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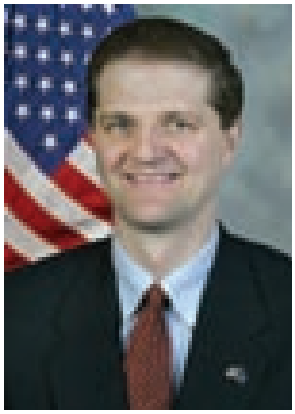
Environmental Synopsis

The Chairman's Corner

Rep. Scott E. Hutchinson, Chairman



'Tis the season and in Pennsylvania the "season" means Christmas trees. Christmas trees are part of the beauty of the holiday, but they are also big business here in the Commonwealth. I found myself wondering if anyone really knew how big.

According to the 2002 agriculture census done by the United States Department of Agriculture (USDA), Pennsylvania is among national Christmas tree farming leaders in several categories.

First of all, there is no state with more Christmas tree farms than Pennsylvania. According to the census, there are 2,164 Christmas tree farms in Pennsylvania, making it number one in the nation. Oregon is closest with 2,024 and no other state has more than 1,800.

Pennsylvania ranks fourth in the nation in two other categories. In the number of Christmas trees harvested, Oregon is far and away the national leader with 6.4 million. That is more than 3 million more trees than number two North Carolina (2.9 million). Michigan is third with 2.38 million and Pennsylvania fourth with 1.7 million.

As you can see, while Christmas trees are big business in Pennsylvania, tree farming is also the province of many small businesses, which may do less volume than corporate behemoths but which are the lifeblood of our state's economy. The numbers above, and some of those below, also show that the market of choice for a number of Pennsylvania farms, particularly smaller farms, is still the family market -- parents and children looking for that perfect tree to decorate their homes.

Pennsylvania also ranks fourth in the number of acres of Christmas trees which can be found. The leader once again is Oregon with 67,804 acres. Michigan is second with 60,520, Wisconsin third with 47,699 and then Pennsylvania with 44,905. We have a comfortable lead over fifth place New York, which has 32,599 acres.

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Joint Legislative Air and Water Pollution Control and Conservation Committee

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NOTES FROM THE DIRECTOR

CRAIG D. BROOKS, EXECUTIVE DIRECTOR

State drinking water programs made nearly $1.7 billion in loans for 1,000 projects in fiscal year (FY) 2006 under an Environmental Protection Agency program designed to help utilities make infrastructure improvements. This total is up slightly from the $1.46 billion in loans made by states in FY 2005 under the Drinking Water State Revolving Loan Fund program (DWSRF). To date, about $11 billion has been provided to water utilities for 5,000 projects since the beginning of the revolving loan fund program in 1997.

The amount in the state revolving loan fund began with an initial $79 million being made available in 1997. In 1998, $338 million was made available and such increases have continued steadily over the past decade. The DWSRF, established by the Safe Drinking Water Act amendments of 1996, is modeled after a similar program under the Clean Water Act.

At the end of 2006, the DWSRF program had had an impact on the drinking water of more than 100 million people, with an emphasis on smaller systems serving 10,000 or fewer customers

The program is a federal and state partnership that is comprised of 51 state and territorial programs. Under the drinking water loan program, federal seed money is provided to states based on their proportional need. States then make no-interest or low-interest loans to drinking water utilities for infrastructure upgrades and other activities. States can also forgive the principal on a loan and offer extended repayment periods for disadvantaged communities.

Once they receive a federal capitalization grant, states must make a 20 percent match. Principal and interest repayments by the utilities are intended to keep the fund self-sustaining and growing.

A key aspect of the program's design is an emphasis on providing assistance to water systems that serve 10,000 or fewer persons. These water systems typically lack the technical, managerial, and financial capacity needed to face the increasing regulatory challenges without some assistance. Small systems struggle because of their small rate bases and the economies of scale inherent in the drinking water industry.

As of the end of 2006, the assistance had an impact on the drinking water of over 100 million people. In 2006, about 69 percent of all loans, equaling 36 percent of the total funding, went to small systems that serve fewer than 10,000 people. In 2005, 71 percent of the loans, totaling 37 percent of the total funding, went to systems that served 10,000 or fewer people.

In order to immediately increase resources available for assistance to better meet water system demands, 20 states have leveraged their programs by issuing bonds. Leverage states have more resources to provide immediate public health protection, although at a longer term cost because of having to repay the bonds they issued.

