



EV's 2014 "Waste-to-Fuel" Workshop Series

In partnership with select regional affiliates of the U.S. Department of Energy's Clean Cities program, of which there are close to 100, Energy Vision is expanding its national education and outreach initiative on renewable natural gas as the low-carbon, pollution-free transportation fuel available today.

Building on the momentum and buzz of our two successful 2013 workshops — in Seattle and Rochester — EV will host 4-6 events per year in 2014/15. (Our first event of 2014 was on April 23 in Burlington, VT; see "EV On the Road.")



Vermont Secretary of Agriculture Chuck Ross and EV President Joanna Underwood

The collaboration of Energy Vision and regional Clean Cities groups is a perfect match in many ways; EV is the leading independent resource on the topic of converting waste into vehicle fuel, and the mission of the Clean Cities Coalition is to reduce our country's reliance on petroleum by implementing commercially viable alternative fuels.

Moreover, regional Clean Cities groups have extensive local stakeholder networks — from fleet owners /operators to municipal officials and technology providers — while EV has the expertise and national connections to develop each agenda and reach a broader audience.

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New From Energy Vision: *Organic Waste: A New Frontier in Recycling & Clean Fuels*

In 1973, not a single curbside recycling program existed in the U.S. Today, there are close to 9,400, recycling bottles, cans and all kinds of paper. Yet, there is much more progress to be made in recovering resources that can be reused or recycled from our waste stream. A new frontier emerging in the evolution of recycling is organic waste, a vast stream which includes food scraps and yard clippings from millions of homes and businesses, as well as wastes from food processors and farming operations, sewage and other sources.

Governments and companies across the country have been rethinking what "waste" really is and implementing new strategies to reduce, recycle, and beneficially reuse various components of our waste stream. The organic portion is increasingly recognized as valuable for producing renewable sources of energy, fuel and soil.

EV's New Report

This report, *Organic Waste: A New Frontier in Recycling and Clean*

Fuels, highlights the evolving policies and myriad economic and environmental benefits of the ongoing transition from a "throwaway" society to one rooted in conserving U.S. resources and reducing greenhouse gas emissions.

Snapshot of the U.S. Waste Stream

The EPA estimates that, on average, every American generates 4.4 pounds of waste per day, which equates to 250.4 million tons per year as a country. This volume of waste is 285% larger than the amount produced in 1960 (see below). Of this, close to 28%, or 70 million tons is organic — primarily food and yard waste. And of the 70 million tons of organics, only 35% is currently being recovered.

24 States Tackle Organics

Various states and municipalities have developed laws or policies aimed at reducing the amount of organic waste going to their landfills; Twenty-four states have some kind of landfill ban on organic wastes, ranging from restricting only leaves or grass clippings to more completely restricting yard waste or even food waste from being disposed of in landfills.

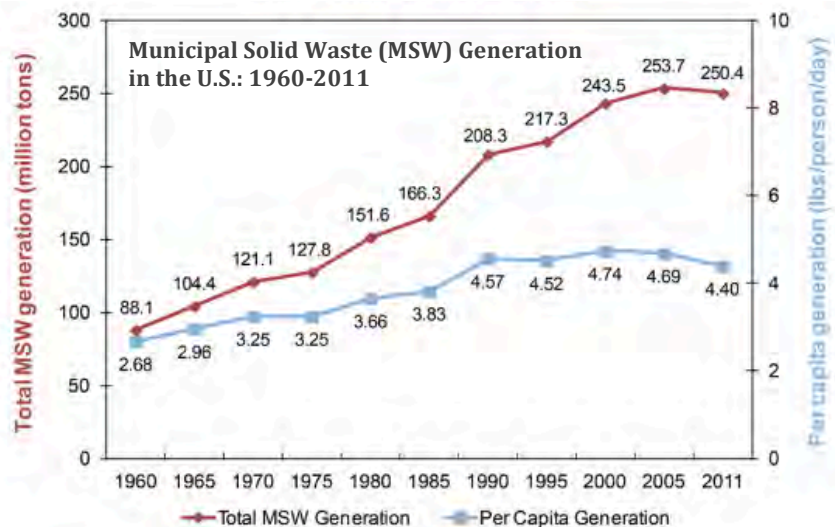


Image Source: U.S. Environmental Protection Agency, 2011

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LETTER FROM THE PRESIDENT

Joanna D. Underwood

As I drove through Vermont's beautiful farm country, heading for the April 23rd state-wide workshop that Energy Vision co-sponsored with Vermont Clean Cities Coalition, I felt a special excitement. We would show the State's communities and agricultural operators how to convert the biogases emitted by their stream of organic wastes into a clean fuel for their truck and bus fleets. Vermont, a state with just 620,000 people but with a strong environmental ethic, seemed a great place to launch EV's 2014 series of regional workshops aimed at jumpstarting a local "waste-to-fuel" revolution across this country.

