

ENVIRONMENTAL SYNOPSIS

The Chairman's Corner

Rep. Scott E. Hutchinson, Chairman



Composting. It's one form of recycling that doesn't get many headlines, but just about anyone can do it with the proper preparation and equipment. And many Pennsylvanians are doing it already.

Despite composting's low profile, a recent article in *Governing Magazine* entitled "A Scrappy Way to Recycle" that talked about what may be the next step in composting caught my eye.

The article suggested that next step might be municipal-based plans to provide curbside recycling programs to compost food waste. According to the article, it is a trend that is starting to percolate in some U.S. cities, most of them in the western part of the country for now.

For example, the article noted that San Francisco recently adopted a measure requiring all single-family households, businesses and multi-tenant buildings to compost food scraps. Frisco's program uses both incentives (free composting bins) and penalties (fines of up to \$1,000) to encourage participation.

Also, according to the article, Seattle, which has had a voluntary composting program in place since 2005, decided last spring to step up efforts to increase participation. In what might seem a counter-intuitive move, the city began to require households to rent a composting bin at a fee of \$5 - \$7 a month or commit to tending a backyard composting pile. While there is no penalty for non-compliance per se, since the policy went into effect, the city has signed up an additional 30,000 compost customers, increasing its numbers to 140,000. The city attributes the increase to the idea that if one has to pay for the bin, one might as well use it.

Boulder, Colorado and several towns in Minnesota are cited in the article as other examples of municipalities that have begun such curbside programs.

Pennsylvania, of course, has been recycling a number of items for years, since the advent of Act 101 of 1988, the "Municipal Waste Planning, Recycling and Waste Reduction Act." It is an act that has been very successful, but has focused on products such as metal, glass, paper, cardboard, plastics and, in some cases, yard and leaf waste. Food waste has not been a part of municipal recycling programs, but when not landfilled has generally been utilized in individual backyard composting or more recently, as part of alternative energy generation projects.

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NOTES FROM THE DIRECTOR

CRAIG D. BROOKS, EXECUTIVE DIRECTOR



Representatives of several state environmental agencies have urged the federal Environmental Protection Agency (EPA) not to regulate coal combustion waste (CCW) as a hazardous waste.

The Environmental Council of States (ECOS) sent a resolution to the head of EPA's Office of Solid Waste and Emergency Response stating that state-level programs are in place to adequately manage coal ash and other CCW. ECOS agrees with EPA's finding in a 2005 study citing that the "...regulatory infrastructure is generally in place at the state level to ensure adequate management of these wastes..." ECOS believes that states should continue to be the principal authority for regulating CCW as they are best suited to develop and implement CCW regulatory programs tailored to specific climate and geological conditions and designed to protect human health and the environment.

ECOS members expressed concern that the CCW rule that EPA is developing will propose classifying coal ash as a hazardous waste under Subtitle C of the federal Resource Conservation and Recovery Act (RCRA). If regulated as a hazardous waste under Subtitle C, coal ash would have to go to an authorized facility for treatment and disposal.

To this point, EPA has not indicated whether or not they will classify CCW as a hazardous waste. EPA did say, however, that the CCW rule would seek to increase the beneficial uses of coal ash and identify any gaps that exist in state programs for managing waste.

In its resolution, ECOS supports the safe, beneficial reuse of CCW for geotechnical and civil engineering purposes. Regulation of coal as a hazardous waste could create a stigma and liability concerns that could impact such beneficial reuses of the wastes,

the resolution states. The resolution also states that if CCW must be regulated under RCRA, then it should be under Subtitle D as a solid waste.

In Pennsylvania, approximately five million tons of fly ash are produced each year and the majority of it is beneficially used for mine reclamation projects. It has been the opinion of the Joint Legislative Air and Water Pollution Control and Conservation Committee (Committee) that Pennsylvania has created a carefully crafted regulatory program that draws upon 30 years of experience using fly ash for mine reclamation projects.

Not only did the Committee investigate the use of fly ash here in Pennsylvania, but the National Research Council also completed a national study on the beneficial

use of fly ash and its placement in mine reclamation projects. Both studies concluded that improper use of CCW can pose a threat to public health and the environment, however, proper use of fly ash is being adequately enforced by state and federal regulatory agencies. Many states, including Pennsylvania, have monitoring requirements for CCW that are substantially greater than the Surface Mining Control and Reclamation Act requirements.