However, the real value of the money awarded for drinking water infrastructure is not the number of systems that receive assistance or the savings they incur, but the public health benefits when utilities achieve compliance with the Safe Drinking Water Act. The majority of projects financed by DWSRF programs in 2006 either included a treatment plant upgrade or improvements to the distribution system, which are key water system components for removing contaminants and delivering safe drinking water.

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 Says Tough Climate Measures Will Not Hurt Economy

– Tony M. Guerrieri, Research Analyst

The United States can afford to reduce greenhouse gas emissions, according to a report published jointly by McKinsey & Company, a management consulting firm, and its partner on the project, The Conference Board, a business research and consulting group. The report, *"Reducing U.S. Greenhouse Gas Emissions: How Much at What Cost?"*, concludes that the United States could reduce projected 2030 emissions of greenhouse gases by between one-third to one-half at manageable costs to the economy and without requiring big changes in consumer lifestyles.

The report is based on detailed cost and benefit analysis of 250 abatement options for reducing emissions of carbon dioxide and other greenhouse gases thought to contribute to climate change.

The report concludes that the U.S. could significantly reduce greenhouse gas emissions at manageable costs and changes in lifestyles

On the present path, annual U.S. greenhouse gas emissions are projected to increase 35 percent to reach 9.7 gigatons of carbon dioxide equivalent in 2030, according to an analysis of government forecasts. At this level, according to the report, emissions would overshoot by 3.5 to 5.2 gigatons the targets implied by economy-wide climate change bills introduced in Congress. A gigaton is one billion metric tons.

The report suggests a reduction of 3.0 to 4.5 gigatons in 2030 is achievable at a manageable cost using proven and emerging high-potential technologies – but only if the U.S. pursues a wide array of options and moves quickly to capture gains from energy efficiency.

One major finding: about 40 percent of options studied, principally in improved energy efficiency in buildings, appliances and vehicles, will more than pay for themselves over their lifetimes, thereby creating net savings for the economy. In some cases, short-term costs – such as better insulation in new buildings, improved fuel economy in cars, more efficient electronic and household appliances, and equipment upgrades in factories – will be more than balanced by long-term savings.

However, the report warns that private sector innovation and policy support will be necessary to unlock these and other opportunities.

The report examines opportunities to reduce greenhouse gas emissions across the five main carbon-emitting sectors of the U.S. economy. Analysis focused on options likely to yield greenhouse gas reductions at a cost of less than $50 per ton of carbon dioxide equivalent.

Among the main findings:

- Opportunities to reduce greenhouse gas emissions are highly fragmented and widely spread across the economy. The largest single option – carbon capture and storage for coal-fired power plants – offers less than 11 percent of the total potential identified. The largest sector, power generation, accounts for less than one third of the total.
- A mid-range scenario found that cutting three gigatons of carbon dioxide equivalent from the United States by 2030 would cost an average of about $50 billion annually, or a total of $1.1 trillion. That would represent 1.5 percent of the $77 trillion in real investment the U.S. economy is expected to make over the period.
- Investment would need to be higher in the early years, in order to capture energy efficiency gains at lowest overall costs and accelerate the development of key technologies, and would be highly concentrated in the power and transportation sectors.
- If pursued, such investment would likely put upward pressure on electricity prices and vehicle costs. Policymakers would need to weigh these added costs

against the energy efficiency savings, opportunities for technological advances, and other societal benefits.

- Five clusters of initiatives, pursued in unison, could create substantial progress towards the targets implied by bills currently before Congress. From least to highest average cost, they are: improving energy efficiency in buildings and appliances (710 to 870 megatons); increasing fuel efficiency in vehicles and reducing carbon intensity of transportation fuels (340 to 660 megatons); pursuing various options across energy-intensive portions of the industrial sector (620 to 770 megatons); expanding and enhancing carbon sinks, such as forests (440 to 590 megatons); reducing the carbon intensity of electric power production (800 to 1,570 megatons).

The report was produced in association with DTE Energy, Environmental Defense, Honeywell, National Grid, Natural Resources Defense Council, Pacific Gas & Electric and Shell. The full report, *"Reducing U.S. Greenhouse Gas Emissions: How Much at What Costs?"* is available at: http://www.mckinsey.com/clientservice/ccsi/pdf/US_ghg_final_report.pdf.

