

ENVIRONMENTAL SYNOPSIS

The Chairman's Corner

Rep. Scott E. Hutchinson, Chairman



Ever wondered why people dump illegally and why illegal dumping occurs where it does? More importantly, have any ideas about how to stop illegal dumping? These kinds of questions have come before the Joint Legislative Conservation Committee (Committee) recently in a variety of ways.

The Committee staff recently attended the Keep Pennsylvania Beautiful Summit and heard a great deal about a county and municipal government survey that sought to answer some of these questions. Then, the Committee itself hosted the C.O.A.L.S. (Clean Up Our American Lands and Streams) program at our September Environmental Issues Forum. There we heard more about how to prevent and remediate occurrences of illegal dumping.

The survey was initially taken by the Professional Recyclers of Pennsylvania (PROP) in conjunction with PA Cleanways as part of the Forest Lands Beautification Project. The goal was to search out whether or not relationships exist between illegal dumping and such factors as demographics, geography and local services. A follow-up survey was taken in 2004.

The initial surveys were sent by mail to every county and municipality in the commonwealth. Of the 67 counties, 40 responded – a 60 percent return rate. Of the 2,600 local municipalities, 386 were returned - a respectable 15 percent return rate. As might be expected, response from the smaller and poorer municipalities was below par. Size and resources also played a role in the handling of illegal dumping, waste collection and recycling efforts in the state's municipalities.

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Among the general findings of the survey:

- there are consistent tendencies to where people dump;
- hard to dispose of bulky items are a significant part of what is found in dumps;
- inconvenient recycling and disposal facilities increase dumping;
- local recycling programs discourage dumping;
- extensive local collection services of all types decrease the incidence of dumping; and
- local governments need and desire technical support and advice.

Where are the popular dumping spots? As you may have guessed, and C.O.A.L.S. experience clearly showed, secluded, rural and wooded areas are the most popular dump sites. Higher levels of dumping are also found in mountainous areas, in parks and other public lands, along waterways and along lightly traveled gravel roads. Smaller, rural, poorer communities often had larger problems.

(continued on page 8)

NOTES FROM THE DIRECTOR



CRAIG D. BROOKS, EXECUTIVE DIRECTOR

Wind energy capacity in the United States quadrupled between 2000 and 2006 and at first glance, obtaining electricity from a free source – wind – seems to be a great contribution to the nation’s energy independence. But looking into it further, the subject of wind energy is surprisingly controversial and more complicated than expected.

Recently, Congress asked the National Research Council (NRC) to conduct an assessment of wind energy generation and report on the environmental impacts of wind energy installations using Pennsylvania, Virginia, Maryland and West Virginia as its study area. The NRC report provides an analysis to help understand and evaluate positive and negative environmental effects of wind energy projects and facilities.

The generation of wind energy has the potential to reduce environmental impacts caused by the use of fossil fuels to generate electricity. However, it also has the potential to produce some negative environmental impacts of its own. The benefit therefore depends on the degree to which the adverse effects of other sources can be reduced by replacing the other sources with wind energy.

The benefit of wind power depends on how much its use reduces adverse impacts of other energy sources

Currently wind energy capacity generates only one percent of the nation’s electricity and can produce negative environmental effects such as altering or damaging wildlife habitat or sensitive areas, interfering with resident or migratory fish and wildlife species including protected species, altering plant communities and harming migratory and resident bird and bat populations.

The NRC concluded that government guidance is needed to help communities and developers evaluate and plan for proposed wind energy projects on private and public lands, and found that current regulation

of wind projects is minimal. Apart from the Federal Aviation Administration guidelines, federal and state laws protecting birds are the main legal constraint for evaluating wind energy projects.

It appears that regulatory authorities, wind energy developers and non-governmental organizations are learning as they go. The NRC suggested that national-level policies to promote the benefits of wind energy and minimize its harm would help guide state and local regulatory efforts.

The NRC suggests that national-level policies will help to guide state and local regulatory efforts

The NRC report includes an analysis of the different types of regulatory processes currently in place at the local, state and federal levels and suggests that guidance is needed on the quantity and kinds of information provided for siting a wind project. State and local regulators could also benefit from guidance on what environmental effects to consider, the competing costs and benefits that need to be weighed, and how to weigh them.

