

Clean Cities Now

Past, Present, Future:



Propane proves
dependable over the long term



Inside:

2013: One Year—One Billion and Beyond

Northern Colorado Cements Success With Partnerships

Braun's Express Celebrates Petroleum Reduction

Welcome

We hope you enjoy this latest edition of Clean Cities Now, the official newsletter of the U.S. Department of Energy's Clean Cities program. This biannual publication showcases program activities, accomplishments, and resources and highlights the successes of Clean Cities' nearly 100 coalitions as they work to reduce petroleum use in transportation.

We're pleased to announce a landmark achievement. In 2013 Clean Cities and its coalitions helped cut the use of petroleum-based fuels by more than a billion gallons. See page 3 for more details on this achievement.

We appreciate hearing comments from readers. Let us know what you think at cleancities@nrel.gov.



Dennis A. Smith

Dennis A. Smith
National Clean Cities Director



Linda Bluestein

Linda Bluestein
National Clean Cities Co-Director

Photos (left) from DOE, NREL 17030; (right) by Trish Cozart, NREL 17004

Award Winners



Carl Lisek, left, South Shore Clean Cities Coordinator, and Lorrie Lisek, Wisconsin Clean Cities Coordinator, were selected by the Society of Innovators of Northwest Indiana as the September 2014 innovators of the month.

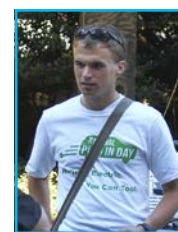
Program Resources

- Use the new **CNG Animation** (afdc.energy.gov/vehicles/cng_tank_animation.html) to find out how ambient temperatures and fill speeds affect the amount of natural gas you can fit in your tank.
- The revamped **Alternative Fuel and Advanced Vehicle Search** (afdc.energy.gov/vehicles/search) makes it easier than ever to browse alternative fuel vehicle options.

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Program News

One Year—One Billion and Beyond

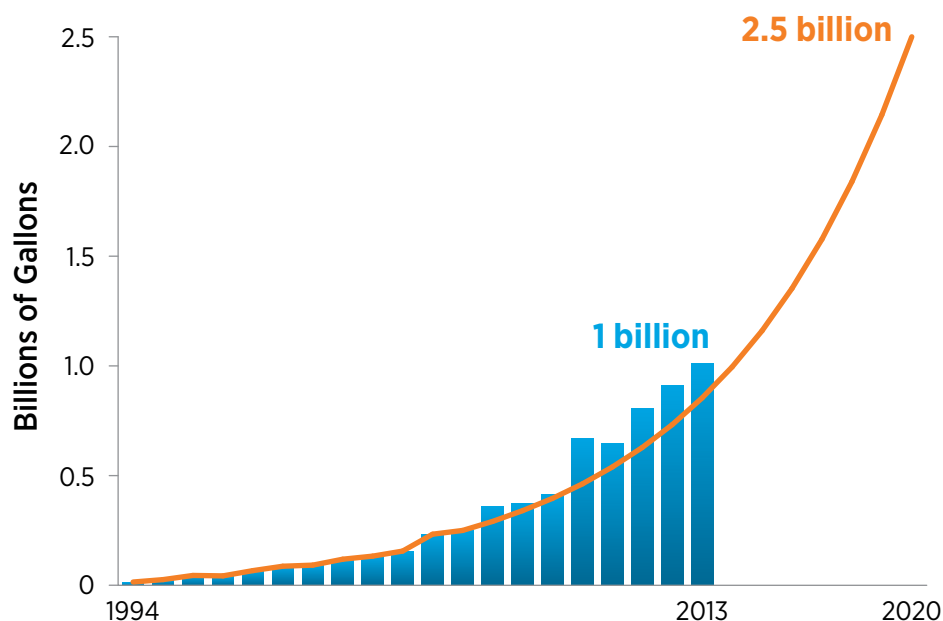
In 2013, Clean Cities hit a major milestone. For the first time, the program and its stakeholders reduced U.S. petroleum consumption by more than 1 billion gallons in a single year.

Clean Cities' efforts in 2013 also prevented the production of 7.5 million tons of greenhouse gas emissions, which is equivalent to removing 1.5 million cars from American roads.

In addition to minimizing America's oil dependency and our transportation system's environmental footprint, these numbers demonstrate that Clean Cities coalitions are building on their strengths and expanding their reach. With their 14,000 stakeholders, coalitions inventoried 475,000 alternative fuel vehicles in 2013. These vehicles and the fuel they used accounted for 39% of 2013's petroleum displacement. While the largest number were flex fuel vehicles (FFVs), compressed natural gas vehicles displaced the most petroleum.

Electric drive vehicles also experienced substantial growth in 2013. While hybrid electric, plug-in hybrid electric, and all-electric vehicles only accounted for 7% of petroleum displacement, they displaced 39% more petroleum than in 2012. With more coalitions improving community readiness for plug-in electric vehicles, we expect these numbers to continue to rise.