The resolution on CCW was among more than a dozen ECOS passed in March 2010. Other new resolutions call for:

- a comprehensive national mercury monitoring program and urge the federal government to work internationally to reduce mercury emissions;
- EPA to launch a national dialogue with state and local governments, industry and environmental stakeholders and others on sustainable materials management; and
- the Department of Energy and Congress to provide adequate funding to clean up nuclear weapons sites.

The Environmental Council of States believes states – not the federal government – should continue to be the principal regulatory authority for coal combustion wastes

RESEARCH BRIEFS

Each month, the committee's staff researches and prepares a number of "briefs" on several topics relevant to the Joint Conservation Committee's mission. Very often, these briefs include references to reports and further research on the topics so that readers may pursue issues on their own.

Outlook for Geothermal Energy Improves

-- Tony M. Guerrieri, Research Analyst

Geothermal is, by far, the most overlooked clean energy technology sector. In many ways, geothermal energy is better than wind or solar because it can provide a constant uninterrupted supply, known as base load power. But testing to find the most suitable sites, coupled with drilling and plant construction, has proven very costly, causing widespread adoption to be delayed.

However, according to a report by the Geothermal Energy Association (GEA), companies that tap underground heat to generate geothermal power in the U.S. are poised to grow as the sector receives increased support from the federal government. The GEA report, *"U.S. Geothermal Power Production and Development Update"*, offers a snapshot of the geothermal energy development landscape, including a state-by-state breakdown.

The report identified 188 new geothermal projects currently under development in 15 states, representing as much as 7,800 megawatts of new base load. The number of geothermal projects under development nationwide grew 26 percent in the past year, from 121 projects to 152.

Geothermal energy is unknown in much of the country, but in 2007 it accounted for four percent of renewable energy-based electricity consumption. As of April 2010, geothermal electric power generation was already occurring in nine U.S. states: Alaska, California, Hawaii, Idaho, Nevada, New Mexico, Oregon, Utah, and Wyoming. Other states, such as Colorado, Louisiana, Mississippi and Texas are soon to be added to the list. The U.S. has a total installed capacity of 3,086.6 megawatts of geothermal power.

With seven geothermal projects coming online in 2009, adding approximately 176 megawatts of renewable energy capacity in five different states, geothermal power capacity rose six percent between 2008 and 2009.

California far outstrips any other state in terms of

geothermal energy output with an installed capacity of 2,566 megawatts of geothermal energy. Nevada is a distant second with about 427 megawatts online. By 2005, California's geothermal energy capacity alone exceeded that of every country in the world, according to the report. California also has 35 projects underway with the potential of 1,997 megawatts.

Nevada was the favorite target of developers for new plants. In 2009, three new power plants were added to Nevada's portfolio, bringing the total number of operating geothermal power plants in the state to 20. Nevada currently has 86 projects under development with the potential for over 3,000 megawatts.

When it comes to American geothermal energy, California is the undisputed king

The fastest growing geothermal power states were Utah, which quadrupled its geothermal power under development, followed by New Mexico (tripled), Idaho (doubled) and Oregon, which reported a 50 percent increase. Louisiana, Mississippi and Texas all reported their first geothermal projects compared with a year earlier.

In addition to large scale utility power projects, the report also highlights expanding interest in power systems under one megawatt with projects in Mississippi, Louisiana, Texas, Oregon and Wyoming.

The report attributes the growth to a combination of federal investment tax credits, state renewable energy portfolio standards, and direct investments through the American Recovery and Reinvestment Act.

The GEA report also documents federal stimulus funding in the geothermal industry. The U.S. Department of Energy (DOE) has so far awarded \$355 million for 135 projects in 25 states to explore and develop new geothermal fields and research advanced geothermal technologies. Recipients include private industry, academic institutions, tribal entities, local governments, and DOE's National Laboratories. Further, the initial grant of \$355 million in federal funding from DOE will be supplemented by \$288 million in cost sharing funds

from award recipients, representing a total investment of \$643 million.

Nevada is also getting the lion's share of federal funding for demonstration projects, with more than \$74 million in DOE funding. California, in second place, gets about \$47 million from DOE.

The 33-page report is available at: http://www.geo-energy.org/pdf/reports/April_2010_US_Geothermal_Industry_Update_Final.pdf.

Report Calls EPA Guidance Inadequate For States to Identify "Green" Projects

-- Craig D. Brooks, Executive Director

The Environmental Protection Agency (EPA) has not provided adequate guidance to help states determine which water infrastructure projects qualify for American Recovery and Reinvestment Act (Act) funding for green projects, according to a report by the Office of Inspector General.

