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ENVIRONMENTAL SYNOPSIS

The Chairman's Corner

Rep. Scott E. Hutchinson, Chairman

While reading through some mail and files recently, I was struck by the magnitude and impact of seemingly small events, and the very personal nature of our interaction with our environment. At the same time, I was reminded that the collective small actions of millions of individuals can have a powerful influence on our environment.

Very often, the General Assembly deals with "big picture" policy issues, such as watersheds, the state park system, airborne emissions and acid mine drainage. We seem to sometimes overlook any number of local and individual actions that can be taken to improve the environment, and the role they play in the bigger picture.

For example, in my own legislative district, members of the Pennsylvania Senior Environment Corps (PaSEC) will be trained to locate and mark orphaned oil and gas wells in Venango County's Oil Creek State Park, near the birthplace of the world's petroleum industry (Titusville, 1859). Senior citizen volunteers actually began the work earlier this year and they have found more than 40 orphan wells already. This is seemingly a small, local effort. But then consider that the PaSEC has volunteers in 51 of the state's 67 counties, and they also do water monitoring in other parts of the state. The Oil Creek initiative is very personal and close to home, but joined with other volunteer efforts has a much wider effect.

As the designated garbage "taker-outer" and recycler in my family, I have to think about the subject regularly in a very personal way. Seriously, did you know that the average American generates about 4.5 pounds of garbage each day?

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In This Issue...

Joint Legislative Air and Water Pollution Control and Conservation Committee

A Legislative Service Agency of the Pennsylvania General Assembly

NOTES FROM THE DIRECTOR

CRAIG D. BROOKS, DIRECTOR

So you need a can of Mountain Dew from the vending machine down the hall to satisfy your 3:00 p.m. sugar and caffeine craving. As you insert your pocket change, the fluorescent lamp inside the vending machine lights up your soda selection. Bet you never thought about how much electricity it takes to power that machine. But who would, right?

As it turns out…it takes more power than you would think. Just one vending machine consumes about 3,000 kilowatt-hours a year of electricity. To put it into perspective, that's about six times the amount of electricity that your home refrigerator uses in a year. Inefficient energy use from vending machines and home appliances like refrigerators and air conditioners are coming under stronger scrutiny these days.

Refrigerators and freezers consume about a sixth of all electricity in a typical American home - using more than any single household appliance. Energy efficiency standards require products such as refrigerators, electric motors and air conditioners to meet specific energy requirements. Minimum efficiency standards apply to new equipment sold in the United States, removing inefficient products from the market. Standards enacted to date are having a significant impact on U.S. energy use while saving consumers and businesses billions of dollars. Appliance standards now rank with automobile fuel economy standards as one of the two most effective federal energy-saving policies.

Did you know that…

— During the last century, the amount of energy we used doubled approximately every 20 years?

— Using *ENERGY STAR* labeled products could reduce your home energy consumption by as much as 30 percent?

— Without the energy efficiency improvements that have occurred in the past several decades, the nation would consume 30 percent more energy?

— Energy production and use account for 80 percent of air pollution?

— While efficiency standards have led to modest increases in the prices of regulated consumer goods, estimates are that the benefits (i.e. the cost savings associated with lower energy bills) are more than 3 times the additional costs?

In the early 1990's, the U.S. Environmental Protection Agency introduced ***ENERGY STAR*** as a voluntary program designed to identify and promote energy-efficient products. It is a government-backed program that helps businesses and individuals with energy efficiency needs. Computers and monitors were the first to be labeled, but by 1996 product categories included major appliances, office equipment lighting, home electronics and more. The results are adding up.

The Department of Energy estimates that increasing energy efficiency and expanding renewable energy use throughout the economy could cut our national energy bill by 9 percent by 2010 and by up to 22 percent by 2020. Taking into account the cost of energy efficiency measures, consumers and businesses could save about $50 billion net in 2010 and $100 billion per year by 2020. But there's always room for improvement.

