

ENVIRONMENTAL SYNOPSIS

The Chairman's Corner Rep. Scott E. Hutchinson, Chairman



An article on the front page of USA Today caught my eye recently. The headline read, "From toilets to tap" and as you can guess, the story focused on the recycling of wastewater into drinking water.

Much of the article focused on Singapore where recycling wastewater is common. Indeed, it is not unusual in other places around the world either, when used for agricultural and industrial purposes. What makes Singapore (and a few other places) unique is its increasing use of the recycled water for drinking water.

It brought to mind a visit the Joint Legislative Air and Water Pollution Control and Conservation Committee (Committee) paid to the University Area Joint Authority in the

State College area of Centre County in 2007. At that time, the authority was in the early stages of a wastewater treatment plant expansion project aimed at preparing for future growth. The project was an advanced water treatment system very similar to that described in the USA Today article, using microfiltration, reverse osmosis and ultraviolet light to produce what authority Executive Director Cory Miller calls "high purity water." Indeed as the photo on page eight shows, the end product of the high tech treatment process produces water plenty pure enough to drink.

While Miller acknowledges its drinkability, he says it has far greater value than simply using it as conventional drinking water. Miller says the real value of the "high purity water" is its industrial uses. In other words, the authority and the region see the water as an economic development tool.

"Water is going to be the oil of the 21st century."

--Bill Cooper, director

Urban Water Research Center, University of California-Irvine

That perspective becomes clearer when Miller describes the progress made on the project. First, he says, the authority has laid a lot more pipeline than was in place in 2007 when the Committee visited, and has brought a number of clients online – job creating clients.

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NOTES FROM THE DIRECTOR

CRAIG D. BROOKS, EXECUTIVE DIRECTOR



Several federal agencies have proposed offshore wind energy strategies to support the development of a world-class offshore wind energy industry in the U. S. (see related article in the February 2011 *Environmental Synopsis*). The latest strategy is from the U.S. Department of the Interior (DOI), which has unveiled a plan to facilitate the siting, leasing and construction of offshore wind energy projects along the Atlantic Coast, with the goal of getting new leases this year.

The initiative, “Smart from the Start”, involves identifying Wind Energy Areas (WEA) along the coast that appear most suitable for wind energy development, improving coordination with local, state and federal partners and accelerating the leasing process. The plan is to build a “...robust and environmentally responsible offshore renewable energy program that creates jobs here at home,” according to DOI.

The department’s Bureau of Ocean Energy Management, Regulation and Enforcement (BOEMRE) has been working with state partners to identify those areas most suitable for these projects. The initial area identifications are followed by six months of data collection on each area to help developers with potentially conflicting uses. Potential conflicting uses that might arise include shipping routes, critical habitat for federally protected species and Defense Department training areas. According to DOI, identifying the best areas up and down the Atlantic Coast and then validating them with six months of study will provide the greatest opportunity for development of offshore transmission lines, none of which exist currently.

In an effort to simplify the leasing process for federal offshore renewable energy development, the second element of the initiative involves a proposed

regulatory change that would eliminate a step in the leasing process, possibly saving six to 12 months in the approval process.

Congress authorized DOI to issue leases for renewable energy development on the Outer Continental Shelf (OCS) six years ago in the Energy Policy Act of 2005. Offshore wind development, however, has not progressed to the levels anticipated due to jurisdictional and regulatory questions about offshore energy development. Working with the Offshore Wind Energy Consortium, BOEMRE has had success over the past year in promoting a regional approach to offshore wind energy development and facilitating offshore wind energy leasing activities.

The latest strategy geared toward developing the U.S. offshore wind energy industry is known as “Smart from the Start”

The six states targeted for these projects are: Delaware, Maryland, Massachusetts, New Jersey, Rhode Island and Virginia. These

six states represent the potential to produce 10.3 gigawatts of offshore wind energy.

This offshore wind initiative is the latest in a series of actions to spur renewable energy development on the OCS, along with the expedited approval of the final rules for offshore wind development, and establishment of a regulatory framework that encourages responsible development.

The establishment of the Wind Energy Consortium has also expedited the coordinating efforts of DOI with targeted states.

According to DOI, the objective is to accelerate wind energy development by using appropriate areas, coordinating environmental studies and capturing the economic and energy benefits of wind potential. At the same time, a smarter permitting process that is efficient, thorough and unburdened by unnecessary regulatory requirements is to be implemented.

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.

Mapping America's Factory Farms

-- Tony M. Guerrieri, Research Analyst

Changing consumer demands, an increased emphasis on speed and efficiency, and a shifting agricultural economy have led farmers and farm owners to specialize. Animal production, in particular, has increasingly shifted to high density factory farms to produce many animals on a small area of land.