Without adequate guidance, EPA regions and states cannot determine the extent to which these projects reduce energy and water use compared with projects traditionally funded under state revolving fund programs. EPA cannot determine whether projects meet congressional objectives to promote energy and water efficiency and to encourage environmental innovative activities, the report said.

Defining just what is "green" is not as easy as it seems

Although states appear to have been successful in finding projects, definitive guidance from EPA will be important if Congress appropriates more money for water projects in the future with requirements for energy or water conservation.

The Act included \$6 billion in capitalization grants to the states for clean water and drinking water state revolving fund projects; \$4 billion for clean water projects and \$2 billion for drinking water. Of this \$6 billion, the Act requires that states reserve at least 20 percent for green projects. EPA defines green infrastructure as applications and approaches that reduce, reuse, capture and treat stormwater at its source before it reaches the sewer system. Green projects include those that promote green infrastructure and energy or water efficiency as well as projects that demonstrate

new or innovative ways to manage water resources in a sustainable way.

The Act required that all funds be committed to eligible projects by February 17, 2010, with states having signed certifications that project applicants have signed contracts or the projects are under construction. If the state failed to meet the deadline, EPA was obligated to retract the funding.

According to the report, efforts by states appear to have been successful at least in terms of meeting the guidance. The report said that EPA took a "hands off" approach on how states should determine project eligibility and provided states with minimal guidance. It appears that some states were uneasy with the approach and were concerned that they could lose green reserve funding if EPA did not approve submitted projects.

Therefore the report recommends that EPA:

- develop and revise guidance, information and as appropriate, specific criteria that states can employ to assist in identifying projects qualifying for funding from the state's green project reserve; and
- conduct a timely review of states' submitted green projects in accordance with the Act and EPA guidance, information and criteria.

More information on green reserve projects and the Inspector General's report entitled "*EPA Needs Definitive Guidance for Recovery Act and Future Green Reserve Projects*", is available at <http://www.epa.gov/oig/reports/2010/20100201-10-R-0057.pdf>.

Many States Highly Dependent on Imported Coal

-- Tony M. Guerrieri, Research Analyst

Over 50 percent of U.S. electricity comes from coal. The U.S. has the largest reserves of coal in the world and burns it at about 500 plants across the nation. However, many states that rely heavily on coal to produce electricity mine little or no coal themselves. As a result, they import coal from other states and, increasingly, other nations.

According to a report by the Union of Concerned Scientists (UCS) more than three dozen states are collectively spending tens of billions of dollars annually on imported coal to generate electricity. The UCS report, "*Burning Coal, Burning Cash: Ranking the States that Import the Most Coal*", examines 38 states that are net importers of domestic and foreign coal.

Sixty-nine percent of domestic coal comes from just

four states: Wyoming (40 percent); West Virginia (13 percent); Kentucky (10 percent); and Pennsylvania (six percent). In 2008, Wyoming shipped coal to power plants in 34 states. Many eastern states also import coal from other regions of the world, including South America and Southeast Asia.

In total, those 38 states spent \$27.5 billion on domestic and foreign coal imports in 2008, the latest year for which figures are available from the U.S. Department of Energy (DOE). Eleven of them each spent more than \$1 billion annually on imported coal.

Using 2008 DOE statistics, the report ranks state dependence on coal imports in six categories:

- (1) total spending on net imported coal;
- (2) spending on net imported coal per state resident;
- (3) spending on international coal imports;
- (4) the amount of net coal imports by weight;
- (5) spending relative to the size of the state economy; and
- (6) reliance on net imports relative to total power use.

Twenty-five states appear in at least one of the top 10 rankings, but states in the Southeast and Midwest dominate the lists of the most-dependent states. According to the report, that is because states in these two regions use considerable amounts of coal despite having limited – or in most cases no – local coal production. Georgia ranks in the top 10 in all six dependence categories, the only state to do so. Several Northeastern states made the rankings because their power producers rely heavily on foreign coal imports.

The 38 states that import coal spent \$27.5 billion on domestic and foreign imports in 2008

Georgia ranks first in the country when it comes to importing coal to generate electricity. The Peach State spent about \$2.6 billion in 2008 to haul in the fossil fuel from as nearby as Alabama and as far away as Wyoming and South America. Rounding out the top 10 (in descending order) were: North Carolina (\$2.3 billion); Texas (\$1.9 billion); Florida (\$1.6 billion); Ohio (\$1.5 billion); Alabama (\$1.4 billion); Michigan (\$1.4 billion); Tennessee (\$1.2 billion); Indiana (\$1.1 billion);

and Missouri (\$1.1 billion). Spending on coal imports for many of the states on the list rose steeply between 2002 and 2008, according to the report, due to the rising cost of coal and shipping, but also because many of the states imported more coal.