In PA, legislation has been introduced to tackle minimum energy efficiency standards for commercial and industrial products sold and installed in the Commonwealth

States that pioneered the first energy efficiency standards are once again looking at these programs as key policy for saving energy. Here in Pennsylvania, legislation (SB 901, P.N 1159) has been introduced to go beyond traditional home appliances and tackle minimum energy efficiency standards for commercial and industrial products sold and installed in the Commonwealth. Such products range from commercial refrigerators and freezers to traffic signal modules. By 2030, consumers and businesses are projected to save approximately $186 billion from standards already adopted. The economy and environment will only continue to benefit with the expanded standards being proposed.

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.

Superfund's Last Gasp

—Tony M. Guerrieri, Research Analyst

By this time next year the Superfund trust fund, the long troubled 23-year old program to clean up the nation's most seriously polluted toxic waste sites, will be virtually bankrupt, according to a report by the U.S. General Accounting Office (GAO).

Congress created the Superfund program in 1980 in response to growing public concern about the effects of toxic waste sites like New York's Love Canal. The Superfund program is backed up by revenue from a trust fund, which is tapped for cleanups when the government cannot identify the responsible parties or when the responsible parties refuse to pay. The program was originally funded in part by revenue from a tax on chemical and petroleum companies – reflecting the "polluter pays" principle behind the fund. It was also funded by fines and payments by companies blamed for pollution at a particular site.

In 1995, the tax on chemical and petroleum companies was allowed to expire. To date, Congress has not reauthorized the tax. Instead, Superfund activities have been financed increasingly by money from general tax revenues, and not by companies that tend to pollute.

The balance of the Superfund trust fund available for future appropriations has decreased significantly from a high of $4.2 billion in 1996 to $564 million in 2002. Further, revenues from taxes, cost recoveries, interest, fines, and penalties have decreased from more than $2 billion in 1995, the year the taxing authority expired, to less than $370 million in 2002 – a fall-off of more than 80 percent.

The taxes on chemical and petroleum products have declined from $2.019 billion in 1993 to $7 million in 2002, a plunge of more than 99 percent. Fines and penalties shrunk by 75 percent, from $4 million to $1 million.

The decline in revenues has led the Superfund program to rely increasingly on appropriations from the general fund to supplement its trust fund. According to the report, in 1995, taxpayers paid $283 million for Superfund cleanups, or about 16 percent of the $1.7 billion fund with corporate taxes paying $1.4 billion, or about 84 percent. Taxpayers paid $350 million in 1999, and since then have paid about 50 percent of the cost.

In the U.S. Environmental Protection Agency's (EPA's) 2004 budget request for the Superfund program, the general fund appropriation of $1.1 billion would make up about 80 percent of the program's total appropriation. The general revenue request is an increase of more than $400 million (73 percent) over the amount requested in 2003.

While the program's funding sources have changed, annual program expenditures have remained between $1.3 billion and $1.7 billion.

Without the industry tax to replenish it, the fund is now nearly empty. The GAO report suggests that unless the EPA receives additional funds, the balance of the trust fund available for future appropriations will be depleted at the end of 2003.

While Superfund revenues continue to decline, annual program expenditures are constant and the list of hazardous sites is growing

At the same time, the list of hazardous sites is expanding. The EPA knows of 44,000 potentially polluted sites and discovers about 500 new ones a year. The sites earmarked for Superfund cleanups are placed on the National Priorities List (NPL) that numbered 1,233 at the end of 2002. Of the 1,233 sites on the NPL, 21 percent were in the study and design stage, 31 percent had construction activities under way, and 47 percent had completed the construction of any required cleanup facility at the site. After construction of the facility is completed, a site can remain on the NPL for many years while the actual cleanup takes place.

Adding to the fiscal pressure, the GAO report concludes that in the future fewer Superfund sites will have responsible parties who can pay for their cleanup. Also, state governments, which sometimes share the cleanup costs, face their own budgetary constraints in the slow economy.

