

ENVIRONMENTAL SYNOPSIS

The Chairman's Corner

Rep. Scott E. Hutchinson, Chairman



The month of April seems to give one pause to think...to contemplate. Perhaps it is the change of the seasons, the "spring forward" to Daylight Savings Time and the promises it brings, or the switch from indoor activities to the great outdoors. Maybe it's just spring fever. Whatever it is, April is a time of reflection and at the same time, activity. Or as outdoor writer Hal Borland once wrote, "April is a promise that May is bound to keep."

This April, I find myself pondering volunteerism. For one reason, the Joint Conservation Committee's April Environmental Issues Forum presented information on the Great Pennsylvania Cleanup Day (April 23), a monumental volunteer effort in all corners of the state. The presenters of the forum were Keep Pennsylvania Beautiful, an alliance of government, businesses and community groups working with volunteers to, well... keep Pennsylvania beautiful. That alliance leans heavily on volunteers to do the dirty work of cleaning up – which is no contradiction in terms.

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PA TRIVIA QUESTION:
What were the three original counties in Pennsylvania?

(See p. 8 for the answer)

I also recently read a report from the PA Department of Conservation and Natural Resources (DCNR) that noted that 343 volunteers (organized by PA Cleanways, part of the alliance above) spent 1,723 hours (think of it as more than 10 solid weekends) removing trash and debris from state forest and parklands. They removed nearly 287 tons of flotsam and jetsam during 33 cleanups. Said DCNR Secretary Michael DiBerardinis, "Volunteers have, and will continue to be the necessary ingredient to a successful program."

That is a truism that applies not only to Pennsylvania but across the nation. For example, the Bureau of Labor Statistics of the U.S. Department of Labor recently reported that 64.5 million Americans did volunteer work at least once from September 2003 – September 2004. That's about 28.8 percent of the population. Volunteers spent a median of 52 hours on volunteer activities.

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NOTES FROM THE DIRECTOR

CRAIG D. BROOKS, DIRECTOR

It appears that 2005 could be a pivotal year for micro fuel cells to replace batteries as an energy source.

Giving new meaning to clean energy, a small New Jersey company is developing micro fuel cells for mobile phones and laptops, using a major ingredient in soap, of all things. Millennium Cell of Eatontown, New Jersey is working on a hydrogen-fueled battery that it hopes will eventually provide up to eight hours of power for laptop computers. This past month, Millennium Cell demonstrated a prototype of the battery using an IBM ThinkPad. The battery lasted about three hours but the goal is to increase that performance to eight hours.

Two types of micro fuel cells are presently in the works for small electronic devices

Big laptop makers like Toshiba, NEC and others are also working on fuel cell technology, but mostly based on ethanol. Casio, Sony and Samsung are developing fuel cell technology as well.

Batteries have always been the weak link for portable devices. They are expensive, can be heavy and cumbersome, and often require recharging at the worst times. A fuel cell operates like a battery in principle, producing electricity by electrochemically combining hydrogen and oxygen without combustion. It can be replenished hundreds of thousands of times without degradation.

There are two types of micro fuels cells currently in the works for small electronics: direct methanol micro fuel cells and hydrogen micro fuel cells. Direct methanol fuel cells mix methanol with air and water to produce electricity and are viewed by many to be the potential successor to Lithium-ion and other batteries used in portable devices such as laptops.

Millennium Cell's product is unique, however in that it is based on sodium borohydride, a high energy form of borate, or borax, a natural mineral mined to make laundry soap.

The battery works initially by storing a solution of sodium borohydride that passes through a fuel pump into a catalyst chamber which triggers a reaction. When passed over a catalyst, the solution of sodium borohydride releases hydrogen and mixes with oxygen in a fuel cell to generate electricity to power the laptop. Sodium borohydride is nonflammable and non-corrosive and is easy and safe to store. Water is a byproduct of this reaction but the water leaves the fuel cell as vapor.

Millennium Cell is working on several concepts, including a fully disposable power pack. When the fuel runs out, the fuel pack can be disposed of like an alkaline battery. The company is also producing a battery that can be refilled by the consumer or sent to a factory to be refueled. Batteries will cost PC manufacturers about \$25. Consumers will be able to purchase extra batteries for about \$150.