VOC's Detected in Half of Domestic Wells

– Craig D. Brooks, Executive Director

Volatile organic compounds (VOC's) were detected in about half of the 2,401 domestic drinking water wells tested as part of a new U.S. Geologic Survey (USGS) study – a finding that shows the wells are more vulnerable to low-level contamination by VOC's than previously thought. According to the study, about one percent of domestic well water was found to have concentrations of VOC's that posed potential health concerns. Some of the frequently found VOC's include chloroform, toluene and 1, 2, 4-trimethylbenzene.

Drinking water from private wells is not regulated by the federal government and usually does not receive the same level of monitoring and treatment as drinking water supplied by public water systems. Although regulations for domestic well water vary by state, the quality of the water is the homeowner's responsibility.

The study used data from a May 2006 USGS study that assessed 55 VOC's in 2,401 domestic wells sampled. This new study found that about 43.5 million people, representing 15 percent of the total U.S. population, are served by domestic wells.

Use of self-supplied drinking water is increasing with one recent estimate showing that about 400,000 new domestic wells used for drinking water are drilled each year. In contrast to private wells, however, public drinking water supplies are regulated by the federal Safe Drinking Water Act. The Environmental Protection Agency has issued regulations for over 100 contaminants to protect against dangerous microbes, disinfection byproducts and man-made substances.

After finding more VOC's than expected, a USGS study suggests that new strategies are needed to identify and detect contaminants currently not regulated in domestic drinking water wells

VOC's are organic chemicals that have a high vapor pressure relative to their water solubility. They are produced in large volumes and are associated with products such as plastic adhesives, paints, gasoline, refrigerants, fumigants and dry cleaning fluids. Because many do not degrade easily and are mobile, they can migrate into groundwater and contaminate drinking water supplies.

These VOC's have widespread applications and multiple uses and were detected throughout the United States and in Alaska. According to the study, one or more VOC's were detected in 65 percent of the domestic wells sampled. Of the 55 VOC's monitored, 42 compounds were detected, with chloroform having the highest frequency of detection, followed by toluene and 1, 2, 4-trimethylbenzene.

As population, urbanization and the demand for drinking water from domestic wells increases, continued evaluation of water quality is important. The study suggests that new strategies are needed to identify and detect contaminants that are not regulated but may be present in domestic drinking water wells.

Research, including design, analysis and compilation of data for comparison measurements is needed to establish benchmarks for environmental and public health and safety concerns. In addition, an assessment of how often these contaminants are occurring in domestic wells may be warranted to determine variability of the contaminants, their concentrations and sources.

The report, *"Occurrence and Potential Human-Health Relevance of Volatile Organic Compounds in Drinking Water from Domestic Wells in the United States"*, is available at http://dx.doi.org and entering the doi number 10.1289/ehp.10253.

How Green is that Plug-In Hybrid Electric Vehicle?

– Tony M. Guerrieri, Research Analyst

A report by the Electric Power Research Institute and the Natural Resources Defense Council concludes that under realistic energy supply mixes, including coal power, widespread use of rechargeable plug-in hybrid electric vehicles (PHEV's) would result in significantly reduced greenhouse gas emissions and reduced oil imports in the United States.

The report, *"Environmental Assessment of Plug-In Hybrid Electric Vehicles"*, provides a detailed study of the impacts on air quality and greenhouse gas emissions from vehicles powered by the electricity grid, particularly PHEV's, and projected changes in power generation technology from 2010 through 2050.

Plug-in hybrid electric vehicles combine operational aspects of both battery electric vehicles and power-assist hybrid electric vehicles. A PHEV can be recharged from the electric grid, stores significant energy in an onboard battery and uses this energy, depleting the battery during daily driving.

The potential of PHEV technology is primarily due to its close technological kinship with hybrid vehicles, whose gasoline/electric engines get great mileage. Hybrid vehicles are already in the marketplace. Plug-in hybrids differ from conventional hybrids in that PHEV's use a more powerful array of lithium-ion batteries and are recharged using a standard home electric outlet. That enables the car to travel up to 40 miles, by some estimates, on electricity alone before the battery is depleted and the hybrid powertrain takes over.

For the purpose of the report, the year 2010 is assumed to be the first year PHEV's would become available in the U.S. market, while 2050 would allow the technology sufficient time to fully penetrate the U.S. vehicle fleet.