Coalitions kept up the pace when it came to educating their stakeholders and the public. Coordinators conducted more than 2,000 outreach, education, and



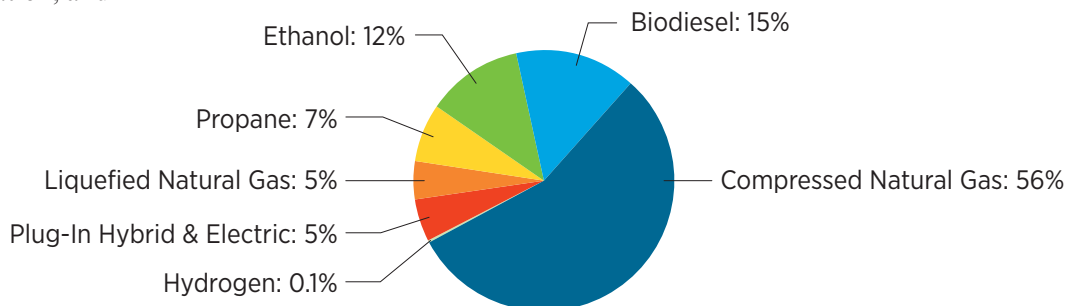
Clean Cities' 2013 petroleum-reduction milestone puts the program ahead of schedule for meeting its goal of reducing U.S. petroleum consumption by 2.5 billion gallons per year by 2020. *Source: Clean Cities 2013 Annual Metrics Report*

training activities that reached about 120 million people. Fleet managers were a major focus of these efforts, with coalitions reaching out to private, government, transit, and utility fleets.

While these accomplishments are impressive, they are just one step towards Clean Cities' major goal of reducing 2.5

billion gallons of petroleum annually by 2020. The 2013 petroleum reduction was 13% higher than 2012 efforts, putting the Clean Cities program ahead of schedule for reaching that goal.

From 15 million gallons in its first year to a cumulative 6.4 billion now, Clean Cities is shifting transportation away from petroleum one vehicle, fleet, and community at a time. ■



Petroleum displacement by fuel type in 2013. *Source: Clean Cities 2013 Annual Metrics Report*

Fleet Experiences



IdleFree battery-powered auxiliary power units (APUs) in Braun's Express trucks provide drivers various comfort features without running the vehicle's engine. *Photo from Braun's Express, NREL 32059*

Braun's Express Celebrates 10 Years of Petroleum Reduction Success

Braun's Express aims for efficiency in trucking. Their less-than-truckload (LTL) model combines many small shipments into full trailer loads to provide cost savings and efficiency for their customers. So, it is no surprise that Braun's has found success with other petroleum reduction strategies as well.

Braun's Director of Strategic Initiatives, Stephen Normandin, and his team have left no stone unturned when it comes to fuel efficiency. Since 2004, the fleet has implemented a variety of technologies and strategies, including idle reduction, hybrid electric vehicles (HEVs), telematics, and driver training. These strategies have increased overall fuel economy by an estimated 1 mile per gallon (MPG) across Braun's 185 tractor fleet. This equates to 1,500 gallons of fuel and \$6,000 saved per truck per year, and more than 10,700 tons of carbon dioxide (CO₂) emissions avoided annually across the fleet.

To ensure efficiency, Braun's purchases SmartWay-certified tractors and trailers. The fleet upfits each vehicle with select technologies, depending on its primary use and location. While Braun's is always willing to try new approaches, the highest priority is demonstrated payback period, followed by overall cost of the equipment and ease of maintenance and repair.

Just the Numbers: Braun's Express

Fleet size: 185 tractors, 400 trailers

Overall savings from petroleum reduction

methods: 1,500 gallons of fuel and \$6,000 per truck per year

Annual emissions reductions: More than 10,700 short tons of CO₂

Auxiliary power unit fuel economy

improvement/payback: 0.88 MPG/1 year

Hybrid electric truck fuel economy

improvement: 2.82 MPG

Idle Reduction: The Key to Long-Haul Efficiency

Headquartered in Hopedale, Massachusetts, Braun's operates up and down the U.S. East Coast. One of Braun's primary trucking routes is between their Georgia and Massachusetts warehouses. Along the way, the company has four terminals where drivers can stop to load and unload products and satisfy their mandatory rest periods. The 60 sleeper-cab trucks that travel along this route are equipped with IdleFree battery-powered auxiliary power units (APUs), which allow drivers to have heated and cooled air and other comforts, such as electricity for laptop computers, without running the vehicle's engine.

For power, the trucks can plug in to electrified parking spaces (EPS) installed at the company's terminals and one additional rest stop along the route. According to data Braun's has collected, the APUs improve overall fuel economy from 5.87 MPG to 6.75 MPG and have a payback period of less than one year. In addition, the promise of added comfort in the cab helps the company recruit and retain top drivers.

Hybrid Electric Trucks: A Solution for Local Delivery

Following its success with idle reduction, Braun's began looking for technologies to improve efficiency in its local delivery fleet. Once again capitalizing on the opportunities available through Massachusetts Clean Cities, the fleet applied for and was awarded a grant through the Massachusetts Department of Energy Resources for a hybrid electric straight truck, or delivery truck, in 2009. This HEV has yielded a 31% fuel economy improvement, which equates to an average fuel savings of \$4,000 per year. *Photo from Braun's Express, NREL 32060*



Through its involvement with Massachusetts Clean Cities, Braun's connected with HDM Systems, a company that manufactures advanced power electronics for battery applications. The fleet installed this system in two trucks to extend the life of battery-powered APUs. Using Massachusetts Clean Cities to make a connection with a local equipment provider, Braun's then installed SBM Solar's proprietary solar equipment on the same two trailers' roof fairings to provide additional auxiliary power. Normandin estimates that the energy collected by the solar technology alone provides air conditioning for six to eight hours, depending on the weather. All 185 of the fleet's tractors are also equipped with automatic shutdown technology to prevent the vehicles from idling for long periods.