Measuring how much a state spends on coal imports per capita levels the playing field between states with large populations and those with small ones. All 10 states making this list spent more than \$165 per resident on coal imports in 2008. The 10 most coal dependent states based on expenditures on net coal imports per person were: Alabama (\$297); Georgia (\$270); North Carolina (\$254); South Carolina (\$245); Tennessee (\$194); Missouri (\$190); Kansas (\$185); Delaware (\$183); Indiana (\$178); and Iowa (\$166).

Despite the abundance of domestic coal in the United States, 16 states purchased coal from overseas in 2008 – together spending more than \$1.8 billion to import 25.4 million tons of coal. Alabama leads the list of states that spend the most on foreign coal imports, spending \$489 million on Colombian coal used to fuel power plants. The remaining top 10 states spending on foreign coal imports were: Florida (\$307 million); Massachusetts (\$206 million); Mississippi (\$145 million); Georgia (\$97 million); Virginia (\$95 million); New Jersey (\$93 million); New Hampshire (\$79 million); Connecticut (\$79 million); and New York (\$63 million).

According to the report, more than 80 percent of the foreign coal imports in 2008 came from Colombia, with the balance coming from Venezuela and Indonesia. Foreign imports more than tripled between 1999 and 2008, but they still accounted for a relatively small share of U.S. coal use. The U.S. still exports more coal than it imports.

The report recommends that states reduce their use of imported coal and invest in energy-efficiency programs and local, renewable energy technology.

The report is available at: http://www.ucsusa.org/assets/documents/clean_energy/Burning-Coal-Burning-Cash_full-report.pdf.



Converting More Trucks, Buses to Natural Gas Would Reduce Oil Imports

-- Craig D. Brooks, Executive Director

Replacing more than half of the nation's trucks and buses with models fueled with natural gas would reduce petroleum consumption by 1.2 million barrels per day by 2035, according to a report released by the Center for American Progress. The report, *"Developing Natural Gas for Heavy Vehicles"*, suggests that the amount of oil saved would be more than the nation imported from Saudi Arabia or Venezuela in 2009.

According to the report, 9.5 million heavy and medium heavy trucks and buses were on the road in 2009, consuming 2.1 million barrels of oil per day. The reports cited federal government statistics saying that 15.8 million of those vehicles are expected to be on the road in 2035, consuming 3.1 million barrels of oil per day. If 3.5 million of those vehicles used natural gas, however, oil consumption would be reduced by about 1.9 million barrels per day, saving about 1.2 million barrels, the report said.

According to the report, nearly two-thirds of U.S. oil goes to road transportation and the report suggests that the U.S. should continue to pursue electric and plug-in hybrid options for gasoline-powered cars and light trucks. However, these technologies are unlikely to be efficient or cost effective for heavier vehicles. Natural gas already powers buses, and is being tested in medium and heavy-duty trucks as well.

The Environmental Protection Agency (EPA) is considering a petition to establish greenhouse gas emissions limits for heavy-duty trucks. The agency announced limits for cars and light trucks in April 2010.

Based on existing turnover, the reports predicted that nearly half of all heavy-duty trucks and one-fifth of medium-duty trucks could be powered by natural gas by 2035. Nearly half of all school buses and two-thirds of transit buses could be powered by natural gas, the report says.

Natural gas combustion emits about 25 percent less carbon dioxide than oil combustion and therefore would reduce the levels of greenhouse gas emissions. In 2007, the Energy Information Administration estimated that 41,000 vehicles fueled by compressed natural gas were on the road, along with 2,600 vehicles fueled by liquefied natural gas, the report said. Compressed natural gas is widely available and is being used in short-range, centrally fueled vehicles such as refuse trucks and school buses. But compressed natural gas is impractical for long-haul trucks because it has lower energy density, limiting vehicle range and requiring frequent fill-ups.

Liquefied natural gas (LNG) would be more practical for long-haul trucks, but must be cryogenically cooled to negative 260 degrees Fahrenheit. Currently there is no LNG refueling infrastructure.

According to the report, federal assistance would likely be necessary to spur the growth of commercial LNG for long-haul trucks at refueling stations. The report suggested that federal policymakers examine the feasibility of creating natural gas highway corridors with LNG refilling facilities at truck stops along interstate highways. The report also suggests that current climate change legislation should include a program to encourage the conversion of heavy vehicles to run on natural gas.