To obtain a copy of the report, *"Superfund Program: Current Status and Future Fiscal Challenges"*, call the U.S. General Accounting Office at (202)-512-6000. Request report number GAO-03-850. The report is also available on the GAO's website at http://www.gao.gov/cgi-bin/getrpt?GAO-03-850.

Funding Drinking Water Infrastructure

—Jason H. Gross, Research Analyst

In a report to Congress entitled *"The Drinking Water State Revolving Fund Program, Financing America's Dinking Water From the Source to the Tap"*, the U.S. Environmental Protection Agency (EPA) has attempted to summarize the methods that the federal government uses to assist states and municipalities in funding drinking water infrastructure.

The Safe Drinking Water Act (SDWA) was amended in 1996 and authorized the Drinking Water State Revolving Fund (DSWRF). The program is a funding source to help public water systems support their drinking water programs, upgrade and improve infrastructure and meet requirements found in the 1996 amendments. Under the DWSRF program, the EPA awards capitalization grants to states, which in turn provide low-cost loans and assistance to public water systems to finance the costs of infrastructure projects needed to maintain compliance with the Safe Drinking Water Act.

The report notes the United States has one of the safest drinking water supplies in the world. The 1996 amendments to the Safe Drinking Water Act (SDWA) are intended to ensure that the drinking water supply remains healthy. In the amendments, Congress authorized new federal funding programs to give states resources to address their most pressing public health needs.

A revolving fund is an account that is repeatedly expended, replenished, and then expended again. Funds that are deposited by the EPA into the revolving fund are loaned at low interest rates to eligible borrowers. As the loan principal is repaid, the interest revenues are used to make new loans. In the 2001 federal fiscal year, Congress appropriated $4.4 billion for use by the program. With additional contributions through state matching funds and municipal bonds, states have at their disposal a total of more than $5.2 billon for funding drinking water infrastructure.

The funds are administered by the states down to the local level where they are spent on municipal drinking water infrastructure projects. And, according to the report, the public water system in the United States is far from centralized, being divided into 165,000 separate public water systems. These systems typically are comprised of three types: community, non-transient non-community, and transient non-community. This diversity of water systems requires that funding sources be dealt with at a local level to assure that projects that need the money most receive the funds. The majority of these systems are very small, serving fewer than 3,300 customers. In contrast, the majority of the population in the United States, as much as 81%, is served by seven percent of the community water systems, these being systems that serve the major metropolitan areas and more than 10,000 people.

Under the SDWA, states are required to fund the highest priority project as determined by a system established by statute. The states must give priority to projects that address the most serious risks to health, are necessary to ensure compliance with the requirements of the SDWA, and assist systems in most need on a per household basis. The law provides that funds could be used for projects of any type or category that the EPA administrator determines would facilitate compliance with national primary drinking water regulations for the most number of water users. The law also requires that states provide funding to publicly or privately owned community water systems and non-profit non-community water systems that have eligible projects. This ensures that no water users are left behind.

A typical example of a success story in the history of the Revolving Fund comes from the Borough of Williamsburg in Pennsylvania. The borough has served its residents and those in Woodbury and Catherine townships for over 90 years without significant infrastructure renewal. For most of the time the water was supplied by reservoirs on the Tussey Mountain. In the 1980's the reservoirs were abandoned due to a giardia contamination and the poor condition of the transmission lines. After the abandonment, many of the remaining existing lines were undersized and in poor condition. This resulted in pressure, flow, and leak problems. In 1997 the borough received $4.2 million in DWSRF loan money. The loan enabled the borough to install a booster pumping station, a 210,000 gallon water storage tank, and eight miles of water mains. The project, which made the drinking water safe, was completed in the spring of 1998.

For more information and a copy of the full report go to EPA's website at http://www.epa.gov/safewater/dwsrf/pdfs/dwsrf_congressreport-main.pdf.