Studies to evaluate possible ecological impacts should be conducted prior to choosing sites for wind facilities and follow-up studies should be conducted to measure actual effects. Human concerns associated with wind energy projects such as increased noise and traffic, and the visual effects of large turbines also need to be considered.

The Department of Energy predicts that wind power will play a larger role by 2020, but estimates of how large its role will be vary widely, ranging from two to seven percent of the total U.S. electricity production. At least 20 states currently have policies that require electricity providers to obtain a minimum percentage of their power from renewable sources such as wind power.

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.

Wind Power's Rapid Growth Continues in 2006

– Tony M. Guerrieri, Research Analyst

If wind power has a reputation of being on the fringe – an expensive technology that has more to do with environmentalists' dreams than electricity production – the United States is proving it to be a viable energy source. The United States is the fastest growing global market for wind power, according to the U.S. Department of Energy's Office of Energy Efficiency and Renewable Energy's (EERE) *"Annual Report on U.S. Wind Power Installation, Cost, and Performance Trends: 2006"*.

Drawing from a variety of sources, the EERE report provides a snapshot of the industry's rapid growth. The report provides information on a variety of trends in the marketplace including wind power prices compared to wholesale electricity prices, project costs, turbine sizes, and developer consolidation. It also describes the increasing performance of wind projects, current ownership and financing structures, and trends among major wind power purchasers.

The report notes that the nation's wind energy capacity grew by 27 percent in 2006, the largest incremental jump on record. The U.S. wind energy industry installed 2,454 megawatts (MW) of new generating capacity in 2006. The total U.S. installed wind energy capacity climbed to 11,575 MW. One MW of wind energy produces enough electricity to serve 250 to 300 homes on an average day.

In terms of economic value, this growth translates into more than \$3.7 billion invested in wind project installation in 2006, for a total of more than \$18 billion since the 1980s. As in most countries, wind energy in the United States is supported by federal tax incentives, state renewable energy standards and other incentives that make it competitive.

For the second consecutive year, wind power was the second largest new resource added to the U.S. electrical grid in terms of capacity, well behind the more than 9,000 MW of new natural gas plants, but ahead of new coal, at 600 MW. New wind plants contributed 19 per-

cent of new capacity added to the U.S. electrical grid in 2006, compared to 13 percent in 2005.

On a worldwide basis, wind energy markets experienced a record year with the installation of 15,016 MW. This takes the total installed wind energy capacity to 74,246 MW.

Europe continues to lead the way in terms of installed wind capacity. The countries with the highest total installed capacity are Germany (20,652 MW), Spain (11,614 MW), the United States (11,575 MW), India (6,228) and Denmark (3,136 MW).

For another perspective on wind power, read "Notes From the Director" on page two

In terms of new installed capacity in 2006, the U.S. led with 2,454 MW, followed by Germany (2,233 MW), India (1,840 MW), Spain (1,587 MW), China (1,334 MW) and France (810 MW). It is evident that new players such as France and China are gaining ground.

The report found that the U.S. lags far behind global leaders Denmark (21.4 percent), Spain (8.8 percent), Portugal (7.0 percent) and Germany (7.0 percent) in the percentage of electricity consumption from wind power. The U.S., France and China were all under one percent of projected wind power production as a percentage of overall electricity consumption in 2006.

Within the U.S., new large-scale wind turbines were installed in 22 states in 2006. Texas accounted for nearly a third of the new wind power installed in 2006. The top five states in new installations were Texas (774 MW), Washington (428 MW), California (212 MW), New York (185 MW), and Minnesota (150 MW). Pennsylvania was ranked 13th with 50 MW of new wind power capacity in 2006.

Texas is also the nation's leader in wind energy production. According to the report, Texas' wind power capacity stands at 2,739 MW, placing it ahead of long

time leader California. California produces 2,376 MW of capacity. California and Texas together produce almost half of the wind power capacity in the United States. Iowa (931 MW), Minnesota (895 MW), and Washington (818 MW) ranked third, fourth and fifth respectively. Pennsylvania was ranked 13th with a cumulative capacity of 179 MW.