The demand is growing for all types of portable power, with different devices requiring different types of power sources. For certain applications, Millennium Cell will be looking at developing both hybrid batteries and hydrogen energy systems for future use. These products will hopefully provide the best of both worlds -- the reliability of batteries with the longer running time of fuel cells.



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.

Report Warns of Impending PVC Plastic Problem

– Tony M. Guerrieri, Research Analyst

Large and growing amounts of polyvinyl chloride – better known as PVC plastic – are discarded daily in the United States, according to a joint report by the Center for Health, Environment, and Justice and the Environmental Health Strategy Center. Pennsylvania ranks eighth among states in measuring PVC waste going to both landfills and incinerators, with more than 78,500 tons disposed of annually.

The report, "*PVC: Bad News Comes in 3s*", documents the health and environmental hazards posed by PVC during manufacturing, product use and disposal, and provides detailed state and national estimates on PVC plastic waste incinerated and landfilled. The number three in the report's title refers to the recycling code used for PVC plastic products.

Worldwide, an estimated 300 billion pounds of PVC, which was installed in the last 30 to 40 years in construction and other long lasting uses, will soon reach the end of its useful life and require disposal.

As much as seven billion pounds of PVC is discarded every year in municipal solid waste, medical waste, and construction and demolition debris. More than two billion pounds per year of nondurable (short-lived) PVC products are discarded with household trash.

PVC is widely used in thousands of everyday consumer products including plastic pipes, building materials (such as vinyl siding), consumer products (such as toys, tablecloths, shower curtains) and disposable packaging (such as bottles and blister pack containers). The report indicates that nondurable products account for more than 70 percent of the PVC disposed of in municipal solid waste.

According to the report, PVC disposal is the largest source of dioxin-forming chlorine and hazardous phthalates in solid waste, as well as a major source of

lead and cadmium. Dioxins are a highly toxic group of chemicals that are known to cause cancer, and reproductive, developmental and immune problems.

The two most common means of disposal – incineration and landfilling – present health hazards, the report said. Burning PVC plastic, which contains 57 percent chlorine when pure, forms dioxins. PVC is the major contributor of chlorine to four combustion sources – municipal solid waste incinerators (more than 100 U.S. municipal waste incinerators burn 500 to 600 million pounds of PVC each year), backyard burn barrels, medical waste incinerators and secondary copper smelters – that account for a significant portion of dioxin air emissions. The biggest PVC-burning states include Massachusetts, Connecticut, Maine – which all burn more than half their waste – Florida, New York, Virginia, and Pennsylvania.

Incineration, landfilling and recycling of PVC each presents its own problems

The incineration of medical waste, which the report states has the highest PVC content of any waste stream, is being replaced by cleaner non-burn technologies. Backyard burning of PVC containing household trash is not regulated at the federal level and, according to the report, poorly regulated by the states. There are no restrictions on backyard burning in Michigan and Pennsylvania.

Land disposal of used PVC products presents its own problems. According to the report, Pennsylvania's share of PVC placed in landfills puts the state ninth nationally for land disposal. Dumping PVC in landfills poses significant long-term environmental threats due to leaching of toxic additives into groundwater, dioxin-forming landfill fires, and the release of toxic emissions in landfill gases.

Land disposal is the final fate of between two billion and four billion pounds of PVC that are discarded every year at some 1,800 municipal landfills. Most PVC in construction and demolition debris ends up in landfills, many of which, according to the report, are

unlined and cannot capture any contaminants that leak out. Although PVC plastics do not deteriorate, a group of plastic softeners called phthalates often added to vinyl products and packaging can be released over time and leach into groundwater.

The report also highlights multiple problems with PVC recycling. PVC is very difficult to recycle because of the many different formulations and additives used to make PVC products. Less than three percent of PVC is currently recycled.

To mitigate PVC's environmental and public health impacts, the report makes the following recommendations:

- Policymakers at the local, state and federal level should enact and implement laws that steadily reduce the impact of PVC disposal and lead to a complete phase-out of PVC used in waste incineration within ten years.
- A new materials policy for PVC that embraces aggressive source reduction of PVC should be adopted to steadily reduce the use of PVC over time.
- Federal and state waste management priorities should be changed to make incineration of PVC waste the least preferable option.

The report, "PVC, Bad News Comes in 3s", is available at the website http://www.besafenet.com/PVC-DisposalReport_2-Column_R6.pdf.

