PITTSBURGH REGION CLEAN CITIES

PRCC GAZETTE

"DRIVING THE WAY TOWARD ENERGY INDEPENDENCE"

Volume 5, Issue 23 August 2020

PRCC Webinars

Webinar – September 24, 2020
Time – 11:00am – 12:00 Noon
How It's Done: Installing an EV Charging Station

In just over six months in 2019, nine organizations installed nearly 100 Level 2 charging station ports as part of Duquesne Light's EV Charging Rebate Program. Join us for this moderated panel discussion to hear about lessons learned during the charging station installation process. Perspective will be shared from the charging station vendor, engineering firm, electrical contractor, and property manager viewpoint. Attendees will also learn about available financial incentives for installing EV charging stations.

This webinar is open to all, so please share with your stakeholders and include in your own newsletters, websites and communications channels.

- Event number: 132 403 5021
- Event password: DriveElectric
- Dial In Number: 1-408-418-9388
- Access code: 132 403 5021

https://duqlightevents.webex.com/duqlightevents/onstage/g.php?MTID=e14f70d5348a20e49f5b33cfa7144131f

Webinar – October 2, 2020
Time – 10:00am – 2:30 pm

Registration Link:
https://us02web.zoom.us/meeting/register/tZMsfu-oqjsoGdQemmpyGvCoA3-qoiuxoKWR

This years' event will be virtual!

PRCC is will be celebrating its 25th anniversary!

Watch the website and media accounts for additional upcoming webinars and past webinar recordings at http://pgh-cleancities.org/prcc-webinar-series/

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Calendar of Events

BOARD OF DIRECTOR MEETING SCHEDULE FOR 2020

The PRCC Board of Directors meeting schedule is as follows:

October 7, 2020 (This meeting will be virtual)

All meetings will be at:

Five Star Development Inc.

1501 Preble Ave.

Pittsburgh, PA 15233

Starting at 9:30 AM

Upcoming Events

How It's Done: Installing an EV Charging Station
September 24, 2020
11:00am - Noon

Odyssey Day Virtual webinar
October 2, 2020
10:00 am – 2:30pm

Training Classes
The PRCC is working with the National Alternative Fuels Training Consortium and the Community College of Allegheny County – West Hills Center to conduct training classes. These classes are **free** to Sustaining Members

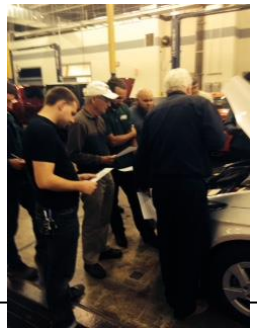
Light Duty Natural Gas Vehicles
ATE-115-WH85
1. CEU
TBD

Introduction to Hybrid Electric Vehicles Training
ATE-136-WH85
1.0 CEU
TBD

CNG Tank Inspector Prep for Certification
ATE-601-WH85
TBD

Servicing Hybrid Electric Vehicles
ATE-137-WH85
TBD

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



The Pennsylvania Alternative Fuels Incentive Grant (AFIG) Program Opens for 2020

The AFIG program will remain open continuously throughout the remainder of calendar year 2020.

All applications must be submitted online through DCED's Electronic Single Application (ESA) system. http://www.esa.dced.state.pa.us/
Submission period end date is by 4:00 PM on December 11, 2020

AFIG can fund:

- Incremental costs to purchase and/or retrofit vehicles to operate on alternative fuels.

- Costs to purchase and install the necessary fleet refueling or home-refueling equipment for bi-fuel, dual-fuel, hybrid or dedicated vehicles.

- The cost to perform research, training, development, and demonstration of new applications or next-phase technology related to alternative fuel vehicles.

