."

PDC is a local, father-and-son business that was started in 1977 by Kareem's father Sy after immigrating from India.

The goal of PDC is to lead the world's transition to clean energy while making a lasting impact on the community, planet, and generations to come. Over the years, PDC has made that happen, becoming an industry leader. The company now has offices in South Korea, Japan, and Germany, as well as a massive new facility in Souderton, Pennsylvania.

"My father worked very hard and diligently throughout my childhood, working to build this company," Afzal said. "Through his leadership over the years, we grew this company from a sole proprietor to the 208 people that are powering the future of hydrogen today."

The team's hydrogen-powered Hyundai Nexo was the first vehicle to use the hydrogen refueling station that is expected to change the game when it comes to using clean energy in the community.

NREL HOSTS DEMONSTRATION OF ZERO-EMISSIONS EMERGENCY RELIEF VEHICLE POWERED BY HYDROGEN

NREL hosted a [demonstration of the H2Rescue vehicle](#) - a first-of-its-kind hydrogen fuel cell-powered emergency relief truck. The DOE-led project includes a feasibility study and the development of a robust demonstration plan to ensure that the truck meets the needs of users in the emergency management field.

The vehicle ultimately informs the DOE H2@Scale Initiative's research and development to leverage medium- and heavy-duty transportation applications.

Watch a new [MotorWeek video](#) featuring the H2Rescue vehicle to see how first responders rely on this hydrogen fuel cell truck during disasters, contributing to a zero-emissions future for vehicles of all sizes.



H2Rescue Demonstration at NREL

NOVEMBER MARKS WORLD DAY OF REMEMBRANCE FOR ROAD TRAFFIC VICTIMS

The [World Day of Remembrance for Road Traffic Victims \(WDR\)](#) is commemorated on the third Sunday of November each year.

It is a high-profile global event to remember the many millions who have been killed and seriously injured on the world's roads and to acknowledge the suffering of all affected victims, families and communities -- millions added each year to countless millions already suffering: a truly tremendous cumulative toll.

This Day has also become an important tool for governments and all those whose work involves crash prevention or response to the aftermath of crashes, since it offers the opportunity to demonstrate the enormous scale and impact of road deaths and injuries, call for an end to the often trivial and inappropriate response to road death and injury and advocate for urgent concerted action to stop the carnage.

On WDR we too pay tribute to the dedicated emergency crews, police and medical professionals who deal daily with the traumatic aftermath of road crashes.

QUESTION OF THE MONTH: CAN YOU PROVIDE AN OVERVIEW OF HYDROGEN ASSOCIATIONS, OEMS, AND THE CURRENT LANDSCAPE?

Please see below for information and an overview of hydrogen associations, hydrogen fuel cell electric vehicle (FCEV) OEMs, and the state of the hydrogen market and emerging trends.

Hydrogen Associations

Please see below for information regarding national hydrogen associations in the United States.

- [Fuel Cell and Hydrogen Energy Association \(FCHEA\)](#)– "FCHEA is the leading industry association in the United States representing more than ninety leading organizations advancing production, distribution, and use of innovative, clean, safe, and reliable hydrogen energy. FCHEA is also focused on educating the public and key opinion and policy leaders on the economic and environmental benefits of fuel cell and hydrogen technologies."

- [FCHEA's Transportation page](#) - provides a general overview of commercially available FCEV models including light- to heavy-duty vehicles, off-road material handling vehicles, aviation, rail, and marine transportation.

- [Hydrogen Fuel Cell Partnership \(HFCP\)](#) – The HFCP is a national organization aimed at expanding the market for FCEVs powered by hydrogen. HFCP believes that educating the public about the benefits of electrification of transportation related to hydrogen and fuel cell technology and the accelerated development of such technologies as a critical step to addressing current energy, economic, and environmental challenges.

- [The HFCP Station Map](#) - provides daily the operational status for California hydrogen fueling stations.

- [The HFCP resource library](#) - is a hub for the latest hydrogen transportation news and reports.

FCEV OEMs, Availability, and Demand

As consumer and fleet interest grows, major OEMs have begun actively developing and producing FCEVs, although they are currently only available in select markets with available hydrogen fueling infrastructure such as California. Please refer to the [Alternative Fuels Data Center \(AFDC\) Vehicles Search Tool](#) for information on commercially available hydrogen FCEVs. You may search by vehicle type (e.g., light-duty vehicles) and by fuel (e.g., hydrogen fuel cell) to view a list of models and OEMs. Please see below for a list of current OEMs and commercially available vehicle class models and check back for updates.

Light Duty

- Toyota - [Mirai](#) (Sedan)
- Hyundai - [Nexo](#) (SUV)
- Honda - Clarity (SUV)
 - Please note, Honda has discontinued the Clarity. That said, Model Year 2021 is still available for lease, Clarity-owners are still supported, and a [new FCEV model will be release in 2024](#).

Medium Duty and Heavy Duty (HD)

- ENC - [AXES S-FC 40'](#) (Hydrogen Fuel Cell Bus)
- Global Environmental Products - [M4ZE/M4HSDZE](#) (Street Sweeper)
- New Flyer - [Xcelsior CHARGE FC 40' and 60'](#) (Hydrogen Fuel Cell Bus)

In addition, General Motors, Mercedes/Daimler, Ford, and BMW have all committed to putting FCEVs on the road in the near future. Manufacturers are also tapping into the potential for FCEVs in medium- and HD applications, where hydrogen's high energy density and fast-fueling capability show promise. FCEVs are currently available for fleet applications including transit buses, shuttle buses, and street sweepers. Some manufacturers have also begun developing Class 8 trucks powered by hydrogen, providing another emerging market for hydrogen fuel cells.