Survey Finds Public Wants Shorter Commutes, Walkable Neighborhoods

– Craig D. Brooks, Executive Director

The prospect of longer commutes to work is leading more Americans to seek homes in walkable neighborhoods in nearby suburbs and cities, according to the 2004 American Community Survey sponsored by Smart Growth America and the National Association of Realtors.

For 79 percent of Americans, a commute of 45 minutes or less is the top priority in deciding where to live. Other top priorities include easy access to highways (75 percent) and having sidewalks and places to walk (72 percent). Having a large house on more than one acre of land is important to 57 percent of Americans.

The American Community Survey is a nationwide survey designed to provide communities with a look at specific trends in housing and infrastructure and how communities and attitudes are changing over time. The

survey will replace a part of the national census as a way of providing communities with up-to-date information every year. The survey was conducted among 1,130 Americans, with a margin of error of plus or minus 3 percentage points.

The survey based its questions on two types of communities: smart growth communities and sprawling communities. With costs being equal, the survey described a smart growth community as a mix of apartments, condos, townhouses and single-family detached housing on various sized lots with sidewalks and places to shop, eat, read and go to school within walking distance. Public transportation is nearby and a one-way commute is less than 45 minutes.

Shorter commutes are a top priority for both prospective buyers of new homes and for Americans in general

In contrast, a sprawling community was described as single family detached housing on one acre lots only, with no sidewalks and places to shop or eat, and transportation needed for nearby schools. Public transportation was unavailable and a one-way commute was 45 minutes or more.

After hearing descriptions of the communities, Americans favored the characteristics and features of walkable smart growth communities over sprawling communities 55 percent to 45 percent.

According to the survey, the top priority of 87 percent of the people planning to purchase a home in the next three years was a shorter commute to work and activities. When asked to choose between two communities, six in ten prospective homebuyers chose a neighborhood that offered a shorter commute, sidewalks and amenities like restaurants, shops, schools, libraries, and public transportation within walking distance, over a sprawling community with larger lots. Those surveyed were also more likely to choose to be in or near a city as opposed to living in a sprawling suburb or rural area.

The survey also suggests that Americans want government and business to invest in existing communities before putting resources into newer communities farther from cities and older suburbs. Nearly nine in 10 want their states to fund improvements in existing communities over incentives for new development in open green spaces. This coincides with prospective homebuyers placing high values on limiting their commute times and favoring improved public transportation and changing patterns of housing development, rather than increasing road capacities and commute times. The survey found that approximately one-third believe that building com-

munities where shorter commutes are possible is a better solution to traffic congestion, with fewer than two in 10 suggesting that building new roads is the answer.

For additional survey data and profiles, visit the www.census.gov/acs website.

Canadian Industry Makes Energy Efficiency Improvements

– Tony M. Guerrieri, Research Analyst

Canada, along with other developed nations, is responding to the climate change challenge, in part, by seeking to reduce greenhouse gas (GHG) emissions. To reach its target of six percent below 1990 levels within the next decade, it must improve its energy performance, which means Canadians will need to use energy more efficiently.

Industries in the Canadian Industry Program for Energy Conservation (CIPEC) are making a positive contribution to Canada's efforts, according to CIPEC's 2002/2003 Annual Report. CIPEC is a voluntary partnership between the government of Canada and industry to improve Canada's industrial efficiency. The report, "Energy Ideas at Work", provides an overview of the energy management accomplishments of 23 industrial sectors and organizations that participated in CIPEC.

Canada is a huge consumer of energy. In 2002, it ranked almost equal to the United States for first place among the G-8 nations, the eight most industrialized countries in the world, in terms of per capita energy consumption.

This is because of its long travel distances for the movement of people and goods, its long winters, and an economy based partly on high energy consuming industries, such as mining, forestry, petrochemicals, pulp and paper, aluminum smelters, refining and steel manufacturing.

Highlights in the CIPEC report included:

- CIPEC industries contributed almost \$286 billion to the Canadian economy, representing about 29 percent of Canada's Gross Domestic Product.
- Industries represented by CIPEC directly employed almost 3.4 million people in Canada, more than 20 percent of Canadian jobs.
- Due to effective energy management, Canadian industry avoided approximately \$3.4 billion in purchased energy. This is equivalent to the energy needed to supply three out of every four homes in Ontario for a year.