"The fuel savings technologies that Braun's has researched and adopted under the leadership of Stephen Normandin are an excellent example of how a fleet can significantly reduce

petroleum consumption," Massachusetts Clean Cities Coordinator Steve Russell said. "As a Clean Cities stakeholder, Braun's is a leader in staying on top of the latest technologies."

Fuel-Saving Parts and Equipment: Improving Aerodynamics

Technologies that improve a vehicle's aerodynamics can provide significant fuel economy improvements. Braun's has demonstrated this through the use of aerodynamic bumpers and mirrors, truck cab extenders, tractor side skirts, slotted mudflaps, and extensions on the rear of the trailer. In addition, the fleet uses wide-base tires, sometimes called super singles, and automatic tire inflation systems to ensure efficiency. All of the fleet's trucks have at least one of these technologies on board.

Telematics: The Key to Driver Education

Given Braun's significant investment in fuel-efficient technologies, it was important for Normandin and the

fleet team to be able to track improvements and ensure that driver behavior changes complement the technology. Braun's selected PeopleNet's PerformX driver and vehicle evaluation tool for this purpose and uses the technology to track overall fuel economy, speed, and idle times. The result is a scorecard that ranks drivers by their fuel economy performance. "Finding out the real total cost of ownership and the real return on investment of each strategy is the biggest challenge," Normandin said. "Manufacturers and salespeople give you theoretical or ideal numbers, but they rarely factor in things like expected maintenance costs. It is important to use onboard computers like PeopleNet to collect data and factor in all costs to make sure you are basing your decisions on real-world data."

Braun's makes the information provided through telematics available to drivers, showing each how they compare to their peers. This data helps motivate drivers to be more efficient. The fleet also holds periodic driver training and plans to increase the frequency of these trainings in the future. Braun's also plans to roll out a fuel economy bonus program for its drivers.

Earning Accolades and Educating Others

Braun's diverse petroleum reduction portfolio has earned the company accolades from the U.S. Environmental Protection Agency ("2010 Business Environmental Merit Award"), *Fleet Owner* magazine ("Green Fleet of the Month"), Mack Truck's *Bulldog Magazine*, and *Fleet Equipment* magazine. In addition, Normandin has been invited to speak on idle reduction at a Granite State Clean Cities' stakeholder meeting. "Clean Cities was a big part of my early exploration into petroleum reduction technologies. By attending Clean Cities meetings I learned a lot about what is available to companies like ours," Normandin said. As the company explores additional petroleum reduction strategies in the future, it will continue to work with Clean Cities to learn and make these connections. ■

Feature

Propane Rolls on as Reliable Fleet Fuel

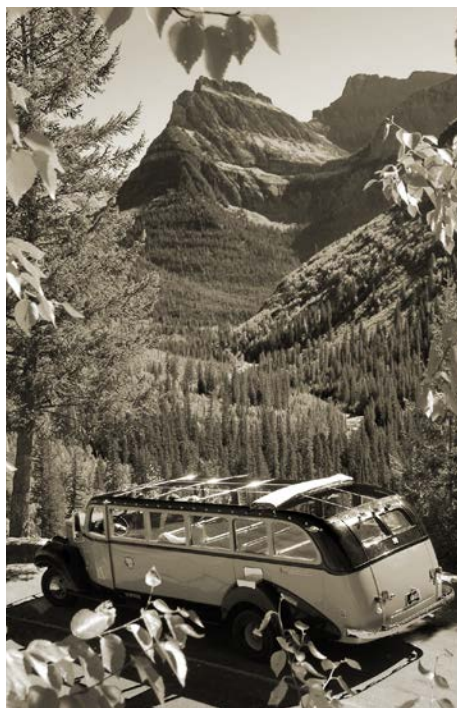
A growing number of fleets are choosing propane

It might seem that multi-billion dollar companies and local school districts share few business interests, but organizations large and small are faced with the challenges of stretching budgets and making their fleets “greener.” Now, more and more are finding that propane helps them accomplish both goals.

Also known as liquefied petroleum gas (LPG), propane as a transportation fuel has roots that go back nearly a century. In recent years, however, its reputation as a top fuel pick for fleets has gained traction. This is largely because of fuel injection system advancements and more vehicle options available in the marketplace.

Adams 12 School District in Thornton, Colorado, is just one of hundreds of school districts taking advantage of propane-powered buses. After arriving in 2005, Transportation Director David Anderson began developing the district’s alternative fuels program, which would include a pilot project with 12 Blue Bird Vision propane buses equipped with Ford 6.8L V10 engines and Roush CleanTech fuel systems.

