SOUTHEAST LOUISIANA CLEAN FUEL PARTNERSHIP

PUTTING THE PIECES TOGETHER FOR CLEANER FUEL
A STRONGER ECONOMY - A HEALTHIER COMMUNITY

Clean Fuel Newsletter

February 2014

www.CleanFuelPartnership.org

Upcoming Events

Click Here for Upcoming Webinars

Texas AltCar Expo
March 27-29, 2014
Irving, TX
www.altcarexpotexas.com

NAFA 2014 Institute & Expo
April 8-11, 2014
Minneapolis, MN
nafainstitute.org

ACT Expo & NGV Global 2014
May 5-8, 2014
Long Beach, CA
www.actexpo.com
www.ngv2014.com

Electric Drive Transportation Assoc. (EDTA) Conference
May 19-21, 2014
Indianapolis, IN
www.edta2014.com

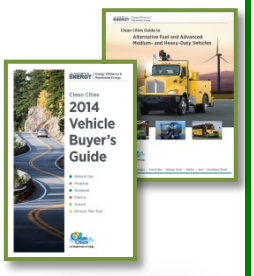
Southeast Alternative Fuels Conference
October 22-24, 2014
Raleigh, NC
altfuelsconference.org

North American NGV Conference & Expo
November 10 -14, 2014
Kansas City, MO
www.ngvc.org

High Horsepower Summit
(Natural Gas for rail, marine, mining, drilling and pressure pumping operations)
October 7-9, 2014
New Orleans, LA
www.hhpsummit.com

CNG

Progressive Waste and Metro Disposal Power Fleets with CNG: Progressive Waste in Jefferson Parish and Metro Disposal in New Orleans are both transitioning their refuse and recycling fleets to cleaner burning and more economical compressed natural gas (CNG). **Read More**



Clean Cities Resources: Alternative Fuel Vehicle Guides: Interested in alternative fuel vehicles but wondering what options are available? The US Dept. of Energy Clean Cities and the National Renewable Energy Laboratory have you covered with buyer's guides for light-, medium- and heavy-duty vehicles, and commercial lawn equipment! **Read More**

Clean Cities Question of the Month: What are the key terms to know when discussing electric drive vehicles and their fueling infrastructure? It is important to know how to "talk the talk" when it comes to electric drive vehicles. Becoming familiar with the terms in this article will help you better understand these vehicles and the associated fueling (charging) infrastructure, so that you can ask the right questions and make informed decisions. **Read More**

Funding Opportunities

The Clean Fuel Partnership is currently accepting project proposals for two funding opportunities:

- Supporting Cleaner Transportation for Municipal and Law Enforcement Fleets in Jefferson, Orleans, St. Bernard and St. Charles Parishes
- Louisiana Clean Diesel Grant Funding

Contact Rebecca Otte for more information: slcfp@norpc.org.

Annual Clean Fleet Awards

SUBMIT YOUR FLEET'S USE OF ALTERNATIVE FUELS & FUEL SAVING STRATEGIES IN 2013 TO BE RECOGNIZED AT OUR ANNUAL CLEAN FLEET AWARDS!

To be recognized as a Clean Fleet Leader and included in our Annual Report, send your fleet's information to: slcfp@norpc.org by Friday, March 7, 2014.

10 VETERANS BOULEVARD · NEW ORLEANS, LA · 70124
SLCFP@NORPC.ORG · PHONE 504.483.8500

www.CleanFuelPartnership.org

Progressive Waste and Metro Disposal Power Refuse & Recycling Fleets with CNG

Two Southeast Louisiana Clean Fuel Partnership stakeholders are cleaning up garbage collection in the New Orleans region. **Progressive Waste** in Jefferson Parish and **Metro Disposal** in New Orleans are both transitioning their refuse and recycling fleets to cleaner burning and more economical compressed natural gas (CNG). The switch reduces emissions and noise along neighborhood streets while utilizing a locally-sourced fuel that supports Louisiana's economy. In return for their upfront investment, both companies stand to reap the economic benefits of lower fuel prices, lower maintenance costs, and the convenience of onsite fueling. Louisiana's Alternative Fuel Vehicle and Fueling Infrastructure Tax Credit as well as Federal tax incentives contributed to the economic viability of the projects.