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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Civil Engineer's Report Outlines America's Crumbling Infrastructure

—Tony M. Guerrieri, Research Analyst

America's infrastructure is coming apart at the seams, according to a 2003 progress report by the American Society of Civil Engineers (ASCE) that gives the nation's transportation, water, and energy systems an overall grade of D-plus.

The report examines trends and assesses the progress and decline of America's infrastructure – roads, bridges, mass transit, aviation, schools, drinking water, wastewater, dams, solid waste, hazardous waste, navigable waterways, and energy. In 2001, ASCE engineers released the *Report Card for America's Infrastructure*, grading the same 12 infrastructure categories at a D-plus overall and estimating the need for a $1.3 trillion investment to bring conditions to acceptable levels.

Grades ranged from a high of C-plus for solid waste treatment to a low of D-minus for schools in the 2001 report. In the 2003 progress report, the grades showed little or no improvement – and in many cases worsened in areas such as roads, transit, drinking water, wastewater and energy. Currently, the 2003 report shows a five-year need for a $1.6 trillion infrastructure investment nationwide.

The grade for the nation's infrastructure – D+

Schools received the worst grade – D-minus – from the engineers, who said three out of four school buildings are inadequate. It is estimated that it will cost more than $127 billion to build new classrooms and modernize outdated schools.

Signs of decline were seen in energy transmission. Energy transmission earned a D-plus, but the engineers said the trend is getting worse. Investment in transmission fell by $115 million annually, to $2 billion a year in 2000 from $5 billion in 1975. Actual capacity increased by only 7,000 megawatts a year, 30 percent less than needed to keep up with power demand.

The ASCE report gave both drinking water and wastewater infrastructure grades of D. While drinking water is good, the report states that infrastructure of the nation's 54,000 drinking water systems is aging rapidly and faces an annual funding shortfall of $11 billion. It added that the 16,000 wastewater systems in the United States face enormous needs and many are past their recommended life expectancy.

Roads received a D-plus and bridges received a C on both the 2001 and 2003 reports. The report shows that as of 2000, 27.5 percent of the nation's bridges were structurally deficient or obsolete, down from 29 percent in 1998.

The report does provide specific information for each state and does break down some large metropolitan area needs. Key findings from the report specific to Pennsylvania note that the top three infrastructure concerns for Pennsylvania are – roads, bridges, and drinking water.

In Pennsylvania, 46 percent of its major roads are considered to be in poor or mediocre condition, according to the report. About 42 percent of Pennsylvania's bridges are deemed structurally deficient or functionally obsolete, and 21 percent of its urban freeways are "congested". Driving on roads in need of repair costs Pennsylvania motorists $1.9 billion a year in extra vehicle repairs and operating costs, or about $219 per motorist, according to the report.

Pennsylvania's top infrastructure concerns - roads, bridges and drinking water

About 42 percent of Pennsylvania's schools have at least one inadequate building feature, while 57 percent have at least one unsatisfactory environmental condition, the report states.

The state's drinking water infrastructure need is $5.26 billion over the next 20 years, and existing sewage treatment plants and lines need $6.3 billion in upgrades over the next 20 years. Also, Pennsylvania is home to 757 so-called "hazard" dams whose failure likely would cause a loss of human life.

In addition to population growth, the report cites a weak economy, limited federal programs and the threat of terrorism – which diverted money to security – as contributing to the nation's deteriorating infrastructure.

A 20-member advisory council of civil engineers evaluated existing data compiled by the U.S. Environmental Protection Agency, the U.S. Department of Education, and other sources to provide a forecast for each infrastructure category.

The complete 2003 progress report, along with a state-by-state analysis, can be accessed at the American Society of Civil Engineers website at: www.asce.org/reportcard/pdf/fullreporto3.pdf.