“In my previous position as the fleet manager for Cherry Creek Schools, also in Colorado, we developed an alternative fuels program for our buses as a way to save money and clean up the air and environment for our students. When I arrived at Adams 12, we wanted to start a similar project,” Anderson said. “Our first purchase was a diesel hybrid bus, and it was very successful. So, when Blue Bird came out with a propane-powered bus, everyone agreed that it was something we should try.”



Anderson said the final decision for choosing propane came down to the infrastructure costs.

“We evaluated costs and found that we could install our entire propane station infrastructure, including a card reader system, for less than \$50,000.”

In 2011, Anderson secured three buses and in 2012, nine more. As of August 2014, the buses have traveled 191,000 miles, averaging about five miles per gallon. Although propane buses typically experience about a 10% decrease in fuel economy compared to conventional buses, Anderson found that propane’s lower fuel cost easily offset the fuel economy loss. In addition to

Adams 12 School District in Thornton, Colorado, has successfully added 12 Blue Bird Vision propane buses to their fleet.

Photo by Dennis Schroeder, NREL 31349

The “Red Jammer” buses at Glacier National Park have been running on propane for more than a decade.

Photo from Glacier National Park, NREL 27574

these savings, Anderson notes that the buses have had lower maintenance costs and have become a favorite among bus drivers and the district alike. Spurred by the success of the pilot project, Anderson wants to secure funding for an additional 10 propane buses this year.

The fact that hundreds of school bus fleets have chosen propane is a testament to how successful it’s been in this particular niche. A case study recently released by Argonne National Laboratory examined five fleets (a total of 110 buses) and found that some of the school districts saved nearly 50% on fuel and maintenance and recouped the incremental costs of the vehicles and infrastructure within three to eight years (afdc.energy.gov/uploads/publication/case-study-propane-school-bus-fleets.pdf).

One added benefit that all fleet managers and drivers can appreciate is propane’s cold-weather performance. Because the fuel is more easily vaporized at low temperatures, propane-fueled vehicles are able to avoid the cold-start problems inherent with traditional liquid fuels.

Historical Success Feeds Next-Generation Technologies

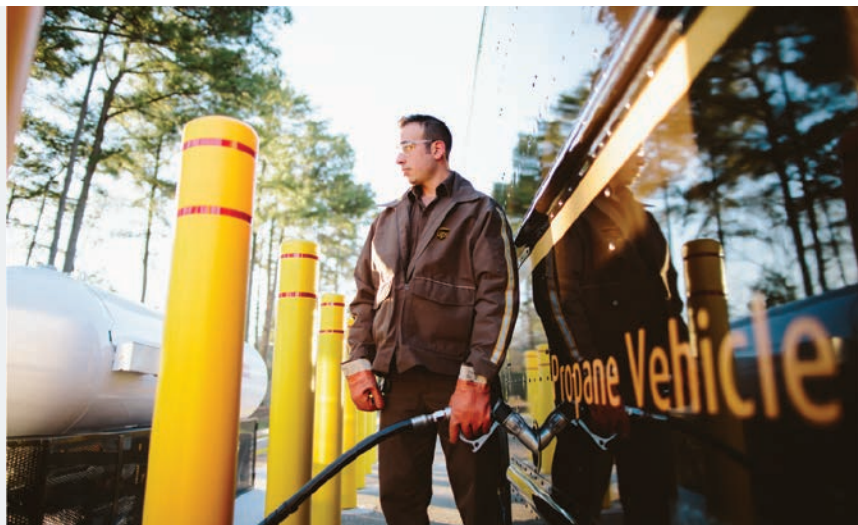
Propane has a long history as an automotive fuel. Experiments with propane began around 1910, and some innovative California fleets were operating on it by the 1920s.

From the 1970s into the 21st century, the number of vehicle offerings from manufacturers and conversion companies ebbed and flowed. There was steady adoption during this time, but the limited number of available vehicles limited progress. The market has shifted significantly in recent years, however, partly because of increasing vehicle options and technology investments from many organizations.

One such investment was made by the Propane Education & Research Council (PERC). In March 2014, United Parcel Service (UPS) announced a \$70 million initiative. Under the plan, and with PERC's assistance, UPS will add 55 propane fueling stations and purchase 1,000 new Freightliner MT-45 vans equipped with 6.0L propane engines by Powertrain Integration and LPI fuel systems by CleanFUEL USA. The UPS fleet has included propane-fueled vehicles since 1980, but the new investment will help the company expand its U.S. fleets and push well beyond the 900 propane-powered vehicles it currently operates in Canada.

PERC also invested in the development of the Freightliner S2G chassis equipped with an 8.0L propane engine. The chassis/engine setup was initially designed for a bobtail propane delivery truck and the C2 Thomas Built Bus, but it is also well-suited for box, flat bed, crane, and beverage trucks, as well as shuttle buses.

Another significant advancement has been in fuel-delivery technology. Originally, propane vehicles utilized a vapor pressure system to mix vaporized propane with combustion air in the engine. This typically produced lower fuel efficiency. In newer systems, liquid propane is delivered directly into the engine cylinder or intake port. The result is improved engine performance and efficiency.