New Grant Funding Limitations:

- An application for **Vehicle Purchase and/or Retrofit may not exceed $300,000**
- Eligible vehicles include but are not limited to: Dedicated RNG, LNG or CNG vehicles, liquid propane gas, hydrogen, biodiesel (blends greater than B20), and electricity; no GVWR limits**. Plug-in Hybrid Electric Vehicles are not eligible** for an AFIG Award, **only Battery Electric Vehicles, including Neighborhood Electric Vehicles, are eligible.**
- Vehicles must be purchased or converted within 12 months of the grant award date.
- **Priorities for funding:**
- 1. Zero emission vehicle (ZEV) projects
- 2. Renewable natural gas (RNG) vehicle and infrastructure projects
- 3. Projects located in or predominantly serving environmental justice (EJ) areas (https://www.dep.pa.gov/PublicParticipation/OfficeofEnvironmentalJustice/Pages/PA-Environmental-Justice-Areas.aspx)
- 4. Publicly accessible alternative fuel refueling infrastructure projects

The program changes for the Vehicle Retrofit and Purchase projects category are:

- Plug-in Hybrid Electric Vehicles are not eligible for an AFIG Award, only Battery Electric Vehicles are eligible for an AFIG award.
- Vehicle retrofits and conversions are only eligible for new vehicles.
- Extra consideration will be given to natural gas vehicle projects involving RNG

Vehicle Type		% Incremental Cost	Maximum Grant Award	
			Classes 1 & 2	Classes 3 to 7
Electric Vehicles	< 50 kWh	Up to $2,000	$2,000	N/A
	50 kWh & above	Up to $7,500	$7.500	$30,000
	100 kwh & above Excluding School & Transit Buses	100%	N/A	$40,000
	100 kwh & above School & Transit Buses	100%	N/A	$100,000
	200 kwh & above Class 8	75%	N/A	$100,000
All other Alternative Fuel (CNG, LNG, Propane, Biodiesel, Hydrogen Fuel Cell)		Up to 100%	$7,500	$40,000

You can see the 2020 PA AFIG Guidelines at : http://www.depgreenport.state.pa.us/elibrary/GetDocument?docId=3240568&DocName=2020%20ALTERNATIVE%20FUELS%20INCENTIVE%20GRANT%20PROGRAM.PDF%20%20%3cspan%20style%3D%22color:green%3b%22%3e%3c/span%3e%20%3cspan%20style%3D%22color:blue%3b%22%3e%3c/span%3e

DRIVE PA FORWARD DC FAST CHARGER PROGRAM STILL OPEN

On July 2, 2020, the PA Department of Environmental Protections opened up their DC Fast Charger Program. There is up to $1,800,000 available for reimbursement grants from the Pennsylvania Department of Environmental Protection (DEP) under the 2020 DC Fast Charging and Hydrogen Fueling Grant Program. Eligible Project Types

1. Publicly accessible DC Fast Charging projects for light-duty EVs.

2. Publicly accessible DC Fast Charging projects for light-duty EVs combined with Level 2 charging at the same location.

3. Publicly accessible hydrogen fuel cell supply equipment projects for light-duty hydrogen fuel cell vehicles.

The project period will begin upon execution of a grant agreement and end 24 months later. Projects without an executed site host agreement within 12 months of the date of the execution of the grant agreement will be subject to termination by DEP.

Application Submission Periods – The DC Fast Charging and Hydrogen Fueling Grant Program application submission period will begin upon public notice of availability and will remain open continuously through February 26, 2021. DEP will review and score applications after each submission period end date. Submission period end dates are 4:00 PM on:

- **September 4, 2020**
- February 26, 2021

For more information go to http://www.depgis.state.pa.us/DrivingPAForward/

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Wolf Administration Awards Over $2.1 Million in Grants for Cleaner Fuel Vehicle Projects to Help Improve Air Quality, Address Climate Change

Harrisburg, PA – The Wolf Administration today awarded more than $2.1 million in 2019 Alternative Fuel Incentive Grants (AFIGs) to 18 cleaner fuel vehicle projects statewide that will help improve air quality and public health and reduce greenhouse gas emissions to address climate change.