To account for a range of future transportation and electric sector scenarios, the three electric sector carbon dioxide (CO2) scenarios (High CO2, Medium CO2, and Low CO2 intensity) are combined with the three PHEV scenarios (Low PHEV, Medium PHEV, and High PHEV fleet penetration) to create nine different outcomes spanning the potential long-term greenhouse gas emissions impacts of PHEV's.

Each of the nine scenarios showed significant greenhouse gas reductions due to PHEV fleet penetration. According to the report, the lower the CO2 emissions in the national electric power sector as PHEV fleet penetration increases, the greater the reduction in overall greenhouse gases.

For example, a marginal improvement in power plant emissions, coupled with limited ownership of PHEV's (or about 20 percent of the market, the report's worst-case scenario), means the vehicles could remove approximately 163 million metric tons of greenhouse gas emissions a year by 2050.

Under a "middle case" scenario, which assumes PHEV's make up 62 percent of U.S. passenger vehicles by 2050 and utilities adopt more stringent pollution-control measures, emissions would be cut by 468 million tons a year.

The report presents several use scenarios – all of which point to reduced greenhouse gas emissions and oil imports

If most Americans (80 percent) switched to PHEV's by 2050 and there was low electric sector carbon dioxide emission – a best case scenario – greenhouse gases would be reduced by 612 million tons.

Cumulative reductions nationwide between the years 2010 and 2050 could amount to between 3.4 and 10.3 billion metric tons.

The report also contends that adoption of PHEV's would result in significant reduction in the consumption of petroleum fuels. In the Medium PHEV scenario, fuel savings were equivalent to two million barrels per day in 2030 and 3.7 million barrels per day by 2050.

Plug-in hybrids are charged mostly at night, when demand for electricity is low. According to the report, electricity consumption due to PHEV's would increase by 282 million megawatt hours (MMWh) in 2030 and 598 MMWh in 2050, indicating that PHEV's would not nec-

essarily require a surge of new power plant construction. These increases in electricity production and delivery over the base case (no PHEV's) are 4.8 percent and 7.6 percent, respectively.

The report was based on an analysis of data from the federal Energy Information Agency and the Palo Alto, California based Electric Power Research Institute. The report is available at: http://www.Epri-reports.Org/volume1r2.pdf.

MD Smart Growth Statute Not Having Intended Effect on Development

-- Craig D. Brooks, Executive Director

Maryland's landmark 1997 law aimed at limiting sprawl has had some successes but the overall impact is decidedly mixed, according to a study released by the University of Maryland's National Center for Smart Growth and Education.

The law sought to stimulate "smart growth" by focusing state development-related spending inside so-called priority funding areas (PFA's). The land within the beltways of Baltimore and Washington, D.C. are two of the PFA's. Others are all state-incorporated municipalities and other areas within the state's 23 counties that meet state smart growth standards.

According to the report, data recently released by the Maryland Department of Planning shows that the smart growth act is not yet having the intended effect. Approximately three-fourths of all residential permits issued from 1990 to 2004 were for development inside PFA's, but approximately three-fourths of the land actually developed for residential use over the same period was in areas outside PFA's.

In addition, the study found that the share of permits issued for residential development outside the PFA's has risen from approximately 28.6 percent in 1986 to 31.6 percent in 2004. At the same time, the share of acres developed for residential use outside the PFA's has risen from 76.7 percent in 1998 to 77.2 percent in 2004.

In the 10 years since the law took effect, only five percent of the overall state budget was spent in the PFA's, even though much of the population lives within these areas. The total amount of state money that is earmarked for projects within PFA's is a relatively small portion of the overall appropriated budget and most of that is spent on transportation projects.

The success of a Maryland "smart growth" law aimed at limiting sprawl and focusing development has been decidedly mixed, according to a 10-year progress report

According to the report, many agencies have failed to monitor and report on their spending as required by the act, making it difficult to evaluate the potential for more aggressive smart growth efforts by state governments.

The Maryland Department of Transportation (MDOT) is the only state agency known to have consistently produced detailed reports on its spending inside and outside PFA's. Over the nine-year period since 1998, MDOT has spent 60 percent of its budget inside PFA's. Half of MDOT's budget for fiscal year 2007 is dedicated to the Intercounty Connector, a planned six-lane, limited access highway running some 20 miles outside the Capital Beltway. By contrast, MDOT projects inside the PFA's made up 94 percent of its project spending in 1999.