In 2014, UPS added 1,000 propane package delivery trucks to its U.S. fleet and installed 55 company fueling stations. The UPS fleet has included propane-fueled vehicles since 1980. *Photo from UPS*



Photo by Dennis Schroeder, NREL 31346

Fleets Find Propane Vehicles Fit the Bill

This is not to say that propane is only a good fit for school bus fleets, or that it's a new option. In fact, one Clean Cities partner traces its interest in propane back to the oil crisis of the 1970s. When the Middle East oil embargo resulted in long lines at gas stations across the United States, Schwan's Home Service (a National Clean Fleets Partner) began using propane in its home-delivery vehicles. Because of this early success, Schwan's has continued its commitment and has become one of the country's biggest proponents of using propane-fueled vehicles. Today, Schwan's operates 3,300 propane delivery trucks

nationwide. Part of the company's success has come through eliminating price risk via fuel cost hedging, a practice that allows the company to lock in propane prices for months at a time. This has resulted in an estimated annual savings of \$30 million.

Infrastructure Improvements and Price Competitiveness

According to the Alternative Fuels Data Center (AFDC) website, there are more than 3,000 propane stations in the United States.

Propane infrastructure can also be relatively straightforward to install and operate. However, the cost to

install a fueling station can vary widely depending on several variables. To get a better understanding of the variables and typical installation costs, see the document, "Costs Associated With Propane Vehicle Fueling Infrastructure" (afdc.energy.gov/uploads/publication/propane_costs.pdf). Fleets can stabilize their fuel costs through long-term contracts with a fuel provider. However, it's important to plan ahead and negotiate these agreements in advance to avoid price fluctuations and ensure fuel availability.

A Bright Future for Propane

Propane's newfound momentum is apparent in many sectors. In 2013, Clean Cities coalitions and their stakeholders reported 36,000 propane vehicles—

See "Propane" on p. 12 >

Coordinator Profile

Partnerships Cement Long-Term Success for Northern Colorado Duo

In a state best known for its jagged Rocky Mountain peaks, it's hard to imagine there is also a vast swath of flat grasslands in northeastern Colorado. Weld County, the third-largest county in the state, is best known as one of the nation's richest agricultural counties. It also holds claim as a top producer of oil and natural gas, operating 40% of all wells statewide. Naturally, this creates "fertile ground" for deploying natural gas vehicles.

Sheble McConnellogue and Maria Eisemann, coordinators of the Northern Colorado Clean Cities Coalition (NCCC), agree there have been distinct advantages when it comes to persuading stakeholders to use alternative fuels. Weld County's copious natural resources and an availability of state grants have provided them with an edge.

"The state grants in Colorado have helped build momentum and interest in compressed natural gas (CNG) because of its abundance in northern Colorado," said McConnellogue, who has been with the coalition since its inception 18 years ago. "We make it a point to share the facts, successes, and challenges associated with each alternative fuel so fleets are able to make a smart, informed choice."

Making Lemonade from a "Nonattainment Area" Designation

Following a 2006 U.S. Environmental Protection Agency (EPA) designation as a nonattainment area, Weld County became eligible for federal Congestion Mitigation Air Quality (CMAQ) transportation funds.

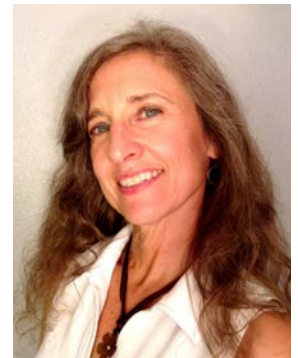
In 2009, in an attempt to "make lemonade from lemons," NCCC teamed up with the public and private sectors to establish the Weld County Natural Gas Coalition (WCNGC). The WCNGC's mission became twofold—to improve

air quality in the region and create an economic driver (by building fueling station infrastructure throughout the county and converting area fleets to natural gas). That's when things really heated up for McConnellogue and Eisemann, who were tapped to provide education, support, and expertise to accomplish the WCNGC mission.

Since its founding, the WCNGC has funded the construction of 4 public CNG fueling stations along Weld County's major transportation corridor, as well as the conversion of 62 vehicles to CNG and 9 to liquefied natural gas. The organization has also worked with several municipalities, fire districts, and school districts to convert and purchase CNG vehicles as part of its fleet replacement program. Along with the economic growth created from Weld County's natural gas production, these efforts have played a role in improving air quality and decreasing unemployment in the area.

With the help of the NCCC members, the Weld County fleet saved more than 40,000 gallons of petroleum and averted 6,443 tons of greenhouse gas (GHG) emissions in 2013 alone.

"The Clean Cities partnership was integral and vital to making everything happen, and they continue to be a great partner and resource," said Weld County Commissioner Barbara Kirkmeyer. "The educational and informational forums Sheble and Maria lead are key to helping the private sector understand how making the switch can also make sense for their bottom line."



Sheble McConnellogue (top left) and Maria Eisemann (top right), coordinators of the Northern Colorado Clean Cities Coalition, have been instrumental in educating their community about installing fueling infrastructure and converting fleets to natural gas. Bottom photo from Weld County, NREL 32058

Energy Coaching to Expand Education

Armed with lessons learned from working with the WCNGC and project funding from the U.S. Department of Energy and the Colorado Energy Office, McConnellogue and Eisemann have expanded their educational efforts. As part of the statewide pilot project Refuel Colorado Fleets, the NCCC leaders now offer "Energy Coaching"—free technical assistance to fleets, fuel providers, and auto dealers—in four northern Colorado counties. Energy Coaching is intended to accelerate the adoption of alternative fuels, including propane, CNG, E85, biodiesel, and electricity.