"We're committed to helping Pennsylvanians breathe cleaner air at school, in their neighborhoods, and at their workplaces and to reducing climate change by putting more cleaner fuel vehicles in use around the state," said Department of Environmental Protection (DEP) Secretary Patrick McDonnell.

Eighteen vehicle replacement projects, located in 13 counties, will put 82 cleaner fuel vehicles in use. They're expected to reduce annual greenhouse gas emissions by an estimated 1,349 metric tons per year.

The AFIG Program supports replacement of older gasoline- or diesel-fueled vehicles with cleaner fuel vehicles and fueling stations for these vehicles to reduce emissions of harmful pollutants including carbon monoxide, particulate matter, volatile organic compounds, nitrogen oxides, and carbon dioxide, a principal greenhouse gas.

Electric, ethanol, biodiesel, compressed natural gas (CNG), liquefied propane gas, and other cleaner fuels are supported. Local governments, schools, businesses, and organizations may apply for grants. DEP administers the AFIG Program under the Pennsylvania Alternative Fuels Incentive Act of 2004.

Grouped by county, the 2019 AFIG recipients are as follows:

Allegheny
- Duquesne Light Company: $20,000 to retrofit four pick-up trucks with a plug-in hybrid electric drive system.
- Noble Environmental, Inc.: $300,000 to purchase eight CNG garbage trucks.

Butler
- ProGas, Inc.: $6,500 to replace a gasoline vehicle with a propane vehicle and train six new technicians to do propane conversions.

Centre
- Centre County Recycling and Refuse Authority: $59,823 for two CNG recycling trucks.

Crawford
- Crawford Area Transportation Authority: $290,000 for eight propane and three CNG vehicles.
- Northwestern Rural Electric Cooperative Association, Inc.: $7,500 for an electric vehicle.

Delaware
- Haverford Township: $7,500 for a plug-in hybrid electric vehicle.
- Radnor Township School District: $42,500 to purchase five propane school buses.

Jefferson
- 3M Transport, LLC: $14,500 for a bi-fuel CNG vehicle.

Lehigh
- Lehigh University: $15,000 for two electric vehicles.

McKean
- Bradford Area School District: $19,000 for two propane school buses.

Lehigh
- Lehigh University: $15,000 for two electric vehicles.

McKean
- Bradford Area School District: $19,000 for two propane school buses.

Mercer
- Tri-County Industries, Inc.: $300,000 for eight CNG waste collection vehicles

Montgomery
- United Parcel Service: $300,000 to purchase 12 CNG tractors for use at their Willow Grove facility.

Philadelphia
- AAA Club Alliance: $17,335 for a propane tow vehicle.
- Philadelphia Authority for Industrial Development: $7,500 to lease an electric vehicle.

Somerset
- Seven Springs Mountain Resort, Inc.: $87,000 for five propane shuttle buses.

Westmoreland
- Noble Environmental, Inc.: $300,000 for eight CNG garbage trucks.
- United Parcel Service: $300,000 to purchase 12 CNG tractors for use at their New Stanton facility.

The Pennsylvania Energy Development Authority (PEDA) Opens

The Pennsylvania Energy Development Authority (PEDA) is pleased to announce the opening of an opportunity to apply for a **PEDA Restart Grant.**

This grant program will offer approximately $2 million to be awarded for grant requests not to exceed $250,000. PEDA is seeking applications to provide financial assistance for the completion of eligible energy projects initiated but then disrupted due to the COVID-19 pandemic (COVID-19) response, including projects that were planned prior to COVID-19 but not yet started.

Eligible projects include: clean, advanced energy projects including the development and deployment of innovative, clean, advanced and efficient technologies; the generation of alternative energy or the production of alternative fuels; or the implementation of energy efficiency/demand side projects.

Businesses conducting manufacturing or production operations related to alternative and clean energy projects in Pennsylvania are also eligible. Applicants can request funds for retroactive costs, working capital. Grant funds can only be used to support the purchase of equipment and supplies.
Full program details, including the program guidelines and application instructions are available on the DEP PEDA website. Applications will be accepted any time after the grant opening date of August 17 until the application deadline of October 2, 2020 at 4 p.m. All applications must be submitted online through DCED's Electronic Single Application (ESA) system at http://www.esa.dced.state.pa.us/.