Progressive Waste's Rob McClellon, District Productivity Manager; Eddie White Jr, Operations Supervisor; Tom Martyn, Area Manager; Luis Lizama, Division Manager

The Progressive Waste fleet stationed in Jefferson Parish is part of a larger roll out by Progressive Waste Solutions Ltd. to convert their multi-national operation of waste and recycling vehicles to CNG. As vehicles are retired as part of the natural attrition process, they're replaced with CNG vehicles. Luis Lizama, Division Manager with Progressive Waste/IESI, noted that the overall cost of operating a CNG fleet is definitely worth the investment. In addition to the reduced fuel costs (saving roughly $1.50 per diesel gallon equivalent), the onsite fueling is also more convenient. Ten vehicles have been replaced with dedicated CNG trucks already, with an additional 20 scheduled for this year. Eventually all 85 vehicles in their fleet will be powered by CNG. Although the CNG vehicles are roughly 15% more expensive than their diesel counterparts, the payback period is worth the upfront costs. Joseph Quarin, Vice Chairman and Chief Executive Officer of Progressive Waste Solutions notes: "This is a business decision that supports our company's commitment to sustainability. Compressed natural gas is a cleaner source of fuel from well to wheel and, by converting to it, we offer our customers a more environmentally friendly approach to collecting residential and commercial waste and recyclable materials." Accessibility to CNG fueling is a key to their deployment strategy. In the New Orleans area, Progressive Waste partnered with Clean Energy who provided fueling at their public CNG fueling station in Kenner, LA, until Progressive Waste's dedicated station was up and running.

Metro Disposal's President Glenn Woods at their facility in New Orleans East

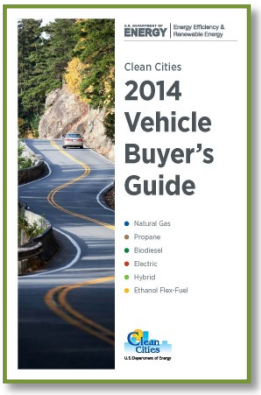
The switch to CNG is in line with Metro Disposal's ongoing commitment to environmental responsibility and sustainability in their daily operations, products and services, and fits with their desires to utilize a domestic fuel and stay on the forefront of technology. Twenty-eight diesel vehicles have already been replaced with dedicated CNG vehicles with plans to have 80% of Metro Disposal's 70-vehicle fleet running on CNG in the next 18 months. In addition to the tangible benefits, Glenn Woods, President of Metro Disposal, noted an

intangible benefit: "The pride and satisfaction of the employees for being the first independent waste hauler in the state to utilize this clean, domestic fuel." Entergy New Orleans, instrumental in Metro Disposal's decision to make the switch and also a Clean Fuel Partnership founding stakeholder, noted: "Beyond providing natural gas and electricity to our customers, we feel that promoting business growth and economic development are important parts of how we serve the community. We worked closely with Metro Disposal to provide a new natural gas service line to their facility. We also made them aware of some existing tax credits that helped Metro offset the costs of both their new vehicles as well as their new filling station. Those steps helped them to invest to grow their business and create several new jobs. That's good for them but it's also good for the city of New Orleans."

Both fleets noted the acceptance of the new fuel by both mechanics and drivers. Mechanics were trained extensively on the new technology and safety protocols, and are impressed by the cleanliness of the CNG engine and components as compared to diesel engines. As with any new technology, the drivers also underwent training on the functional and safety aspect of CNG. After an initial transition period, they now report that they enjoy the reduced noise and emissions aspects of the fuel.

Clean Cities Resources: Alternative Fuel Vehicle Guides

Interested in alternative fuel vehicles but wondering what options are available? The US Dept. of Energy Clean Cities and the National Renewable Energy Laboratory have you covered with buyer's guides for light-duty vehicles, medium- and heavy-duty vehicles, and commercial lawn equipment:



Light Duty Vehicles: Clean Cities 2014 Vehicle Buyer's Guide
(http://www.afdc.energy.gov/uploads/publication/60448.pdf)

This guide presents a comprehensive list of 2014 light-duty alternative fuel and advanced vehicles, grouped by fuel & technology, including:

- Compressed natural gas
- Propane
- Biodiesel
- All-Electric Technology
- Plug-in Hybrid Electric Technology
- Hybrid Technology
- Ethanol (Flex-Fuel)