The report also noted that the cost of wind turbines has been increasing since 2002, reversing a decline in the cost of wind power projects and raising the price tag for generating wind power. Turbine cost increases have been driven by rises in input materials and energy prices, and some shortages in certain turbine components. But, according to the report, rising costs have been offset by higher tower heights, improved project siting and technological advancements. General Electric's Wind Unit is the leading U.S. supplier of wind turbines, while Siemens is the fastest growing turbine supplier.

The report concludes that wind power is competitive and has been consistently priced at or below the price of electricity produced at fossil-fueled or nuclear power plants. As a result, the industry is in a period of extraordinary growth.

The Department of Energy's Office of Energy Efficiency and Renewable Energy's *"Annual Report on U.S. Wind Power Installation, Cost, and Performance Trends: 2006"* is available at: <http://www.nrel.gov/docs/fy07osti/41435.pdf>.

EPA Slow in Implementing Stormwater Pollution Program

– Craig D. Brooks, Executive Director

A report by the Government Accountability Office (GAO) finds that the Environmental Protection Agency (EPA) has made slow progress in implementing stormwater pollution requirements for urban areas.

According to the report, nearly 11 percent of the municipal stormwater sewer systems have not yet received permits as of December 2006 even though the federal application deadline for large communities occurred in 1993 and the deadline for small communities was in 2003. GAO found that 11 of the 220 larger urban areas and 809 of the approximately 5,000 smaller communities were not yet permitted as of last fall (2006), and more than half of all state and federal permitting authorities have not yet issued all of their permits.

EPA developed its stormwater program as part of the National Pollutant Discharge Elimination System by issu-

ing Phase I regulation for communities with populations of 100,000 or more in 1990 and Phase II regulations for smaller urban communities in 1999. The regulations require communities with separate sewer systems for stormwater to obtain permits and implement activities to control pollution. GAO has said that delays in the issuing of municipal separate stormwater system permits were caused, in part, by legal challenges to both the process of issuing stormwater permits and the conditions of those permits.

According to the GAO, over half of permitting authorities have yet to issue all their permits and it is impossible to determine accurate implementation costs

For example, in 2003, the U.S. Court of Appeals for the Ninth Circuit ruled that small municipalities covered under the Phase II stormwater rule must make their compliance plans publicly available with an opportunity for comment. GAO found other factors such as budget constraints, lack of staff resources, and competing programs such as the Total Maximum Daily Load Program have also contributed to state and federal delays in issuing stormwater permits.

As a result of the slow progress, nearly all Phase II communities and some Phase I communities are in the early stages of implementing stormwater controls and GAO suggests that it's unable to determine the accurate costs or burdens associated with implementation.

In 1990 and 1999, respectively, EPA analyzed the per capita costs of implementing Phase I and II of the stormwater program. However, some communities may face greater burdens because of more stringent requirements set by the federal or state governments and additional efforts may be required to address litigation over water quality or funding for stormwater activities.

GAO has suggested that future assessments of stormwater burdens will be hampered by the limited and inconsistent data currently available and therefore recommends that EPA issue guidance and regulatory changes to ensure proper reporting and consistent efforts to reduce stormwater pollution.

EPA's *"Municipal Separate Storm Sewer System (MS4) Program Evaluation"*, is available at: http://cfpub.epa.gov/npdes/docs.cfm?program_id=6&view=allprog&sort=name#ms4_guidance.

A Study of Toxic Chemicals in Maine Residents

– Tony M. Guerrieri, Research Analyst

Here's a brain teaser. What do a special education teacher, a safety instructor, a children's author, a nurse, an organic farmer, a lobbyist, a community organizer, a high school student, a science writer, a sporting camp owner, a writing instructor, and two state lawmakers all have in common? Give up?

According to a report by the Alliance for a Clean and Healthy Maine (Alliance), the 13 individuals above were all volunteers together in a study and all had measurable amounts of chemicals that are toxic or potentially dangerous in their bodies.