However, the American Trucking Association suggests that natural gas is already in use in some parts of the trucking industry, but would be impractical for long-haul trucks. The association said that natural gas systems would add \$80,000 to the price of each truck and about 1,000 pounds of weight. The association also suggested adding LNG infrastructure at a truck stop would cost about \$1 million for each refueling station. Although the association is not ready to convert huge percentages of the industry to natural gas, they are willing to work in segments to include natural gas in some trucking systems.

More information on natural gas fueled vehicles and a copy of the report is available at http://www.americanprogress.org/issues/2010/04/pdf/american_fuel.pdf.

Check Out Our Website

Visit Us at <http://jcc.legis.state.pa.us>

The Committee's recently redesigned website is up and running. Please visit the website at <http://jcc.legis.state.pa.us>.

We are hopeful that you will find it easier to navigate the site and make use of it, and that you will find the new look more attractive.



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ON THE HORIZON...

A LOOK AT UPCOMING EVENTS

No events are scheduled at this time.

Check the Committee website at <http://jcc.legis.state.pa.us> for events that may be added to the schedule.

A REVIEW OF SOME
MEMORABLE COMMITTEE
EVENTS

COMMITTEE CHRONICLES...

The Joint Legislative Air and Water Pollution Control and Conservation Committee (Committee) recently held two information-gathering events regarding the exploration and drilling for natural gas in the Marcellus Shale formation in Pennsylvania.

The first (as pictured directly below) was a briefing for Committee members by officials from the



Department of Environmental Protection and Penn State University on events in the "Marcellus". Presentations were also made by Penn State Cooperative Extension Service Extension Educator Thomas Murphy (photo at right) and Penn State Water Resource Specialist Bryan Swistock (photo at lower right).



Murphy then spoke to one of the largest crowds ever (photo below) at the Committee's April Environmental Issues Forum.



The magazine article states that where the composting of food waste on a municipal scale has begun to take hold it is usually for two reasons. The first is to reduce the amount of waste being landfilled. The second is to reduce the generation of methane gas created by landfilling's anaerobic process. Composted food scraps use oxygen to break down the waste, generating water and carbon instead of methane, the article said. While methane can be a fuel source if properly captured, composting would allow for waste and gas reduction, even as energy creation efforts continue.

According to permits issued by the Pennsylvania Department of Environmental Protection (DEP), Pennsylvania is beginning to take a look at composting of food wastes on a municipal scale. A pilot program is underway by the State College Council of Governments, for example, and Columbia Borough in Lancaster County has been permitted for a demonstration project. Right now, most of the Pennsylvania-permitted food waste composting operations are captive operations. In other words, the composting institution deals only with the waste it generates.

The commonwealth does have a number of colleges, universities and correctional institutions that already compost food waste. At least 11 Pennsylvania colleges and universities are permitted by the state to compost food waste, most in windrows, but some "in-vessel" and others using vermicomposting. (Windrows are long lines of compostable material piled up and sometimes covered, and which are turned periodically to create aeration and maximize the composting process. Vermicomposting uses worms to break down material into compost.)

To learn more about composting, visit the PA Department of Environmental Protection website at www.depweb.state.pa.us and use the keyword composting

Two county prisons (Clearfield and Crawford) have received permits, as have state correctional facilities at Graterford and Waymart.

According to the Pennsylvania Recycling Markets Center (RMC), farming operations have also begun to take part in composting of food waste. Several farms have received permits and use composting for a variety of uses, including manure management and animal mortalities. The center is working with agriculture operations to encourage and assist them in getting permitted.

Also in the mix are supermarkets, produce markets, restaurants and hotels. The RMC points out in such instances, employees must be trained to keep improper items out of the waste stream in order to maximize composting success. Also, because of the nature of food waste, collection frequency and transportation make food waste composting a little trickier than other inorganic materials.

According to the RMC, capacity, or the lack thereof, has been an issue in food waste composting operations. However, a new facility – Peninsula Composting - has recently opened in the state of Delaware which is using aerated windrow technology to compost food waste. The operation plans to handle up to 150,000 tons a year and may provide a market for Southeast Pennsylvania communities and businesses. If successful, this could open the door to other operations that may spark an increase in food waste composting in Pennsylvania.

In the meantime, as noted above, homeowners can find information about composting on the DEP website at www.depweb.state.pa.us. Just enter the keyword composting for the "Guide to Home Composting" and more "food" for thought.

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