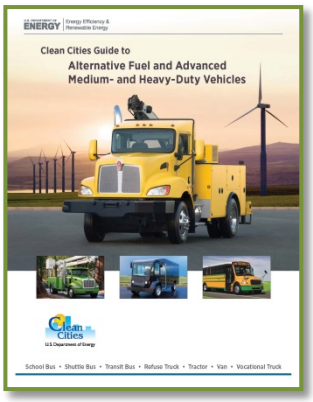
Plug-In Hybrid Electric Vehicle Model	Gasoline Engine: Electric Motor	Energy Impact Score* (barrels petroleum/ year)	Smog Score**	GHG Score**	Fuel Economy: Gasoline Only (mpg) City/Hwy	Fuel Economy: Electric + Gasoline (mpge) Combined City/Hwy	Starting MSRP
BMW i3 w/ Range Extender	0.6L 2 cyl; 125kW	-	-	-	-	-	-
BMW i8 Plug-In Hybrid	1.5L 3 cyl; 96kW	-	-	-	-	-	$135,700
Cadillac ELR	1.4L 4 cyl; 111 kW	-	-	-	-	-	$75,995
Chevrolet Volt	1.4L 4 cyl; 111 kW	3.1	6	10	35 / 40	98	$34,185
Ford C-MAX Energi	2.0L 4 cyl; 68 kW	4.2	-	10	44 / 41	100	$32,950
Ford Fusion Energi	2.0L 4 cyl; 68 kW	4.2	7	10	44 / 41	100	$38,700
Honda Accord Plug-In Hybrid	2.0L 4 cyl; 124 kW	4.8	9	10	47 / 46	115	$29,780
McLaren P1	3.8L 8 cyl; 152 kW	-	-	-	-	-	$1.4M est.
Porsche Panamera S E-Hybrid	3.0L 6 cyl; 70 kW	-	-	-	-	-	$99,000
Toyota Prius Plug-In	1.8L 4 cyl; 16 kW	4.7	7	10	51 / 49	95	-

* Assuming 15,000 miles driven per year. ** 10 = Best

The guide features model-specific information on vehicle specs, manufacturer suggested retail price (MSRP), fuel economy, energy impact, and emissions, as well as information on each fuel, such as fueling infrastructure, conversion options and considerations to think about before making the switch. This unbiased resource will help you identify your options, compare vehicles, and find data to inform your buying decisions.

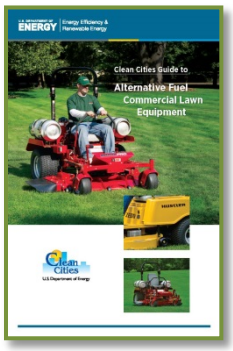
Clean Cities Guide to Alternative Fuel & Advanced Medium- & Heavy-Duty Vehicles
(http://www.afdc.energy.gov/uploads/publication/medium_heavy_duty_guide.pdf)

Today's fleets are increasingly interested in medium-duty and heavy-duty vehicles that use alternative fuels or advanced technologies that can help reduce operating costs, meet emissions requirements, improve fleet sustainability, and support U.S. energy independence. Vehicle and engine manufacturers are responding to this interest with a wide range of options across a steadily growing number of vehicle applications. This guide provides an overview of alternative fuel power systems- including engines, microturbines, electric motors, and fuel cells- as well as hybrid propulsion systems. The guide also offers a breakdown of individual medium- and heavy-duty vehicle models listed by application, along with associated manufacturer contact information, fuel type(s), power source(s), and related information.



Clean Cities' Guide to Alternative Fuel Commercial Lawn Equipment
(http://www.afdc.energy.gov/pdfs/52423.pdf)

Powering commercial lawn service equipment with alternative fuels is an effective way to reduce petroleum use, save on fuel costs, and reduce emissions to meet new standards. A single alternative fuel commercial lawnmower can annually use as much gasoline or diesel fuel as a commercial work truck. This guide details options for alternative commercial lawn equipment including cutting deck size, engine, MSRP, and warranty.



Clean Cities Question of the Month: What are the key terms to know when discussing electric drive vehicles and their fueling infrastructure?