"When we engage with communities, our goal is to educate local fleets about the benefits and incentives that are currently available in Colorado, and help them identify the best alternative fuel for their fleet," Eisemann said. "It's easier to do that when we can point to Weld County as a resource and a success story." ■

Coalition News



NORTH CAROLINA

Bill Eaker

Land of Sky Clean
Vehicles Coalition

cleanvehiclescoalition.org

Clean Cities efforts have helped open four public-access CNG stations in Asheville, North Carolina, since 2005. *Photo Bill Eaker, NREL 32063*



Carolina Blue Skies Initiative Clears the Air for More Than a Decade

Located in the mountains of western North Carolina, the city of Asheville has a long history of greening its fleet. Starting in 2003, the city acquired low-speed electric vehicles and began converting some of its other vehicles to alternative fuels. The first of four public-access compressed natural gas (CNG) stations in the area opened in 2005. Soon after, the city acquired four CNG sedans and five CNG pickups for its water, public works, and fire departments. In 2006, the city added gasoline-electric hybrids to its fleet and, in 2007, started filling its gasoline and diesel vehicles with ethanol and biodiesel.

Most recently, the Asheville Transit System purchased seven diesel-electric hybrid buses, and the city purchased six CNG refuse trucks and infrastructure. The city started fueling its diesel vehicles with B20 and has purchased a plug-in hybrid that charges at a solar-integrated charging station.

“Increasing alternative fuel use reduces emissions and supports the city’s municipal carbon footprint reduction goal of 80% by 2050,” City Fleet Manager Mark Stevens said. “By diversifying the kinds of fuels we use, we’re also enhancing our energy security and

reducing the impact of potential fuel shortages such as those experienced during past storm events.”

In 2013 alone, the city’s CNG vehicles reduced greenhouse gas emissions by about 41 tons. They also cost about 40% less to fuel than comparable conventional vehicles.

Also during this decade, the Asheville-based Land of Sky Clean Vehicles Coalition (as part of the Carolina Blue Skies and Green Jobs Initiative)

See “Land of Sky” on p. 10 >



CENTRAL NEW YORK

Barry Carr

Clean Communities
of Central New York

cc-cny.com

Clean Cities Coalition Helps Local Alternative Fuel Station Boost Revenue

As part of a multi-coalition American Recovery and Reinvestment Act award, Clean Communities of Central New York (CC of CNY) managed the 2010 development of a compressed natural gas (CNG) fueling station in North Syracuse, New York. Owned by National Grid and operated by Clean Energy, the station has become a big

success by providing a public fast-fill dispenser, a private fast-fill dispenser, and 25 private time fill posts.

For the first three years, the station saw few customers beyond National Grid’s own CNG fleet. The number of users picked up in 2013, thanks to CC of CNY support and event assistance from the New York State Energy Research and Development Authority.

CC of CNY Coordinator Barry Carr and Program Manager Amy DeJohn helped publicize the station and the availability of CNG vehicles to public and private fleet managers in the area. In addition to holding a series of individual meetings, the dynamic duo hosted several public outreach events at the Center of Excellence at Syracuse University, a Clean Cities stakeholder. As a result, the number of public

users at the station grew by about 20% in 2013, and last spring the station landed its largest user to date—Ultimate Transit.

Ultimate Transit recently placed six CNG transit buses in service on behalf of Syracuse University. Under contract for five years, the buses move students between “the hill” and downtown campuses (via what is known as the “connective corridor”). They also transport athletes to and from housing, practice centers, and events.

“In addition to boosting the volume of fuel used at the station, the Ultimate Transit buses promise to displace a significant amount of petroleum in the coming years and to demonstrate high-quality, clean, economical

See “New York” on p. 11 >



OREGON

Rick Wallace and
Julie Peacock

Columbia-Willamette
Clean Cities Coalition

cwcleancities.org

Oregon Boosts EV Adoption Through Popular Electric Vehicle Events

Oregon is home to one of the largest and most robust networks of electric vehicle (EV) fast charging stations in the United States, making it the ideal location for events centered on EV deployment.

The EV Roadmap Conference held its seventh annual event in July, attracting a high-energy mix of industry, government, and utility representatives. These EV champions came together to develop strategies to bring down barriers to EV adoption, explore emerging trends, and share newly established best practices.

The Columbia-Willamette Clean Cities Coalition (CWCCC) plays an active role in sponsoring the conference through its membership in the Energize Oregon Coalition, a volunteer organization guided by the Oregon Department of Transportation and Drive Oregon. At this year's EV Roadmap, CWCCC sponsored a panel session on the role of energy agencies and Clean Cities coalitions in converting fleets to electric vehicles. CWCCC Co-Coordinator Rick Wallace served as a panelist. The coalition also provided information on incentives and connected fleet managers with mentors who have already converted part of their fleets to EVs.