For the report, "*Body of Evidence: A Study of Pollution in Maine People*", 13 Maine residents (four men and nine women) agreed to testing of their hair, blood and urine for the presence of toxic chemicals as part of an investigative study. The Alliance wanted to know which chemicals could be found in the volunteers' bodies, and at what levels, to better understand the potential harm posed by insufficient regulation of chemicals. The goal of the study was to develop better solutions to regulatory problems.

The report focused on five families of chemicals. Phthalates (added to perfume and plastic), polybrominated diphenyl ethers (PBDEs - used as flame retardants), perfluorinated chemicals (PFCs - used to make Teflon), and bisphenol A (BPA - used in the production of polycarbonate plastics and epoxy resins used to line food and beverage cans) are the technical names of four of the chemical families tested. Heavy metals – lead, mercury and arsenic – comprised the fifth family.

These chemicals have hazardous properties such as toxicity (ability to harm life), and in some cases persistence (being slow to degrade) and bioaccumulation (building up in the food chain). According to the report, the routine exposure to these chemicals may pose a potentially serious health threat. Even so, the report continues, "industry is not required to demonstrate the safety of chemicals before adding them to consumer products, nor are they required to use safer alternatives to chemicals known to be hazardous."

Of the 71 chemicals tested for – 46 were detected. Thirty-six of those were found in all 13 volunteers. According to the report, all 13 volunteers had measurable amounts of lead, mercury and arsenic in their bodies. Mercury can come from tainted fish, lead from exposure to dust from lead paint and arsenic from drinking water from wells. They also had varying amounts of the other

chemicals. Some of the volunteers contained levels of chemicals several times higher than the national median, while others were much lower than the median. Three of the chemicals are known to be toxic to humans, but others, like phthalates, are unregulated. The report indicates that it is unclear what level might be considered safe.

The Maine participants, who ranged in age from 18 to 60, all had diverse lifestyles. Mr. Russell Libby, director of the Maine Organic Farmers and Gardeners Association, was tied with the most chemicals found, with 41, and had the greatest number of PBDEs detected (27 of 46). Representative Hannah Pingree, the House Majority Leader in Augusta - and who said she leads a healthy lifestyle - had the second highest level of phthalates and of mercury among the participants. Senator Dana Dow had the highest levels, and most different types, of PFCs. Senator Dow's levels were more than twice the national average level for several PFCs.

The report stresses that these chemicals are found in everyday products such as plastic containers, toys, furniture, fabric, automobiles, TVs and stereos, water bottles, medical supplies, and personal products like shampoo, hairspray, and perfume.

The report contains three recommendations to reduce toxic chemical exposure to Maine citizens:

- **Close the safety gap** – The idea is three-fold: ban the most harmful chemicals; search for safer substitutes; and mandate that the industry prove the chemicals are safe;
- **Close the data gap** – This involves honoring the public's right to know what hazardous chemicals are in products, as well as making industry responsible for proving the safety of the chemicals it uses and releasing health and safety data;
- **Close the technology gap** – A call to establish a research center to assess the chemical danger in Maine and to invest in research to develop environmentally safe plastics and other "green" chemistry.

The Alliance for a Clean and Healthy Maine is a diverse coalition of nine environmental organizations concerned about the public's exposure to persistent toxic chemicals. The report, "*Body of Evidence: A Study of Pollution in Maine People*", is available at: <http://www.cleanandhealthyme.org/BodyofEvidence.pdf>.

Diesel Retrofits Improve Air Quality

– Craig D. Brooks, Executive Director

A report released by the Environmental Protection Agency (EPA), entitled *“The Cost-Effectiveness of Heavy-Duty Diesel Retrofits and Other Mobile Source Emission Reduction Projects and Programs”*, suggests that retrofitting existing diesel-powered trucks and other equipment with emission controls is among the most cost-effective ways to use federal transportation money intended to improve air quality.

The federal funds come through the Congestion Mitigation and Air Quality (CMAQ) program. CMAQ provides federal aid to transportation and infrastructure projects specifically designed to reduce congestion or improve air quality.