Diesel Engines and Lung Health

—Jason H. Gross, Research Analyst

The American Lung Association has released a report entitled, *"Closing the Diesel Divide, Protecting Public Health From Diesel Air Pollution"* which examines the two primary sources of diesel pollution: diesel engines in a range of non-road equipment from lawn tractors to excavators, and stationary internal combustion engines used to power electric generators. The Lung Association takes issue with the fact that diesel engines are not all held to the same clean air standards merely because they are used in different ways.

Federal regulations on emissions treat diesel engines by their usage rather than their emission loads. As a result, essentially similar diesel engines receive different treatment under current regulations, despite the fact that they produce the same level of emissions. Regulations have never required non-road diesel engines to comply with the most restrictive emission controls that other types of diesel engines must comply with.

The legal loophole in the federal regulations that has different requirements for non-road mobile sources of pollution than it does for stationary pollution sources is drawn along the line of the residence time of the engine. An engine that is moved from site to site more than once a year is considered mobile and is therefore under the less strict federal standards for non-road engines. A diesel engine that can be loaded on a flatbed truck is therefore under the same lower standards that apply to diesel truck engines.

The consequences of this loophole are that small-scale electric generators and power plants are allowed to emit high levels of toxic particulates into the air. The report calls for the EPA to apply the same clean air standards to stationary diesel engines as it does to non-road mobile sources of pollution.

What should be done about disparities in regulation of diesel emissions?

The EPA rules that will be promulgated in 2007 for non-road construction equipment will still allow non-road engines to emit particulate emissions at 30 times the rate of a highway bus, clearly showing the disparity between non-road (used in construction and mining, for example), and on-road diesel engines (such as diesel trucks and buses).

The primary source of diesel engine pollution is from the exhaust. Diesel exhaust occurs as a gas, liquid or solid and is the result of the combustion in the diesel engine of the diesel fuel. The composition of the exhaust depends on the type of engine, the operating conditions, the fuel characteristics, and the presence of an emissions control system in the engine. According to the report, diesel engines produce far more particulate pollution than conventional gasoline engines. Light duty diesel engines can emit between 50 to 80 times the amount of particulate mass that a typically catalytically equipped gasoline-powered engine would.

Because the particulates contained within diesel exhaust are mostly made of smaller particles, the particulate matter can be easily inhaled deep into the lungs. Once in the lung the particulates clog the bronchial and alveolar regions where the amount of air passageway clearance is low and therefore more prone to damage from particulates.

The human health effects of diesel exhaust are extremely destructive. According to the report, the accumulation of diesel particulates in the body directly contributes to high lung cancer rates. The Lung Association report cites several other reports that state the health dangers of diesel fuel emissions. According to the national Morbidity and Mortality Report, there is strong evidence of an association between acute exposure to diesel emissions and daily mortality.

Another study of 500,000 adults in more than 100 American cities concluded that prolonged exposure to fine particulate pollution significantly increases the risk of dying from lung cancer and heart disease.

Still another study found that people living near a main road and exposed to traffic related fine particulates and diesel soot were almost twice as likely to die from heart or lung disease and 1.4 times more likely to die of any other cause compared to people living further from traffic.

The Lung Association report makes several recommendations and advocates comprehensive regulation of diesel powered non-road engines of all sizes. Another recommendation is to match regulatory standards to public health and environmental imperatives. The report suggests that non-road diesel engines should be regulated in order to assist in protecting public health and meeting critical Clean Air Act standards. The report also calls for the extension of the clean air requirements to commercial marine vessels and locomotives. This will reduce the amount of sulfur in emissions by requiring these engines to make use of low-sulfur fuel.

For more information and a copy of the full report visit the Lung Association's website at http://lungusa.org/press/envir/air_041503.html.

On the Horizon . . .