It is important to know how to "talk the talk" when it comes to electric drive vehicles. Becoming familiar with the terms below will help you better understand these vehicles and the associated fueling (charging) infrastructure, so that you can ask the right questions and make informed decisions for your fleet:

Vehicle Types

There are two main categories of electric drive vehicles:

- **Hybrid electric vehicles (HEV)** are powered by an internal combustion engine or other propulsion source that runs on conventional or alternative fuel, as well as an electric motor that uses energy stored in a battery. The battery is charged through regenerative braking and by the internal combustion engine, and is not plugged in to charge. Regenerative breaking is a technology by which energy normally lost during braking is captured by the electric motor and stored in the battery for extra power during acceleration. There are two different types of HEVs:
  - **Mild hybrid:** This type of HEV uses a battery and electric motor to help power the vehicle and can allow the engine to shut off when the vehicle stops (such as at traffic lights or in stop-and-go traffic). Mild hybrid systems cannot power the vehicle using electricity alone. *Example: Chevrolet Malibu Eco*
  - **Full hybrid:** This type of HEV generally has more powerful electric motors and larger batteries, which can drive the vehicle on just electric power for short distances and at low speeds. *Example: Toyota Prius*

  HEVs can be designed in two different configurations:
  - **Parallel:** This configuration connects the engine and the electric motor to the wheels through mechanical coupling and allows both the electric motor and the engine to drive the wheels directly, either simultaneously or independently.
  - **Series:** In this configuration, only the electric motor drives the wheels. The internal combustion engine is used to generate electricity for the motor.

- **Plug-in electric vehicles (PEV) refer to any on-road vehicle that can be charged through an external source of electricity. There are two different types of PEVs available**
  - **Plug-in hybrid electric vehicle (PHEV):** Like HEVs, these vehicles are powered by an internal combustion engine that can run on conventional or alternative fuel, as well as an electric motor that uses energy stored in a battery. The difference is that these vehicles can be plugged into an electric power source to charge the battery. PHEVs can have a parallel or series design as well. *Example: Chevy Volt*
  - **Electric vehicle or all-electric vehicle (EV):** These vehicles use a battery to store the electric energy that powers the motor. EV batteries are charged by plugging the vehicle into an electric power source. EVs are sometimes referred to as battery electric vehicles (BEVs). *Example: Nissan Leaf*
    - ❖ **Neighborhood electric vehicle (NEV):** These all-electric vehicles are smaller and have less battery power than traditional EVs, and are often referred to as low-speed vehicles. NEVs are confined to roads with lower speed limits and states set specific regulations regarding their use

Infrastructure Terminology

Charging equipment for PEVs is known as **electric vehicle supply equipment (EVSE)** or more commonly, charging stations. Charging times vary based on how depleted the battery is, how much energy it holds, the type of battery, and the type of EVSE. Before exploring types of EVSE, it's important to first understand the basics of electricity through the following terminology:

Current type:

- **Alternating current (AC):** Movement of electric current that reverses or alternates direction. AC is the form of current normally generated and delivered by an electric utility to homes and businesses.
- **Direct current (DC):** Movement of electric current that continuously flows in the same direction. DC is the form of current normally delivered through batteries and is essential to charging vehicle batteries. As certain types of EVSE only provide AC (Level 1 and Level 2 described below), all PEVs are equipped with onboard equipment to convert the current to DC.

Amperage: The amount of electrical current, which can be thought of as the rate of flow. Amperage is measured in amperes, commonly referred to as amps.

Voltage: The electric potential energy per unit charge, which can be thought of as the force or pressure that drives the electric current. Voltage is measured in volts (V).

By multiplying amperage by voltage, you can find the unit of power, otherwise known as watts (W). There are 1000 watts in a kilowatt (kW). A typical residential three-prong outlet can supply 12 amps at 120V, or 1.44 kW based on the following equation:

12 amps x 120V = 1440 W / 1000 = 1.44 kW

PEV battery pack energy capacity is measured in kilowatt-hours (kWh). A kWh is a unit of energy that indicates the ability to provide a given amount of power for one hour. In theory, a 24 kWh battery pack would take 16.7 hours to charge using a standard 3-prong outlet based on the following equation:

24 kWh / 1.44 kW = 16.7 hours

EVSE Categories

There are five different types of EVSE outlined in the table below.