Converting food and other organic wastes into a close-to-carbon-neutral form of natural gas (called RNG) is one of the most significant transportation strategies that Vermont could adopt to make significant progress toward achieving two of its goals: 1) cutting greenhouse gas emissions 50% by 2020 and 90% by 2050, and 2) making beneficial use of its organic wastes (which will be banned from landfills and incinerators by 2020 under its new "Universal Recycling Law". Vermont could set a model for other northeastern States.

We have good reason to be enthusiastic about EV's regional workshops. (See article on page one). Our Seattle event last July, co-sponsored with the Western Washington Clean Cities Coalition is already having an impact. According to Western Washington Clean Cities Coordinator Scott DeWees, it "generated immense interest in RNG." Last fall, just south of Seattle, Pierce County (Tacoma) became the first in the U.S. to convert its bus transit fleet from fossil gas to RNG. Other fleets in the region are exploring projects too.

Most Americans are doubtless boggled by the question: "Where do we start in tackling climate change," as the enormity of such changes become evident — severe storms, prolonged drought in some regions, perennial flooding in others, and rising seas as ice caps melt. There is no one answer. But each

quantifiable concrete step forward deserves our support.

President Obama and the Environmental Protection Agency are now taking one such step, proposing regulations aimed at cutting coal plant carbon emissions by 30% (from 2005 levels) by

2030. This goal for the sector, which generates 40% of the country's greenhouse gases (GHGs), is below the recommendations of the Intergovernmental Panel on Climate Change for developed countries. So while other initiatives are needed for the electric power sector, it would mean important progress.

In the transportation sector, which generates 28% of US GHG emissions, there is one technologically viable strategy today that already exceeds the IPCC goals and hence deserves unqualified support: equipping this country's 10 million heavy-duty buses and trucks (consumers of almost 25% of all road fuel) with natural gas engines and fueling them with renewable, clean RNG, made from local wastes. For every fleet that switches from gasoline or diesel to RNG, GHG emissions are immediately reduced by 88% or more.

Citizens can become powerful change agents by encouraging their municipal leaders to explore this solution now. It has taken decades for the climate change crisis to develop. But, step-by-step, we can change course. And communities can become green leaders. As Margaret Mead said, "Never doubt that a small group of thoughtful, committed citizens can change the world; indeed, it's the only thing that ever has."



EV President Joanna Underwood with New York State Assemblymember Didi Barrett

Joanna D. Underwood

ENERGY VISION: On The Road

- Jan 22** EV President Joanna Underwood shared developments on the renewable natural gas (RNG) front at the 2014 Natural Gas Vehicle Technology Forum in Washington, D.C.
- Feb 24** EV's Matt Tomich participated in a panel discussion on the *Future of Transportation* at the NYU Energy Wise City conference, an event attended by a diverse group of more than 100.
- Apr 9** EV's Tomich attended and presented at the Green California Summit in Sacramento, CA, a statewide event attended by close to 1,000 public and private sector individuals and companies. While there, he also visited Sacramento's food waste-to-vehicle fuel project, the first in the country (see below).



- Apr 23** EV co-hosted its first RNG workshop of 2014 at The University of Vermont along with VT Clean Cities and the UVM Transportation Research Center. Participants included the Vermont Secretary of Agriculture, Chuck Ross (see p. 1) as well as Senior Ag Development Coordinator, Alex DePillis, Director of Energy Policy & Planning, Dr. Asa Hopkins, Ag Energy Consultants' Mike Raker, and Ag Methane Advisors' Patrick Wood (left to right below).



- Apr 24** EV's Joanna Underwood spoke about RNG at an event in Millbrook, NY: "Preparing for the Hudson Valley's Energy Future," hosted by NYS Assemblymember Didi Barrett (see left photo).
- May 19** EV's Joanna Underwood moderated a panel on the topic of Renewable Natural Gas at the 2014 *Strive for Sustainability* conference at Lake George, NY. Panelists included EV's Matt Tomich and other experts on this topic.

Coming Up

- June 17** EV and Greater Washington Region Clean Cities will host a workshop outside Washington, D.C. focused on the opportunities for renewable natural gas production and use in and around our nation's capital.

Given the general lack of understanding or realization that organic waste can be cost-effectively turned into vehicle fuel all across this country, the goal of each workshop is two-fold: 1) to educate as many relevant regional stakeholders as possible about the opportunities and obstacles surrounding the production and use of renewable natural gas; 2) to inspire — through the high-level presentations, discussions and networking at each event and through ongoing dialogues with attendees — new project development in each region we visit. The attendee feedback and results thus far suggest that these workshops have been successful on both counts, especially in Seattle where projects are already underway (see *Spotlight on Progress* below).