A LOOK AT UPCOMING EVENTS

✔ **Monday, November 17, 12 noon, Hearing Room 1, Ground Floor, North Office Building, Capitol complex, Harrisburg, PA - Environmental Issues Forum.** Officials from the state Department of Conservation and Natural Resources (DCNR) and their consultants will provide a briefing on the status of Pennsylvania's statewide Recreation Plan and two public surveys being completed for the plan.

✔ **Monday, November 24, 10 a.m., Room 8E-A, Capitol East Wing, Capitol complex, Harrisburg, PA – Public Hearing.** The committee will receive testimony updating the state's scrap tire program. Representatives of the departments of Environmental Protection (DEP), Transportation (PENNDOT) and General Services are expected to testify.

✔ **Thursday, December 4, 10 a.m., Penn State Conference Center, State College, PA – Forestry Task Force Meeting.** Task force members planning to attend should call the committee office at 717-787-7570 in advance.

✔ **Tuesday, December 9, 8:30 a.m., Hearing Room 1, Ground Floor, North Office Building, Capitol complex, Harrisburg, PA - Environmental Issues Forum.** John Rich, Jr. of Waste Management and Processors, Inc. (WMPI) of Gilberton, PA will tell the story of his firm's cutting edge technology project to produce clean-burning diesel fuel from coal wastes. The federal and state government have helped "fuel" this unique project, in which WMPI is working with Sasol, a South African firm, and other national/international firms to develop this new fuel source.

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

The committee recently had the opportunity to coordinate a meeting between the Wildlands Conservancy, headquartered in Emmaus, Lehigh County, and a number of General Assembly members and staff from the Lehigh River Watershed. The Conservancy is partnering with numerous regional organizations and individuals to construct a comprehensive watershed management plan. It is a massive undertaking, but an exciting one when one considers the many economic, environmental, recreational, and heritage, historical and tourism related benefits that could result, especially when linked with other regional initiatives. The methodology and thought that has gone into the planning process is impressive and the results could well end up as a model for Pennsylvania.

The Lehigh Falls

Some white water in the Lehigh Gorge

As the scenes of the Lehigh River watershed depicted here illustrate, it is a beautiful area with great potential. And, keep in mind, this is just one of several watersheds in Pennsylvania. The committee hopes to revisit the plan with the Conservancy in the future and invite others to join us.

That equates to about 1.5 tons each year. Think of the effect if each American was to reduce the garbage he or she produces by a pound a day. That would be a small thing individually, but would have a huge impact statewide and nationwide.

While the General Assembly deals with such issues as funding for recycling programs and regulation of landfills on a statewide level, individual efforts to reduce waste would help to make related problems less onerous. So, think twice before tossing that aluminum can or last month's newspapers. A "micro" effort at home could have a "macro" impact around the Commonwealth.

Radon is another example of a close-to-home problem that also has statewide implications. (October, by the way, is Radon Awareness Month in Pennsylvania.) Radon is a naturally occurring, radioactive, colorless, odorless gas that is the second leading cause of lung cancer in the United States. It enters homes through cracks in basements and foundations and has been found in high levels in homes throughout Pennsylvania. It's relatively simple to test one's own home for radon, either by purchasing a test kit available at most home improvement or hardware stores or by hiring a professional. Professionals must be registered with the state Department of Environmental Protection (DEP). The department maintains a radon hotline at 1-800-23-RADON. Call if you need information.

There are any number of ways to reduce waste and pollution around the home or to improve our home environments, ranging from setting up a home composting system to seeking out more energy efficient lights and appliances, or separating recyclables and walking or biking on short errands instead of driving. These are all very easy yet personal actions that each and every individual in Pennsylvania can do. But when one adds up all the individual actions, the sum on the statewide scale can be pretty amazing.

As the 17th century author David Everett once wrote, "Large streams from little fountains flow. Tall oaks from little acorns grow." If we each take care of our own fountains and acorns, we'll better be able to enjoy Pennsylvania's streams and oaks.

Joint Legislative Air and Water Pollution Control and Conservation Committee

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