The report lists cost ranges per ton of reduced particulate matter (PM) emissions, as well as reduced emissions of nitrogen oxides (NOx) and volatile organic compounds that lead to ground-level ozone formation. Like the EPA’s highway guidance issued last year, this report shows that reducing PM emissions costs more per ton than reducing ozone-forming emissions.

EPA’s report states that diesel retrofits are necessary for states to comply with national ambient air quality standards

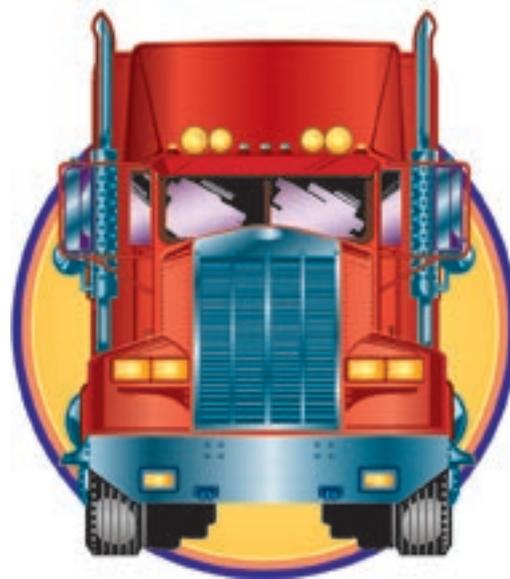
According to the report, while reducing a ton of PM often costs more than to reduce a ton of NOx, the health effects of PM are greater per ton than for NOx. Nitrogen oxides are produced in much greater amounts than particulate matter so greater reductions of NOx emissions are required to reduce ambient ozone levels than reductions of PM emissions. However, due to the greater health hazard posed by PM, a small reduction in PM may be more effective than larger NOx reductions from a public health perspective.

The report also says that diesel retrofits are necessary to help states comply with national ambient air quality standards for ozone and particulate matter. Congress in 2005 directed states to give priority to diesel retrofits, particularly for equipment used in road construction, when deciding how to spend CMAQ money. States are required to comply with the standard for fine particulate, those less than 2.5 microns in diameter, by 2010, and were to have complied with the ozone standard beginning June 2007.

The report suggests that it is particularly urgent for

states with non-attainment areas to begin now to direct CMAQ resources to control diesel emissions.

Although the report suggests that retrofitting diesel engines is one of the most cost-effective ways to reduce diesel emissions, not all agree. For example, a guidance document issued by the Federal Highway Administration suggests that other measures - such as promotion of ride-share programs or transportation demand management - may be more cost effective ways to spend CMAQ money.



However, critics suggest that the highway guidance failed to take into account that retrofitting diesel engines, while more expensive than other options, also greatly reduces PM emissions. Other alternatives reduce ozone levels, which while dangerous to human health, are not as harmful as particulate matter.

The EPA report is available at http://www.epa.gov/otaq/stateresources/policy/pag_transp.htm#420b07006.

News to Use in the Environmental Synopsis... share it with a friend

The *Environmental Synopsis* is issued monthly.

The newsletter examines timely issues concerning environmental protection and natural resources.

If someone you know would like to receive a copy of the *Synopsis* each month, please contact the Committee office at 717-787-7570.



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ON THE HORIZON . . .

A LOOK AT UPCOMING EVENTS

- ✓ **Thursday, November 1, 10 a.m.** – Tour of abandoned mine lands (AML) site in Hegins Township, Schuylkill County and 2 p.m. – tour of AML site in Hazleton, Luzerne County
- ✓ **Monday, November 19, 12 noon, Room 60, Capitol East Wing, Harrisburg, PA** – Environmental Issues Forum concerning the E-waste recycling program conducted by Goodwill Industries of Pittsburgh

Environmental Issues Forums are open to the public. Please call the committee office at (717) 787-7570 if you would like to attend.

COMMITTEE CHRONICLES . . .

