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Granite State Clean Cities

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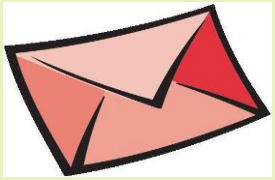
U.S.Dept. of Energy Funding Opportunities



Join our mailing list!

This Thursday - Last meeting of the year.

All are welcome!

GSCCC Stakeholder Meeting, December 3, 2015, Concord, NH. 9:00 - 11:30 a.m.
DES Offices, Room 111, 29 Hazen Drive, Concord
(RSVP to dolores.rebolledo@des.nh.gov).

Howie Wemyss, General Manager of the Mt. Washington Auto Road, will present on the organization's practical uses of alternative energy in transportation on Mt. Washington and in general business practices.

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Mt. Washington Auto Road is host to many events (year-round!) including a Tesla day, bicycle hill climb, road race and alternative energy summit. Join us to hear what's happening at the Auto Road.

Also, **David Melnick of American Power Group** will provide an overview of APG's natural gas/diesel dual fuel system, which is rapidly gaining popularity with fleets. Diesel trucks with the converted system can see up to a 30% increase in fuel savings.

Upcoming Events:

MA Clean Cities Stakeholder Meeting, December 10, 2015, Quincy, MA. (RSVP to stephen.russell@state.ma.us) Andrew Klock from NFPA will bring us up to speed on the latest happenings with the National Fire Protection Association. Stephen O'Neil, Northeast Regional Sales Director for Proterra, will present on the latest on Electric Transit Buses, and Allison Maynard, Clean Cities Intern, will present on the topic of the "Initiative for Resiliency in Energy through Vehicles."

Energy Independence Summit 2016, February 7-9, 2016, Washington, DC. For more information, visit:www.transportationenergypartners.org/.

The Work Truck Show/GreenTruck Summit, March 1-4, 2016, Indianapolis, IN. To get your FREE PASS to the show click here.

The Green Transportation Summit and Expo, Tacoma Washington, April 5-7, 2016. Save the date for this three-day event! For more information, visit gtsummitexpo.com.

NGVI Upcoming Training Sessions Over the next few months the Natural Gas Vehicle Institute will be offering Vehicle and Fueling Station Trainings. These will include topics such as CNG Fueling Station Design, NGV Essentials and Safety Practices, and more.

NGVi is also offering a 10% discount if these training sessions are booked before the end of the year. View the **training schedule** for more details.

GSCCC Annual Report Questionnaire!

In just a few weeks you'll be receiving a short questionnaire about your petroleum reduction in calendar year 2015. Once submitted, you will receive a statement of "gallons of petroleum reduced" as well as "tons of greenhouse

gases reduced" through your efforts.

Look for the questionnaire in your email at the end of this month.

Fuel Check: How many gallons (and dollars, and tons of GHGs) did you save this year?

Funding Opportunities:

New Hampshire Clean Diesel Program.

The New Hampshire Department of Environmental Services has funds available through the Environmental Protection Agency's Diesel Emissions Reduction Act program (DERA) for diesel fueled equipment owners in New Hampshire. The program seeks to reduce diesel emissions through a variety of activities including engine modifications and vehicle and engine replacements. Projects can receive 25-100% of the project cost. Click here for the pre-application.

Electric Vehicle Charging Equipment Rebates.

The New Hampshire Department of Environmental Services (NHDES) and Granite State Clean Cities Coalition announce the return of rebates to support the installation of new electric vehicle charging stations (aka electric vehicle supply equipment, or *EVSE*) in New Hampshire.

The rebate program is designed to support development of charging stations throughout New Hampshire and connect to charging corridors in neighboring states. Areas of deployment include the I-89 and I-93 corridors, with "DC fast chargers" being a priority. Applications for "Level 2" chargers and chargers located on other major arterials will also be considered.

The rebate program will be available for "Level 2" charging equipment (maximum paid out: $5,000) and "DC fast charging" (maximum paid out: $25,000). NHDES will reimburse up to 75% of eligible project costs. Charging stations must be publicly accessible at all times. Project must be completed and the station in service by June 15, 2016. All rebates must be pre-approved and are subject to certain eligibility criteria.

Click here for program guidance and a pre-approval application form.

Funding for the rebate program is through the New Hampshire Office of Energy and Planning using US Department of Energy funds. A total of $25,000 is available for fiscal year 2016.

News of Interest:

Question of the Month: *What is renewable natural gas (RNG) and can it be used to fuel vehicles?*

Answer: RNG is pipeline-quality natural gas made by collecting and purifying biogas, the methane produced from decomposing organic matter. Biogas can be collected from sources such as landfills, livestock operations, wastewater treatment plants, food manufacturing and wholesalers, supermarkets, restaurants, and hospitals. Once purified to remove contaminants and increase its heat content, the gas is called RNG and is a "drop-in" fuel that can be transported with conventional natural gas in pipelines, dispensed at the same fueling stations, stored in the same storage tanks, and used in natural gas vehicles without any engine modifications.