Category	Basic Information	Connector(s)	Charge Time
Level 1	▪ 120V AC plug ▪ Typical for residential charging; uses a standard household outlet ▪ All PEVs come with a two-ended Level 1 EVSE cordset. One end has a standard three-prong plug and the other has a connector that plugs into the receptacle on the vehicle.	SAE J1772, NEMA 5-15 or NEMA 5-20	2 to 5 miles of range per hour of charging time to a light-duty PHEV or EV
Level 2	▪ 240V AC plug (residential applications) or 208V AC plug (commercial applications) ▪ Typical for residential, workplace, fleet, and public facilities ▪ Most homes have 240V service available but require equipment installation and a dedicated circuit of 20 to 80 amps, depending on EVSE requirements	SAE J1772	10 to 20 miles of range per hour of charging time to a light-duty PHEV or EV
Level 3	▪ Pending industry consensus on definition ▪ Typically refers to DC Fast charging (see below)	Undefined	Undefined

Category	Basic Information	Connector(s)	Charge Time
DC Fast	▪ 480V AC input with AC-DC converter ▪ Enables rapid charging along heavy traffic corridors and at public stations	Three types: CHAdeMO SAE J1772 Combo Tesla Supercharger	60 to 80 miles of range to a light-duty PHEV or EV in 20 minutes
Wireless Inductive	▪ Uses an electromagnetic field which transfers electricity without a cord ▪ Currently in planning and testing stages, not yet available	SAE J2954 (pending)	Undefined

Additional information on electric drive vehicles, infrastructure, and batteries can be found on the Alternative Fuels Data Center Electricity website: http://www.afdc.energy.gov/fuels/electricity.html.

Other resources include:

- **A Guide to the Lessons Learned from the Clean Cities Community Electric Vehicle Readiness Projects:** Synthesizing reports from the 16 Clean Cities PEV readiness projects across the country, the Guide gathers together the most important conclusions and highlights illustrative examples.
- **"Ten Ways Communities Can Pave the Way for PEVs"** on the US Dept. of Energy's Energy Efficiency and Renewable Energy's (EERE's) blog.
- **Electric Vehicle Quarterly Discussion Webinars:** Join the next EV Quarterly discussion webinar on **Wednesday, March 12 at 12:00 p.m.** which will focus on the guide noted above. To sign in to the webinar:
  - Join the event directly at the webinar-specific site: (https://www.mymeetings.com/nc/join.php?i=PW4265601&p=2492382&t=c)
    or
  - Visit the MyMeetings website (https://www.mymeetings.com/nc/join/) and enter conference number PW4265601 and audience passcode 2492382.

  - For the audio, call **888-807-9760** and enter the participant **passcode 2492382**.

Information for this article provided by Clean Cities Technical Response Team
technicalresponse@icfi.com / 800-254-6735

Upcoming Industry Webinars & Clean Cities Publications

Please Note: Webinar and publication notices are provided for informational purposes only. Neither the Southeast Louisiana Clean Fuel Partnership nor the Regional Planning Commission is responsible for the information presented in the announcements, webinars, conferences or publications themselves. Please contact hosts for additional information on specific presentations.

New Clean Cities Publications Available

Clean Cities issues a variety of publications to inform stakeholders on alternative fuel & advance vehicle options. These publications highlight fleets that have successfully employed various clean transportation options as well as provide technical information and resources.

Clean Cities NOW Fall 2013 Edition (from US Dept. of Energy Clean Cities)
Includes articles on:

- Clean Cities' plug-in readiness projects across the country
- A Georgia landfill that's turning trash into fuel
- Propane school buses in Michigan
- The City of Fort Collins' multi-fuel approach to sustainable fleet operations

To subscribe, visit: http://www1.eere.energy.gov/cleancities/newsletter_subscribe.html

Fuel Fix Winter 2014 Edition (produced by the network of Clean Cities Coalitions)
Includes articles on:

- First Responders Receive Training for Alt Fuel Vehicles
- Maine Goes Electric
- Kentucky Clean Fuels Turns 20
- Plus much more!

Upcoming Webinars

Electric Vehicle Winter Quarterly Discussion Webinar
Host: US Dept. of Energy Clean Cities
Date: Wednesday, March 12, 2014
Time: 12 pm CST
Log-In Information to be posted at: https://www1.eere.energy.gov/cleancities/toolbox/webinars.html

Best of the Tools and Resources on the Alternative Fuels Data Center Webinar
Host: US Dept. of Energy Clean Cities
Date: Monday, March 31, 2014
Time: TBD
Log-In Information to be posted at: https://www1.eere.energy.gov/cleancities/toolbox/webinars.html

***Resource:* Clean Diesel Clearinghouse -** Southeast Diesel Collaborative
CleanDieselClearingHouse.org currently covers onroad vehicles such as buses, motor coaches & other heavy duty diesel vehicles & off-road vehicles such as bulldozers, cranes, & front-end loaders. The web-based tool can be used to find retrofit technology options to meet emission requirements as well as to collect reports, track compliance status & query data from project participants.