Between 1990 and 2002, overall energy performance of CIPEC members was as follows:

- All CIPEC industries improved their combined energy intensity by 8.1 percent during that period, or an average of 0.7 percent per year. Had energy intensity remained constant, GHG emissions would have been 25.2 megatonnes higher.

- Mining, manufacturing and construction member industries improved their energy intensity by an average of 1.9 percent per year. This was complemented by a 1.3 percent average annual improvement in energy efficiency.

- In 2000, these CIPEC sector members made a public voluntary commitment to achieve an average energy intensity improvement of one percent per year for the years 1990 to 2005.

The aluminum sector, for example, has kept its GHG emissions stable while ratcheting up primary aluminum production by 73 percent since 1990. Between 1992 and 2002, Canadian chemical producers reduced their GHG emissions by 36 percent.

The Canadian steel industry, through voluntary early action, has already exceeded the target of reducing its GHG emissions to six percent below 1990 levels. Since 1990, the steel industry has reduced its carbon dioxide emissions by 20 percent and reduced the amount of energy used to make a ton of steel shipped by 23 percent.

CIPEC has been industry's first point of contact for ideas and innovation since 1975. Led by industry and administered by the Office of Energy Efficiency of Natural Resources Canada, CIPEC offers an array of cost cutting tools and services to all facets of Canadian industry – from mining and manufacturing to energy supply and construction. CIPEC's network includes 47 trade associations that represent more than 5,000 companies and approximately 98 percent of secondary industrial energy demand in Canada.

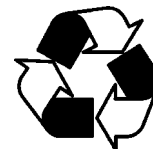
To view the CIPEC Annual Report 2002/2003 – "Energy Ideas at Work", visit the website <http://www.oeenrcan.gc.ca/Publications/infosource/Pub/cipec/AnnualReport02-03/>.

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.



E-Waste Mandates Unnecessary, Report Says

– Craig D. Brooks, Executive Director

Innovation and affordability of home computers has enabled manufacturers to create newer, faster and upgraded models at a staggering rate. A natural byproduct of this home computer revolution is the growing number of outdated computers. Between 1997 and 2003, an estimated 254 million computers became obsolete in the United States.

A report by the Competitive Enterprise Institute (CEI) suggests, however, that legislative mandates requiring recycling and “green design” are unnecessary and are fueled by misinformation about the electronic waste stream. Such mandates would dramatically increase costs and create problems with current recycling efforts.

According to CEI, growth in the amount of electronic waste is expected to stabilize in the next few years, and current recycling programs and modern landfills are equipped to safely handle most e-wastes. E-wastes are being managed through the current system of recycling and reuse programs and the donation efforts of manufacturers, retailers and nonprofit organizations.

The CEI report questions the need and advisability of recycling and green design mandates

According to the U.S. Environmental Protection Agency (EPA), e-wastes, including discarded TV’s, VCRs, DVD players and audio systems, as well as personal computers, fax machines and printers, constitute only one percent of the total municipal solid waste stream. CEI suggests that e-wastes will stabilize and level off by the end of 2005, and then will begin to decline. While improved technology can make computers obsolete, it can also extend the lifespan of the next generation of computers.

Discussions about e-wastes have been on the rise among industries, interest groups and state governments concerned with recycling e-wastes. The possibility of federally unfunded mandates to recycle e-wastes and complications associated with a growing patchwork of state laws and regulations has renewed a call for national direction to enhance the recycling efforts of e-wastes.

But CEI argues that manufacturers have been successfully operating their own take-back and recycling programs for years. For example, California-based Hewlett-Packard (HP), the world’s largest computer manufacturer, recycles and refurbishes its used machines

in-house, running one of the largest recycling plants in the world. According to the report, HP has recycled more than 500 million pounds of electronic waste since the program began in 1987. Each year, HP collects about 80 million pounds of used products.

Also, Texas-based Dell has been operating its computer take-back program since 1991, and like HP, Dell will take back computers from any manufacturer.

What to do about e-wastes has renewed the old “private enterprise versus government intervention” debates

CEI suggests that manufacturers have the flexibility and creativity to successfully run the recycling programs without government intervention, and recommends that state and federal efforts to mandate take-back or electronic recycling programs should be abandoned. It maintains the problem with recycling e-wastes is a challenge, but not a crisis and is being handled appropriately by computer manufacturers.