Following our successful workshop in Burlington on April 23rd, co-hosted by Vermont Clean Cities and the University of Vermont Transportation Research Center, plans are well under way for three additional EV/Clean Cities RNG events in 2014:

in Washington, D.C. on June 17th; on Long Island on October 9th; and in Louisiana in mid-November (details to follow).

Looking toward 2015, several Clean Cities coalitions have already expressed interest in working with EV to put on similar events, including Sacramento and a number of others in California, Oregon and Pennsylvania.

In EV's ongoing effort to bring RNG to the forefront of any discussion on closed-loop sustainability or alternative fuels through various education and outreach initiatives, our workshop series will continue to play an important role.

For more information on EV's workshop series, or if you have interest in seeing an EV event in your region, contact: Matt Tomich at tomich@energy-vision.org.

Rochester



Attendees at EV's Rochester RNG event, "The Power of Waste," listen to Genesee Region Clean Communities Director David Keefe

Vermont



Owen Brady, Key Accounts Representative at Vermont Gas, discusses the potential for RNG in the Green Mountain State

Seattle



EV's Matt Tomich and City of Tacoma, WA Senior Engineer, Jim Parvey, at last July's "Cash Cow" RNG workshop outside Seattle

Spotlight on Progress: Seattle, WA

Since the first successful renewable natural gas workshop outside Seattle last July — *Cash Cow: The Future of Renewable Natural Gas as a Transportation Fuel in Washington* — in collaboration with Western Washington Clean Cities, a number of exciting developments have emerged in the Evergreen State.

In August, the Pierce Transit Authority, which serves the greater Tacoma region, announced that they had begun fueling 143 of 155 transit buses on locally-produced renewable natural gas (see EV's project profile: energy-vision.org/wordpress/wp-content/uploads/2013/09/Pierce-Transit-BioEnergy-Washington-Profile.pdf), making it the first transit fleet in the country to do so. Similarly, the Seattle-Tacoma International Airport (SeaTac) has begun to explore various opportunities to produce and use renewable natural gas in its extensive fleet of shuttle buses and other vehicles. Should they transition some (or all) of their vehicles to RNG, SeaTac will become the first airport in the U.S. to make this switch.

While Western Washington Clean Cities — and its parent organization, Puget Sound Clean Air Agency — have been major proponents of renewable natural gas as an ultra-low-carbon transportation fuel for a number of years, they credit Energy Vision with playing an integral role in catalyzing regional interest and action on RNG. According to Western Washington Clean Cities Program Manager Scott DeWees, "Energy Vision's leadership on educating and connecting key public and private sector stakeholders is a critical component to the broader adoption of renewable natural gas as a vehicle fuel. Our joint *Cash Cow* workshop has generated immense interest in RNG that we hope will translate to on-the-ground progress."

Three States Lead the Way

Since 2011, three states — Connecticut, Massachusetts, and Vermont — have implemented comprehensive bans on the landfilling of organic waste, including food scraps.

Vermont has done the most on the state level to divert organic waste from landfills. In 2012, the state legislature passed Act 148, Universal Recycling and Composting Law, which included a broad landfill ban on organic waste.

In 2011, Connecticut enacted a new law, State Senate Bill 1081: An Act Concerning Recycling and Jobs, that requires large commercial generators of organic waste (>104 tons/year) to take responsibility for

composting or anaerobically digesting this material, once the infrastructure to do so is in place (several facilities are being developed already).

Massachusetts, following the lead of these two states, recently enacted a commercial organics ban, 310 CMR 19.000. It will include any entity that disposes of at least one ton of organic waste per week, which will affect close to 1,700 business or institutions.

A number of cities, large and small, have also enacted composting or organics recycling programs, ranging from San Francisco, Seattle, and Sacramento to, most recently, New York City and Lambertville and Princeton, New Jersey.

A Winning Climate Change Strategy

While organics diversion was largely about

maintaining capacity in U.S. landfills at first, it is now about much more. By utilizing proven technologies, organic waste is being recognized as a valuable resource for power generation, the creation of low-carbon vehicle fuels (arguably its highest and best use) and nutrient-rich soils. In fact, the production and use of renewable natural gas (RNG) derived from food waste as a transportation fuel is the lowest-carbon, commercially viable option that exists today, according to the CA Air Resources Board.

As concerns about climate change mount and organics diversion initiatives are considered, the conversion of organics-to-fuel is a local/regional strategy with economic and environmental benefits that deserves support.

The full report will be available in July

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EV is a national non-profit organization that analyzes and promotes ways to make a swift transition to pollution-free renewable energy sources and to the clean, petroleum-free transportation fuels of the future.

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