REVIEW OF SOME MEMORABLE COMMITTEE EVENTS

Keep Pennsylvania Beautiful (KPB) recently held its 2007 Summit with the theme of “Clean Up and Pretty Up.” After opening remarks from KPB co-chairs Kathleen McGinty, secretary of the PA Department of Environmental Protection, and Dave McCorkle, president of the PA Food Merchants Association, a panel provided information on “Innovative State and National Endeavors.” The panel members were (photo at right, l to r.): Keep America Beautiful National Director of Education Sue Smith; State Coordinator, West Virginia Department of Environmental Protection’s Litter Control and Highway Beautification Program Anna Shahan; Adopt-A-Highway Program Coordinator, California Department of Transportation Terri Bebo; and Manager of Keep Georgia Beautiful Lynn Patrick Cobb.



The large crowd (photo below) also heard from John Frederick, the executive director of the Professional Recyclers of Pennsylvania (photo at right), who presented the results of a statewide survey in Pennsylvania regarding waste collection management, recycling and illegal dumping. See this month’s Chairman’s Corner on page one for more information about the survey results.



About 80 percent of communities with serious illegal dumping problems had median populations of 1,700, average municipal budgets of only \$329,000 and a per capita income \$1,650 below the state average. One other factor was that communities which offered fewer services than average to their residents had serious dumping problems.

The issue is not as simple as it seems, however, because the source of dumping is not always obvious. In a number of cases one municipality felt the brunt of illegal dumping from an adjacent municipality whose dumpers took advantage of sites away from home. Thus, the "neighboring" municipality might have a dumping problem not of its own making, while the "source" municipality in such cases is often unaware of a dumping problem because the perpetrators have moved across municipal borders.

What is most commonly found in illegal dumps? Traditionally difficult to dispose items like tires, appliances, bulky items and construction and demolition waste predominate. The case studies presented by C.O.A.L.S. would seem to confirm the survey findings. We saw far too many instances of student volunteers having to form human chains to relay tires one by one from out of remote dump sites to the waste collection points. And, C.O.A.L.S. all too often had to bring in contractors to remove heavy, hard to handle appliances and quantities of other unwieldy, weighty and large waste items.

The survey found four factors that seemed to rise above any others in methods to discourage illegal dumping. They were:

- *comprehensive recycling programs;*
- *sound local ordinances and aggressive enforcement;*
- *extensive local collection services; and*
- *convenient and affordable recycling and disposal facilities.*

C.O.A.L.S. has included in a number of its cleanups, hidden cameras and strong enforcement efforts, as well as local partnerships and education, to keep dump sites waste-free once the initial cleanup is completed. Such efforts seem to be successful and to be important factors in preventing new dumping.

The survey also pointed to the need for effective communication and outreach. While technical assistance is needed, there are times when help is available, but citizens and municipalities are unaware of what help is out there.

In a somewhat surprising finding given the prevalence of bulky waste problems, special collection efforts, while beneficial, seemed to have little deterrent effect on bulky waste accumulation. Distance and convenience of recycling and disposal facilities was a much more significant factor. The cost of services was also a factor. Those with trash accumulation problems paid an average of \$14.36 a month for waste recycling services, while those with fewer problems paid an average of only \$12.59. Curbside recycling programs also seemed to help deter illegal dumping. The survey urged that close examination be given to the pros and cons of contracted or municipal collection versus private subscription services and to pay-as-you-throw volume-based waste collection systems.

Among recommendations found in the survey is the need for promotion of comprehensive waste management at the municipal level, possible expansion of some aspects of Pennsylvania's Act 101 of 1988 (the Municipal Waste Planning, Recycling and Waste Reduction Act), facilitation of technical support to local municipalities, realization of the importance of county recycling coordinators, consideration of new and innovative approaches like waste drop-off depots or mini-transfer stations, and improvement of outreach and education.

Local governments need to take solid waste collection responsibilities seriously and be proactive. Counties should be sure to include dumping and related disposal issues when updating solid waste management plans. Links between local and county governments should be stronger.

Waste management, recycling, illegal dumping and beautification are issues that are not going to go away. The Committee will work to improve realization and understanding of the complexities of the issues and looks forward to working with organizations like Keep Pennsylvania Beautiful, PROP, C.O.A.L.S., PA Cleanways and their partners.

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