ANNOUNCING DRIVE FOR EVs in the USA

The Pittsburgh Region Clean Cities (PRCC) and the Eastern Pennsylvania Alliance for Clean Transportation (EP-ACT)Coalition, along with 11 other Clean Cities coalitions have won an award for their proposed *DRIVE* (Developing Replicable, Innovative Variants for Engagement) *for EVs in the USA* grant. This grant is part of the 55 projects recently awarded by the U.S. Department of Energy (DOE) to Advance Innovative Vehicle Technologies.

The overarching goal of DRIVE for EVs will be to substantially increase EV adoption rates across consumer and fleet markets in 14 states. Participants include representatives from Alabama, Colorado, Florida, Georgia, Kansas, Louisiana, Missouri, North Carolina, Ohio, Pennsylvania, Tennessee, Utah, Virginia, and Wisconsin.

This award will help support the Drive Electric Pennsylvania Coalition (DEPA) efforts.

An Absorbed Natural Gas Vehicles and Fueling Solution Available

We are bringing to your attention that we are working with fellow stakeholder, Ingevity Corp., on an AFIG grant application in support of Adsorbed Natural Gas (ANG) vehicles and the related fueling solution. As background, Ingevity is a Tier 1 & 2 supplier to the domestic and global automotive industry, and a leader in sustainability with its evaporative emission solution.

The benefit of ANG's low-pressure natural gas vehicle solution is to enable the use of a low cost, small, reliable and convenient fueling solution. The result is to bring private natural gas fueling to the fleet yard, office or home, while reducing fleet operating costs, enhancing your productivity, and maximizing your corporate sustainability. Several fleets are already using ANG (e.g., SoCal Gas, Atlanta Gas & Light, Ozinga, City of Orlando).

As part of the AFIG program announced on Friday, we are preparing a grant application to fund the upfit and fueling appliance for this innovative technology with the Ford F150. We expect to also work with certain Pennsylvania-based natural gas utilities on this initiative. **The grant will fund 50% of the upfit and fueling appliance providing the potential for a 3-year ROI.**

The application will be under the "innovative technologies" category, requiring a single application aggregating all participating fleets.

We are seeing some early interest and would like to set up an informational discussion with those of you that are interested.

Please let us know as soon as possible if you're interested in knowing more.

Rprice5705@aol.com

CARB Makes Bold Move Toward Zero Emissions

By Todd Mouw, president of ROUSH CleanTech

In June, the California Air Resources Board (CARB) unanimously approved the Advanced Clean Truck Regulation. This bold step will accelerate California's transition to zero-emissions in all commercial fleet sectors. It's a historic and ambitious goal, and achieving it will be challenging.

The Advanced Clean Truck Regulation is a holistic approach to transition away from medium- and heavy-duty diesel vehicles to electric zero-emissions vehicles beginning in 2024.

The environmental goals are lofty. California faces challenging mandates to reduce air pollutants to protect public health and to meet state climate change targets. The mandates include:

- Meeting certain goals like federal health-based ambient air quality standards.
- Reducing greenhouse gases 40% by 2030, then 80% by 2050.
- Cutting petroleum use in half by 2030.

The regulation's projected economic benefits are substantial. The state expects to see $8.9 billion in health savings from 2020 to 2040, with $282 million added to state GDP by 2040. It also projects $1.7 billion in avoided carbon dioxide emission and $5.9 billion in industry savings by 2040.

In the coming months, CARB will release complementary regulations. One of these supporting actions will set a new limit on nitrogen oxide (NOx) emissions. During the transition to electric trucks, it requires new trucks still operating on fossil fuels to include the most effective exhaust control technology like ROUSH CleanTech's 0.02g ultra-low NOx propane engine.