The law has had some successes. According to the report, smart growth has stimulated state spending and development in community legacy areas, historic preservation districts and other targeted areas. For example, the site of an abandoned can factory in Baltimore, Maryland has become a successful residential and retail community thanks to state incentives provided by such agencies as the Maryland Department of Housing and Planning.

The report, *"State Agency Spending Under Maryland's Smart Growth Areas Act: Who's Tracking, Who's Spending, How Much, and Where?"* is available at http://www.smartgrowth.umd.edu.pdf/ncsg.pfaspendingreport.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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On the Horizon . . .

A LOOK AT UPCOMING EVENTS

There are no upcoming events at this time.

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

Merry Christmas and Happy New Year to all our readers!

Committee Chronicles . . .

REVIEW OF SOME MEMORABLE COMMITTEE EVENTS

The Joint Legislative Conservation Committee's (Committee) most recent Environmental Issues Forum concerned the electronic recycling program carried out by Goodwill Industries of Pittsburgh.

In the photo at right, Committee chairman Rep. Scott Hutchinson introduces the guest speaker, Michael Smith, the president and CEO of Goodwill Industries of Pittsburgh.

The agency has developed a unique partnership to deal with the problem of electronic waste in western Pennsylvania. In 1995, Goodwill Industries of Pittsburgh became the first Goodwill in the U.S. to initiate a computer recycling program. Partners include Dell Computers, the city of Pittsburgh, Allegheny County and the Pennsylvania Department of Public Welfare.

In the photo at right, Smith describes the partnership, the centerpiece of which is the Computer Recycling Center in Pittsburgh's Lawrenceville section. The center recently recycled its one-millionth pound of electronic parts and equipment. In addition, the project is part of a successful workforce development effort with welfare-to-work participants.

The photo below shows the audience that attended the forum.

It is interesting to take a look at the national statistics regarding Christmas trees. The census figures show:

■21,904 farms were producing conifers for the cut Christmas tree market and 13,849 farms harvested cut trees

■446,996 acres were planted in Christmas trees

■the top five percent of the farms (100 acres or more) sold 61 percent of the trees

■the top 26 percent of the farms (20 acres or more) sold 84 percent of the trees

■21 percent of the farms were less than two acres and sold an average of 115 trees per farm.

Ironically, there is only one state in the nation that has no Christmas tree farms at all. That state is Alaska, the state perhaps closest to the North Pole and the state one thinks of in terms of snow, reindeer and the like. Other states may have different climate issues that make tree farming difficult as well, but even places like Arizona and Nevada, which rank right above Alaska, have a few farms to call their own.

According to the National Christmas Tree Association, approximately 100,000 people are employed (full- and part-time) in the Christmas tree industry nationwide. Approximately 30-35 million real Christmas trees are sold in the United States every year. Of these, an estimated 175,000 real trees are sold via e-commerce or by catalogues and shipped mail order. These are numbers not to be sneezed at.

For information on Christmas tree recycling go to www.realchristmastrees.org or call 1-800-CLEANUP

Christmas trees are recyclable, of course, and there are more ways they are reused than you may think. For example, in Toronto, Canada, a pharmaceutical company plans to use a particular type of acid extracted from the needles of discarded Christmas trees to formulate an influenza medicine. Gulf Shores, Alabama is using Christmas trees to help stabilize and restore sand dunes destroyed by Hurricane Ivan in 2004. In Jefferson Parish, Louisiana, Christmas trees are dropped in marshes along the coast to create "tree fences" that combat erosion and slow wave action and hurricane surge. Since 1986, eight miles worth of the tree fences have been created, restoring 250-300 acres of marshland.

Christmas trees are also being recycled to create fish-friendly habitats and heron rookeries. In Tomahawk, Wisconsin, ground up trees are being re-used as boiler fuel in an environmentally-friendly pulp and paper mill plant. More traditional "re-uses" of Christmas trees include creation of wildlife habitat, mulching for planting, and trail creation and maintenance.

As a matter of fact, such "green" or "eco-friendly" advantages of natural trees are being used as a marketing tool by growers. They note that 85 percent of artificial trees come from China, which has had any number of bad news stories recently about the safety – or lack thereof - of its manufactured products. In addition, when a natural tree is harvested (and it takes an average of seven years to grow a "retail ready" tree) three seedlings are planted in its place the next spring.

Real Christmas trees are a tradition worth continuing and are a true Pennsylvania tradition. But whatever type of Christmas tree your family may have, my wish for all our readers is a safe, blessed and happy holiday season.

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