Calls to impose an advance recovery fee on the purchase of electronics should also be abandoned, according to the report. An advance recovery fee is estimated to cost taxpayers and consumers between \$7.5 billion and \$45 billion to support recycling programs administered by the state or federal government. The growing track record of computer manufacturers demonstrates that private industry is capable of collecting, financing and recycling electronic wastes without mandated programs.

The CEI report, “Mandated Recycling of Computers: A Lose-Lose Proposition” is available at the institute’s website at <http://www.CEI.org>.



ON THE HORIZON . . .

A LOOK AT UPCOMING EVENTS

✓ Monday, May 9, 12 noon, Room 205, Matthew J. Ryan Building – Environmental Issues Forum. Penn State University Senior Research Associate Thomas D. Peterson will examine greenhouse gas action plans – what they are and what states are doing about them.

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 COMMITTEE MEMORABLE EVENTS

Committee Executive Director Craig Brooks and staff members recently traveled to Washington, D.C. for a meeting regarding the future of Pennsylvania's Heritage Areas on the national scene. As readers may recall, the Oil Heritage Region in Northwest PA recently received its national designation. Discussion centered around what the designation would mean and potential future national designations.

In the photo at left, Vice-president of Heritage Development in the Oil Heritage Region Marilyn Black described future plans, and at right, U. S. Congressman John Peterson, who was instrumental in getting the designation legislation through Congress, talks about that process.

Also adding insight on the legislative process (bottom right) was Tom Lillie with the staff of the U.S. Senate Energy and Natural Resources Committee, which considers legislation having to do with heritage areas on the national level.



At left, Brooks (right) discusses the efforts to have a national historic area declared within the Rivers of Steel Heritage Area located in the Pittsburgh area with Heritage Area Executive Director Augie Carlino, who is also chairman of the executive committee of the Alliance of National Heritage Areas (ANHA).



The variety of volunteer activities was fairly evenly spread. Among the more commonly noted activities were fundraising or selling items to raise money (29.5 percent), coaching, refereeing, teaching or tutoring (27.8 percent), food collection, preparation, distribution or serving (26.4 percent), general labor (24.4 percent), and providing information, i.e. an usher, greeter or minister (22.7 percent).

What all the numbers say to me is that both individuals and our state and nation are far richer because of the volunteer efforts put forth by citizens who give of themselves. Our environment is cleaner, our parks and forests more inviting, our communities more pleasant and our economy stronger. It is also a good lesson – and usually a pleasurable one - to both young and old that giving back is a wonderful way to say thank you for blessings we may have received.

So, as we turn our eyes outdoors, lured by the seductive breezes and hopefully warmer temperatures of April, I thought that perhaps there are those looking to volunteer some time to make Pennsylvania a better place to live but unsure how to go about it.

The Independent Sector, a non-profit information center seeking to strengthen citizen action and philanthropy (“good-deed doers” if you remember your Wizard of Oz), offers the following “Ten Tips for Wise Volunteering”:

- research the causes or issues important to you;
- consider the skills you have to offer and match your volunteer efforts to them;
- consider volunteering as a family;
- give thought to learning something new and move in that direction;
- don't over-commit your schedule (the biggest reason most people gave for not volunteering – 45 percent – was lack of time);
- be prepared and willing to answer questions of organizations you may seek out to volunteer with;
- keep an open mind for volunteer opportunities you may not have thought of (there are many other organizations besides hospitals, libraries and churches, depending on your interests);
- bring your heart, your sense of humor and your spirit to the task;
- consider “virtual volunteering” – done over the computer; and
- be a year-round volunteer, not just at holidays or April or summertime.

You may find yourself feeling as Abraham Lincoln did, when he wrote to a friend in 1859: “I was elected a Captain of Volunteers – a success which gave me more pleasure than any I have had since.”



How to Contact The Joint Conservation Committee

Phone:
717-787-7570

Fax:
717-772-3836

Location:
Rm. 408, Finance Bldg.

Internet Website:
<http://jcc.legis.state.pa.us>

Mail:
Joint Conservation Committee
PA House of Representatives
House Box 202254
Harrisburg, PA 17120-2254



Answer to the PA Trivia Question: Bucks, Chester and Philadelphia

Source: Pennsylvania Trivia, compiled by Ernie and Jill Couch, Rutledge Hill Press

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