If you're not in the Golden State, why should you care? Traditionally, many other states closely monitor California regulations and adopt some version of the same rules and regulations. In fact, 15 states and Washington, D.C., have already signed an MOU to accelerate bus and truck electrification.

The future has never been brighter as companies leverage even more capabilities to respond to customer demands, solve global challenges, and meet current and future regulations.

DEP Provides $5.1 Million in Volkswagen Settlement Funding to Cleaner Fuel Transportation Projects for Healthier Air Quality

Harrisburg, PA – The Pennsylvania Department of Environmental Protection (DEP) announced today it has awarded $5,118,502 in Driving PA Forward grants to 13 cleaner fuel transportation projects that will improve air quality in communities around the state. The funding comes from the Commonwealth's share of the national settlement with Volkswagen Group of America for cheating on U.S. Environmental Protection Agency (EPA) emissions tests.

"By replacing old diesel engines, these Driving PA Forward projects will lower air pollution levels to help Pennsylvanians breathe healthier air while they're at home, at work, and in transit in high-traffic, high-population areas," said DEP Secretary Patrick McDonnell.

Located at shopping centers, ports, warehouses, and other business sites, the projects will install 16 fast charging stations for electric vehicles (EVs); replace 16 pieces of old diesel port and airport equipment with all electric versions; and replace 46 old diesel trucks with new, clean diesel ones. Eleven of the projects are located in Environmental Justice areas, defined by DEP as communities where 20 percent or more individuals live in poverty and/or 30 percent or more of the population are residents of color according to the U.S. Census.

Over their lifetimes, the projects are expected to prevent emission of approximately 206 tons of nitrogen oxide, 116 tons of carbon monoxide, 36.5 tons of fine particulate matter, and 15.5 tons of hydrocarbon. These pollutants contribute to ground-level ozone (smog), which the EPA has shown has multiple negative health impacts, especially for children, older people, people with lung diseases such as asthma and emphysema, and those who work or are active outdoors.

In cities and other areas with air pollution problems, emergency department visits for asthma episodes increase when air quality is very poor, according to the Pennsylvania Department of Health.

The 13 Driving PA Forward funded projects also will prevent emission of 13,000 tons of carbon dioxide, the leading cause of climate change.

"As we work to improve air quality and protect Pennsylvanians' health, we're also working to address climate change, advancing Pennsylvania on the road toward a future of zero emissions transportation," said Secretary McDonnell.

Driving PA Forward launched in 2018 with the goal of permanently removing 27,700 tons of nitrogen oxide from the air in Pennsylvania by funding cleaner fuel transportation projects with the Commonwealth's $118.5 million share of the Volkswagen settlement. DEP has awarded over $13.6 million for 37 grant projects and approved over $13.4 million in project rebates to date.

The following projects received grants in this round of awards:

Multi-county

- R+L Transfer, Inc.: $275,580 to replace 12 old diesel tractors with 12 new clean diesel tractors at its freight shipping sites in Lebanon, Lebanon County; Pittston, Luzerne County; and Hatfield, Montgomery County.
- SYSCO Leasing, LLC: $598,500 to replace 30 old diesel heavy-duty trucks with 30 clean diesel heavy-duty trucks at its food and food-related product warehouse and distribution centers in Harmony, Butler County; Harrisburg, Dauphin County; and Philadelphia.

Allegheny County

- Giant Eagle: $490,129 to replace two diesel yard trucks with electric yard trucks at its warehouse on Beechnut Drive in Pittsburgh.

Dauphin County

- Pennsylvania Department of General Services: $468,419 to replace four old diesel Class 8 trucks with four clean diesel trucks at its Harrisburg site.
- Rail Management Services LLC: $1,047,599 to replace five old diesel yard hostlers with five electric yard hostlers at sites in Harrisburg and Swatara Township.