"CWCCC brings together the key stakeholders in the region and continues to be a great resource for information about alternative fuel vehicles," Executive Director of Drive Oregon Jeff Allen said. "When the EV Roadmap Conference gets fleet managers excited about electric vehicles, CWCCC is there to help them follow through with concrete steps that make sense for their business."

During its seven-year history, EV Roadmap has established itself as the Pacific Northwest's premier EV event, bringing together Oregon's early EV adopters with national and international experts to inform transportation electrification efforts across the country. With this focus on developing solutions to reducing or



Fifteen Oregon employers were recognized for participating in the Energy Department's Workplace Charging Challenge during this year's EV Roadmap. *Photo from Drive Oregon, NREL 32064*

eliminating barriers to EV adoption, it has also become one of the leading EV conferences at the national level. As an example, at this year's conference, Drive Oregon recognized 15 Oregon employers for participating in the Energy Department's Workplace Charging Challenge.

A second event, the Pacific Coast Collaborative Regional Workshop on Zero Emission Vehicles in Fleets, was initiated as a first response to last year's signing of the Pacific Coast Action Plan on Climate and Energy by Oregon, Washington, California, and British Columbia. The plan established a goal to "expand the use of zero-emission vehicles, aiming for 10% of new vehicle purchases in public and private fleets by 2016." Held concurrently with EV Roadmap with assistance from CWCCC, the workshop hosts private and public sector stakeholders to share success stories and discuss barriers that fleets face in adopting in zero emission vehicles (ZEVs). The Pacific Coast Collaborative is also developing an online toolkit for public and private fleet managers to assess opportunities for ZEVs and learn about useful incentives and procurement resources.

The synergy of the two events emphasizes to stakeholders the potential of EVs in public and private fleets. Wallace said, "The events are successful because they stimulate real and meaningful exchanges by EV industry representatives, public entities, and interested parties on the advancement of EV technology."

Registration for EV Roadmap 8, July 29–31, 2015, is now open at evroadmapconference.com.

> Land of Sky, from p. 9

helped secure \$1.2 million in Recovery Act funds for projects in Henderson County, the cities of Asheville and Hendersonville, and Mission Hospital. The city received nearly \$700,000 of the funding—and contributed an additional \$550,000—for 25 CNG vehicle conversions and CNG fueling

station upgrades. Thanks to these upgrades, more area organizations now use the station, including Mission Hospital, AT&T, and Mountain Mobility Transit.

"The Land of Sky Clean Vehicles Coalition was pleased to assist the city of Asheville in securing a grant to support this natural gas vehicle

and infrastructure project," Coalition Coordinator Bill Eaker said during a media event at the upgraded station. "Since the opening of the region's first public-access CNG station nearly a decade ago, the city has earned its reputation as a stalwart alternative fuel vehicle champion in western North Carolina." ■

> New York, from p. 9

transportation to the general public,” Carr said. “Ultimate Transit has agreed to let CC of CNY promote the use of alternative fuels on the side of one of the buses.”

CC of CNY was also creative in reaching out to both fleets and the public. Recently, the coalition sponsored a night of AAA baseball with the Syracuse Chiefs, a minor league affiliate of the Washington Nationals. More than 50 stakeholders came to the game and cheered Carr’s 45 mile-per-hour first pitch. After the impressive knuckleball, Carr spoke directly to the crowd about the benefits of using alternative fuels and vehicles, and about the resources available through the Clean Cities program. ■



A CNG fueling station owned by National Grid has become a big success, thanks to CC of CNY’s help. *Photo from Barry Carr, NREL 32057*

Ask the Technical Response Service

Idle No More: Strategies to Clean Air, Cut Costs

Do you have questions about alternative fuels, fuel economy measures, or advanced vehicles? The Clean Cities Technical Response Service (TRS) will help you find answers. For more information about the topics in this column or anything in the Clean Cities portfolio, email technicalresponse@icfi.com, or call 800-254-6735.

Q: How much petroleum is wasted by idling vehicles each year?

A: Idling wastes more than 6 billion gallons of fuel each year in the United States. This adds up to more than \$20 billion annually in fuel costs. For example, heavy-duty trucks frequently idle at rest stops, and an estimated 650,000 long-haul trucks use more than 685 million gallons of fuel per year by idling. But idling losses are not limited to long-haul trucks. Medium- and light-duty vehicles also waste fuel by idling. For more information on idle reduction, see the Alternative Fuel Data Center (AFDC) webpage (afdc.energy.gov/conserve/idle_reduction_basics.html). Clean Cities’ IdleBox toolkit (eere.energy.gov/cleancities/toolbox/idlebox.html) contains print products, templates, presentations, and information resources to assist with idle-reduction projects for fleets with light- and medium-duty vehicles.

Q: How do I know if idling is illegal in my area?

A: Idling for more than a few minutes is illegal in many states and jurisdictions, and penalties may include steep fines. For example, in Delaware, heavy-duty, on-road vehicles may not idle for more than three consecutive minutes. While most current laws apply to diesel vehicles, laws are increasingly addressing gasoline vehicles as well. For instance, idling any motor vehicle for more than three consecutive minutes is prohibited in New York City. To learn about idling laws in your area, see Clean Cities’ IdleBase (cleancities.energy.gov/idlebase), a database of idling laws and ordinances for all classes of on-road vehicles.