Recently, retail and logistics providers like [Amazon](#) and [Walmart](#) have committed to adopting FCEVs for transportation needs, from forklifts in

warehouses to long-haul trucking. Transit agencies across the country are also committing to purchasing hydrogen transit buses, including Pennsylvania's [SEPTA](#) and California's [Gold Coast Transit District](#).

State of the Market

For information on the international hydrogen market, you may refer to the [International Energy Agency's Global Hydrogen Review 2022](#), Transport, PDF page 39. Regarding transportation, this report states that the hydrogen demand for road transport, especially as HD trucks are deployed, has increased by 60% from 2021. The number of HD FCEVs and commercial vehicles (e.g., vans, trucks) have also increased significantly. Per the graph on PDF page 42, FCEVs Stock by Segment and Region, the United States is one of the leaders of FCEV deployment.

For information on the domestic hydrogen market, please refer to the U.S. Department of Energy (DOE) [Hydrogen Program Update: 2022 AMR Plenary Session presentation](#) for a snapshot of hydrogen production and FCEVs in the United States (slide 5), and DOE's national hydrogen strategy. Currently, hydrogen is an essential feedstock in established industries, such as the petrochemical sector. DOE has identified hydrogen as a fuel that can be utilized in hard to decarbonize sectors such as HD transport and energy storage.

For more information on fuel cell technologies and market status, please refer to DOE's latest report, the [2019 Fuel Cell Technologies Market Report](#). Further, you may refer to [FCHEA's Road Map to a US Hydrogen Economy](#) for the industry's take on how the hydrogen market can expand in the United States. FCHEA developed this report with input from 20 hydrogen related companies and organizations, including fuel producers, OEMs, and fueling station developers.

Production and Distribution

Most hydrogen used in the United States is produced at or close to where it is used—typically at large industrial sites. Although hydrogen infrastructure is commercially available, wide-scale growth of hydrogen demand as a transportation fuel will require advancements of delivery technologies to address key challenges including reducing cost, increasing energy efficiency, maintaining hydrogen purity, and minimizing leakage. Hydrogen contains less energy per unit volume than all other fuels; because of this, transporting, storing, and delivering hydrogen to point of end-use is more expensive on a per gallon equivalent basis. Further, delivery infrastructure needs and resources will vary by region, hydrogen market, and demand growth. However, because hydrogen can be produced from a diverse array of resources, regional hydrogen production can maximize local resources and minimize distribution challenges.

Please refer to the following resources for information on hydrogen production and distribution:

- [AFDC Hydrogen Production and Distribution page](#)
- [DOE Hydrogen Production page](#), and
- [DOE Hydrogen Delivery](#).

DOE established [H2@Scale](#) to advance affordable hydrogen production, transport, storage, and utilization to decarbonize the U.S. economy. This initiative includes DOE funded projects and national laboratory-industry co-funded activities to accelerate early-stage research, development, and demonstration of applicable hydrogen technologies in transport and other hard-to-decarbonize sectors. In addition, the Regional Clean Hydrogen Hubs program, [H2Hubs](#), a program funded through BIL, will create networks of hydrogen producers, consumers, and local connective infrastructure to accelerate the use of hydrogen as a clean energy carrier, including as a transportation fuel. H2Hubs includes up to \$7 billion to establish 6 to 10 regional clean hydrogen production hubs across the United States.

Fueling Stations

Please refer to the [AFDC Alternative Fueling Station Locator](#) for information on hydrogen fueling station in the United States and Canada. As of 2022, there are more than 56 public fueling stations located in California and Hawaii. Most retail

hydrogen stations are co-located at existing gasoline stations.

Per the California Energy Commission (CEC) and California Air and Resource Board (CARB) [2021 Annual Assessment of Time and Cost Needed to Attain 100 Hydrogen Refueling Stations in California](#) PDF page 27, hydrogen at public stations is selling for about \$12–\$16 per kilogram (kg). In addition, CEC and CARB have determined that stations will need to dispense at roughly \$8 per kilogram to be on par with gasoline prices, \$3.20 per gallon equivalent.

Per the California Air Resource Board (CARB) [2022 Annual Evaluation of FCEV Deployment and Hydrogen Fuel Station Network Development](#), California is leading the nation by funding the effort to build retail hydrogen fueling stations. With careful planning, the focus has been to add hydrogen fuel at existing gasoline stations covering regions in northern California near San Francisco and southern California near Los Angeles. In addition to continuing the necessary network developments in established markets, there is a significant market opportunity to prioritize development in underserved, disadvantaged communities across California, especially the San Joaquin Valley and the Inland Desert region. Work is also under way to expand hydrogen fueling locations in Hawaii and across the East coast, with other markets expected to

develop to encourage consumer demand of FCEVs. In summary, CARB considers these development efforts to give early FCEV adopters confidence so that they can drive normally and have access to hydrogen wherever they go within these regions.

In addition to public stations, there are private stations supporting fleets, with some used for demonstration or research. Mobile hydrogen fuelers, where liquefied or compressed hydrogen and dispensing equipment is stored onboard a trailer, have been deployed to support the expansion of hydrogen infrastructure. As hydrogen fueling station capacity increases, automakers have the opportunity to accelerate FCEV deployment in established and emerging markets.

According to an International Council on Clean Transportation report, [Developing Hydrogen Fueling Infrastructure for Fuel Cell Vehicles: A Status Update](#) PDF page 17, initial hydrogen stations were built at about \$2 million to \$3 million per station. Most government and industry consortium estimates suggest that the average cost will drop over time, costing closer to \$1 million per station and eventually lower yet. In 2020, DOE estimated the cost to be closer to [\\$1.9 million and dropping](#) (PDF page 2).

The availability of stations providing reasonably priced hydrogen remains a key challenge for adoption.

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!

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Executive Director/Coordinator

412-735-4114

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