Montgomery County

- Charwash LLC: $253,575 to install two fast chargers for EVs at a gas station and convenience store at 2595 Maryland Road in Willow Grove.
- EVgo Services LLC (three projects): $195,231 to install two fast chargers for EVs for public use at Bala Cynwyd Shopping Center; $191,388 to install two fast chargers for public use at Brixmor Plymouth Square in Conshohocken; and $194,794 to install two faster chargers for public use at Wynnewood Shopping Center in Wynnewood, which has one of the highest concentrations of registered EVs in the state.

Philadelphia County

- EVgo Services LLC: $275,339 to install four fast chargers for EVs for public use at Sullivan Progress Plaza.
- Philadelphia Regional Port Authority: $435,960 to replace two old diesel terminal tractors with electric ones at the Port of Philadelphia.
- U-Go Stations, Inc.: $375,000 to install four fast chargers to replace an existing charger that gets heavy use at 1600 South Christopher Columbus Boulevard in Philadelphia. The project will include an energy storage system to help with peak demand times and provide backup in case of power failure.
- United Airlines: $319,987 to replace seven old diesel cargo handlers and equipment tugs with all electric versions of this ground support equipment at Philadelphia International Airport.

ERIE METROPOLITAN TRANSIT AUTHORITY awarded federal grant for CNG Buses

August 6, 2020. The Erie Metropolitan Transit Authority (EMTA) has been awarded a $1.46 million grant from the U.S. Department of Transportation, U.S. Senator Pat Toomey (R-Pa.) announced Thursday.

The grant will go toward investing in clean, safe and modern fixed bus routes designed to meet Erie's growing environmental transit demands by introducing more zero-emission buses to EMTA's fleet.

."Modernizing public transportation in Erie will make travel in the city easier and improve the quality of life," said Sen. Toomey, who wrote in support of EMTA back in March. "I was happy to support Erie's application and look forward to seeing the results of this significant investment."

Jeremy Peterson, CEO of the Erie Metropolitan Transit Authority, says the grant will enable EMTA to acquire additional compressed natural gas (CNG) buses.

The 2020 Fuel Economy Guide is Now Available!

The 2020 Fuel Economy Guide provides detailed fuel economy estimates for MY 2020 light-duty vehicles, along with estimated annual fuel costs and other information for prospective car buyers. The electronic version of the Guide is available online at https://fueleconomy.gov/feg/pdfs/guides/FEG2020.pdf

Pitt Ohio is testing Electric Yard Jockey

In early to mid September Pitt Ohio has been looking into elctric transportation projects to help reduce the use of petroleum based fuels. They have been looking at how they could do this in many of their fleet options including their yeard jockeys that are used at their depots to move trailers throughout their depots.

Pictured below is the Orange EV Class 8 yard jockey at the Pitt Ohio's Harmer facility.

To see a video of this yard jockey click here https://youtu.be/F5AkmVL-7Aw

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University of Pittsburgh, Enterprise expand partnership

BY MELINA DRUGA | SEPTEMBER 8, 2020 | COMPANIES

The University of Pittsburgh and Enterprise Fleet Management recently announced they are expanding their existing 20-year partnership to upgrade the university's fleet with alternative energy vehicles.

The university's goal is to be carbon neutral by 2037. To help achieve this goal, it will lease 268 electric and hybrid vehicles from Enterprise Fleet Management.

The first delivery will include 32 new passenger vans, cargo vans, and pickup trucks for the university's facilities department, faculty, and staff.
Enterprise Fleet Management will provide routine vehicle maintenance and will determine the best time for replacing vehicles.
"Enterprise has been a reliable partner for many years, and we are excited to expand our relationship by having them manage all aspects of our fleet needs," Kevin Sheehy, University of Pittsburgh assistant vice chancellor of auxiliary operations and finance, said. "Our partnership with Enterprise Fleet Management will allow the university to reduce overhead costs while also improving our fleet to achieve our sustainability goals."
The agreement is forecasted to save the university $750,000 over the next five years.
Enterprise Fleet Management is an affiliate of Enterprise Holdings, the world's largest car rental provider.
The university's sustainability plan also includes the use of renewable energy sources, and increasing the efficiency of buildings.