Despite its advantages, there are only 60 operational RNG production facilities in the United States. Many more use the biogas to generate electricity. This is due to federal and state programs, such as the federal Investment Tax Credit and state renewable portfolio standards, which incentivize the use of biogas for power generation rather than for vehicle fuel.

Production
The purification process for biogas is called conditioning or upgrading, and it involves removing water, carbon dioxide, hydrogen sulfide, and various contaminants and trace elements. From there, RNG can be compressed to make renewable compressed natural gas (R-CNG) or super-cooled to make renewable liquefied natural gas (R-LNG).

RNG is produced from feedstocks that come from a wide range of industrial sectors, many of which already collect and process biomass as part of their daily operations:
· **Landfills:** Landfill gas (LFG) is collected from decomposing waste in landfills. According to the U.S. Environmental Protection Agency (EPA), landfills are the third largest source of human-related

methane emissions in the United States. Landfills account for 70% of the operational RNG projects in the United States. One of the largest LFG-to-vehicle fuel projects is Waste Management's Altamont Landfill near Livermore, California. This project produces up to 13,000 gallons of R-LNG each day to fuel 300 refuse trucks.

· **Livestock Operations:** Animal manure can be collected and taken to an anaerobic digester for RNG production. A few farms across the country have started to use biogas to produce RNG vehicle fuel, including Hilarides Dairy in California and Fair Oaks Dairy in Indiana.

· **Wastewater Treatment Plants**: Approximately 9% of the more than 16,000 wastewater treatment plants in the United States use anaerobic digestion to produce biogas. The Janesville Wastewater Treatment Plant in Wisconsin is an example of a plant that uses biogas to produce RNG for use in vehicles.

· **Other Biomass Sources**: RNG can also be produced from lignocellulosic material, such as crop residues and dedicated energy crops, through thermochemical conversion, co-digestion, and dry fermentation. These technologies are being used in Europe, but have limited applications in the United States. RNG also can be produced from food waste, either alone or in conjunction with biosolids from livestock operations or wastewater treatment plants. CleanWorld Partners' Sacramento BioDigester and quasar's Central Ohio BioEnergy project convert food waste to RNG for vehicle fueling.

RFS2 Compliance

RNG qualifies as a cellulosic biofuel under the EPA's Renewable Fuel Standard (RFS2) program. In fact, RNG accounted for more than 50 million renewable identification numbers (RINs) in 2014 – 98% of all cellulosic biofuel RINs. According to organizations that track biofuels market data, cellulosic biofuel RINs were valued at $0.70– 0.85 per diesel gallon equivalent in 2014; this value is expected to increase in the future.

Other Benefits

Like conventional natural gas, RNG can be produced domestically and can displace the petroleum currently being imported for transportation use. However, RNG offers some additional benefits. RNG has practically a net zero carbon impact. On a lifecycle basis, RNG accounts for fewer greenhouse gas (GHG) emissions than most currently available motor fuels. RNG can reduce GHG emissions by 95% compared to conventional gasoline and diesel fuel. This is partially because capturing biogas from landfills and livestock operations can reduce GHG emissions by preventing methane releases that were occurring into the atmosphere. Additionally, RNG produced through anaerobic digestion eliminates odors and results in nutrient-rich liquid fertilizer as a by-product. Also, biogas feedstocks are plentiful, so RNG could make use of the 450 million pounds of municipal solid waste dumped in landfills, 160 billion pounds of food waste generated, or the 500 million tons of animal waste produced each year.

Barriers

Like conventional natural gas, the main barriers to RNG are lack of vehicle availability and fueling infrastructure, though efforts are underway to address both of these obstacles. However, RNG

production costs exceed those for conventional natural gas, especially for small-scale operations. Small-scale RNG production can cost around $5.50–$9 per million British thermal units compared to $4.50 for conventional natural gas. Additional financing and incentive opportunities, as well as state renewable portfolio standards that encourage the investment in biogas for vehicle fuel production, may spur additional production.

More Information

For more information on RNG, please see the following additional resources:

· Alternative Fuels Data Center's RNG Production page: http://www.afdc.energy.gov/fuels/natural_gas_renewable.html

· Clean Cities' presentation*: RNG and RINs:* http://www.afdc.energy.gov/cleancities/uploads/webinars/document/document_url/73/1_-_Mintz_RNG_062915_final_posting.pdf

- American Biogas Council: https://www.americanbiogascouncil.org/
- EPA
  - Landfill Methane Outreach Program: http://www3.epa.gov/lmop/index.html
  - AgSTAR Program: http://www2.epa.gov/agstar

Clean Cities Technical Response Service Team
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