Q: How can fleets avoid idling?

A: There are many options for fleets looking to avoid vehicle idling. Primary idle reduction strategies and technologies include onboard technology, ranging from battery monitoring and management systems to auxiliary power units; off-board equipment, such as truck stop electrification (wayside power); and idle reduction practices, like turning off the engine when it is not needed, avoiding the use of a remote vehicle starter, and obeying no-idle zones. Telematics can also help fleet managers identify and limit unnecessary idling. Technologies differ by vehicle class, and the effectiveness depends on the vehicle application and climates in which they are used, as well as the duration of the idling. To see how much a fleet can save through idle reduction, see Argonne National Laboratory’s idling calculator (transportation.anl.gov/engines/idling_tools.html).

Q: Are there any real-world experiences that we can learn from?

A: Idle reduction success stories exist across the country. The Special School District of St. Louis County, Missouri, used a U.S. Environmental Protection Agency grant to install fuel-operated heaters on 21 buses. The heaters use a small amount of diesel fuel to warm the coolant lines of the vehicles while the bus engine remains off, keeping the cabin warm during winter months and reducing emissions around children and in school zones. In addition, the Flying J Travel Plaza in Carneys Point, New Jersey, installed 27 truck stop electrification bays, saving more than 23,000 gallons of diesel fuel and avoiding 250 metric tons of emissions in about a year of use. Find more case studies about idling on the AFDC website (afdc.energy.gov/case). ■

Internship Profile

East Tennessee Clean Cities Intern's Highlights Include EcoCAR2 Video

In 2013, when Mike Terreri was a Clean Cities University Workforce Development Program intern with the East Tennessee Clean Fuels Coalition (ETCleanFuels), he had plenty of opportunities to work on both community outreach and visual communications projects. "It was a wonderful experience," he said. But perhaps his favorite came while collaborating with the University of Tennessee Knoxville (UTK) EcoCAR2 Team on a video highlighting the team's public engagements and collaboration with the coalition. One image was particularly significant, he said.

Terreri filmed an interview with the dean of a local STEM Academy in such a way that the city's golden Sunsphere—constructed for the 1982 World's Fair—gleamed in the background. "The Sunsphere really was a great backdrop for a conversation on alternative fuels," Terreri said, because the fair's theme was "Energy Turns the World."

That image was one part of the overall video which drew upon some 20 shorter segments, including examples of the UTK EcoCAR team members appearing at Clean Cities public events. He worked closely with Sarah Zimmerman, who was then communications manager for the UTK team, to make the final cuts. "Sharing the EcoCAR-Clean Cities story was rewarding," he said, and noted that he learned a lot. "It was very instructive as to how small nonprofits can leverage digital media to enhance their work."

Clean Cities University Workforce Development Program Coordinator Amanda McAlpin, who serves as a liaison between EcoCAR and Clean Cities coalitions at Argonne National Laboratory, said Terreri's work was impressive. "The video was entertaining and showcased great interviews," she said. The UTK entry took top honors among those submitted by the 15 EcoCAR competitors in a Clean Cities-sponsored contest, earning a cash award for both the coalition and the UTK team.

Terreri's internship from September 2013 to April 2014 built upon previous experiences. Prior to earning his MPA, Terreri was a National Park Service ranger and worked at four national parks across the country engaging and educating stakeholders. While finishing graduate school, Terreri worked with Genesee Region Clean Communities in Rochester, New York, via the Workforce Development Program. At the end of that assignment, he relocated to Tennessee to work with ETCleanFuels, through the program, joining the 30 or 40 applicants who typically get Workforce Development Program internships each period.

Terreri's successes helped him get to his current job as Clean Transportation Specialist at the North Carolina Clean Energy Technology Center at North Carolina State. Now, he's using his skill to help promote the Southeast Alternative Fuels Conference, which is supported by seven regional Clean Cities coalitions. "The Clean Cities University Workforce Development Program is a great pathway to a career in alternative energy," he said. ■



Mike Terreri was a Clean Cities University Workforce Development Program intern with the East Tennessee Clean Fuels Coalition, where he contributed to a video for the University of Tennessee Knoxville EcoCAR2 Team. *Photo from Amanda McAlpin, NREL 32061*

> Propane, from p. 7

a 115% percent increase over 2012. The numbers clearly indicate the fuel's rapid pace of adoption.

Larger market trends are also encouraging, but you don't have to spout data to convince the Adams 12 School District that its propane-fueled fleet is a wise investment for the future. The district has already seen the benefits first-hand.

"The propane-powered buses save us about \$2 a gallon over our diesel buses and already run at the lowest cost per mile in our fleet," Anderson said. "If we can save the district money and prevent pollution for our kids' sake in the process, I don't see a reason to turn back."

For more information on greening your fleet with propane, refer to the AFDC case studies (afdc.energy.gov/case) or the PERC case studies (propane.com/on-road-fleets/case-studies-and-fact-sheets). Contact your local Clean Cities coordinator (afdc.energy.gov/cleancities/coalitions/coalition_locations.php) to learn more about Clean Cities activities in your area. ■

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