What information is available on electric school bus operations in cold weather?

In general, electric buses tend to experience a decrease in range in cold weather. Other factors, such as terrain and driving behavior, may also negatively impact range. Auxiliary power units and heaters can be used to provide heat to the cabin without relying on battery power, which would further decrease range (https://afdc.energy.gov/conserve/idle_reduction_bus.html). Other techniques such as relying on regenerative braking (https://afdc.energy.gov/vehicles/electric_basics_hev.html) can help recover lost battery range. Fleets can also work with manufacturers to address impacts of cold weather on electric buses, see below for an example. Please note that we cannot verify the accuracy of non-government resources.

We recommend referring to the Massachusetts Department of Energy Resources *Electric School Bus Pilot Project Evaluation* (https://www.mass.gov/files/documents/2018/04/30/Mass%20DOER%20EV%20school%20bus%20pilot%20final%20report_.pdf), which details electric school bus operation in cold-weather. An update to the operation of these school buses will be available in the Alternative Fuels Data Center Case Studies database (https://afdc.energy.gov/case).

The Massachusetts school bus pilot program is also featured in the U.S. Public Interest Research Group Education Fund's *Electric Buses in America: Lessons from Cities Pioneering Clean Transportation* paper (https://uspirg.org/sites/pirg/files/reports/ElectricBusesInAmerica/US_Electric_bus_scrn.pdf). Also detailed in this paper is the lessons learned from the Chicago Transit Authority's (CTA) electric buses, which are recognized as one of the first trials of electric buses in extreme climates. This excerpt can be found beginning on page 20:

> "A particular worry was the reliability of the lithium-ion batteries, which have had performance problems in extreme temperatures. In anticipation of these issues, CTA worked with New Flyer to incorporate various safeguards to enhance the vehicles' reliability prior to the rollout. These included higher quality rechargeable batteries designed to last the full 12-year lifespan of the bus, optional diesel-fired Chicago's first all-electric buses. heaters (which consume some fossil fuel, but a minimal amount) to help ensure optimum cabin temperature without draining the batteries and thus maintain the vehicles' range in extreme cold, and a continuous battery management system that automatically disengages a battery cell exhibiting unusual behavior to avoid damage to any other battery cells."

Further, please see the Center for Transportation and the Environment's paper *An Analysis of the Association between Changes in Ambient Temperature, Fuel Economy, and Vehicle Range for Battery Electric and Fuel Cell Electric Buses* (https://cte.tv/wp-content/uploads/2019/12/Four-Season-Analysis.pdf). This paper evaluates the relationship between temperature and fuel economy for zero-emission buses from eight transit agencies.While this paper is not specifically about school buses, the executive summary on page 3 suggests that electric buses lose efficiency in cold weather:

"The results of the analysis showed that for temperature drops from 50-60° to 22-32° Fahrenheit, battery electric buses lost around 32.1% efficiency."

PRCC Sustainable Members

PRCC Membership Levels Information

Membership Options: Individual- $150 Nonprofit- $300 Bronze- $500 Silver- $1000 Gold- $2000 Platinum/Sponsor- $4000+

To find out more on membership levels go to:
http://www.pgh-cleancities.org/membership/

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

UNITED WE STAND – SEPTEMBER 11, 2001

Our deepest sympathy and heartfelt thoughts go out to our fellow Americans during this time of crises. We will continue to stand strong and united in our support of the men and women protecting our country's interests.

Please come visit our PRCC Web Site:

www.pgh-cleancities.org

. Contribute Your News!

In trying to get the news of successes we have in our area. Please feel free to contact Rick Price, Executive Director/Coordinator at 412-735-4114 or at coordinator@pgh-cleancities.org.

Learn more about Clean Cities at *cleancities.energy.gov*, and learn how to get involved with the Pittsburgh Region Clean Cities coalition at www.pgh-cleancities.org