According to a report by the Washington, D.C.-based Food and Water Watch (FWW), there was a geographic and economic shift in where and how food is raised in the U.S. between 1997 and 2007. The FWW report, *"Factory Farm Nation: How America Turned Its Livestock Farms into Factories"*, analyzed U.S. Department of Agriculture Census data from 1997, 2002 and the most current census, 2007, for beef and dairy cattle, hogs, broiler meat chickens and egg-laying operations.

Here are the key findings in FWW's analysis:

- In five years, the number of livestock units on factory farms grew by 5 million, or more than 20 percent, from 23.8 million in 2002 to 28.8 million in 2007.
- Cows on factory dairy farms nearly doubled from 2.5 million cows in 1997 to 4.9 million in 2007. The growth of factory dairy farms in western states like Idaho, California, New Mexico and Texas shifted the dairy industry away from traditional states like Wisconsin, New York and Michigan.
- Beef cattle on industrial feedlots rose 17 percent from 11.6 million in 2002 to 13.5 million in 2007, the equivalent of adding about 1,100 beef cattle to feedlots every day for five years.
- The number of hogs on factory farms grew by more than one-third (36.3 percent) from 46.1 million in 1997 to 62.9 million in 2007. The five largest states for factory-farmed hogs (Iowa, North Carolina, Minnesota, Illinois and Indiana) represent about two-thirds of all factory-farmed hogs.
- Broiler chickens on the largest factory farms nearly doubled from 583 million in 1997 to 1.09 billion in 2007. The growth in industrial broiler production added 5,800 chickens to factory farms every hour over

the past decade.

- Egg-laying hens on factory farms increased by one-quarter over the decade, rising 23.6 percent from 215.7 million in 1997 to 266.5 million in 2007. Half the egg-laying hens in 2007 were in the top five egg producing states; Iowa (52 million), Ohio (23 million), Indiana (22 million), California (19 million) and Pennsylvania (15 million).
- The average size of factory farms increased nine percent in five years. The size of the average large-scale livestock operation increased from 1,018 animal units in 2002 to 1,108 in 2007. The shift to industrial scale livestock production has crammed more animals into each operation.

According to the report, environmental problems result from this high density of animals. Commercial confined livestock and poultry operations produce half a billion tons of solid waste (in the form of manure) each year, more than three times as much as that produced by the entire U.S. population. As a result, excess livestock manure applications to fields of crops is the fastest growing large source of the greenhouse gas methane.

An interactive, color-coded Factory Farm Map can be found at
<http://www.factoryfarmmap.org>

Because these farms are spreading rapidly and it has been hard to get an accurate, up-to-date picture of where they are located, FWW also released the "Factory Farm Map", which is an interactive map showing the distribution of industrial-scale farms across the U.S. In addition to breaking down the number of factory farms by state, the map further distinguishes between cattle farms, pig farms, egg farms, and broiler chicken farms, and allows for overlaying multiple categories. The map depicts where the factory farms in each state are located, and provides more information about the history of factory farms in each state.

Zoom in on Pennsylvania, for example, and the map reveals that livestock units in Pennsylvania increased from 23.3 million units in 2002 to 26.7 million

units in 2007. These numbers place Pennsylvania 24th nationwide in the number of factory farm livestock.

The number of hogs raised on factory farms in Pennsylvania grew between 1997 and 2007, from 805,338 to 997,755. However, the number of egg laying chickens on factory farms decreased in that time to 15.2 million, down from 16.9 million in 1997.

The map also shows a high concentration of factory farms in five Pennsylvania counties. The five counties identified as having an "extreme" density of factory farms are Lancaster County (82,257 livestock units), Franklin County (21,623), Lebanon County (21,087), Berks County (21,087) and York County (16,854).

The 48-page report is available at: <http://documents.foodandwaterwatch.org/FactoryFarmNation-web.pdf>.

USDA To Push For More Ethanol Pumps at Fueling Stations

-- **Craig D. Brooks, Executive Director**

The United States Department of Agriculture (USDA) has announced plans for federal assistance for deployment of 10,000 pumps capable of dispensing ethanol blends at the nation's fueling stations. According to the USDA, the program is intended to encourage the growth of biofuels by making higher blends of ethanol more conveniently located.

Blender pumps cost between \$25,000 and \$50,000 and the federal government would provide assistance through matching funds out of existing rural development money. If the department covered half the cost of the pumps, it could cost as much as \$250 million.

According to USDA, the missing link in attaining the government's goal of 36 billion gallons of renewable fuel by the year 2022 is the lack of convenient locations to obtain higher blend rates. Congress enacted the 36 billion gallon requirement in 2007. USDA suggests that the program will help ensure the expansion of the use of 15 percent ethanol blends (E15). The Environmental Protection Agency announced in October 2010 the approval of E15 in cars produced in 2007 and later.

USDA will encourage the use of 85 percent ethanol (E85) in the nearly 43,000 vehicles it operates. With the department fuel consumption at about 19.5 million gallons annually, and fuel costs about \$41 million, the department hopes to become a model for the rest of the government to switch to biofuels as soon as possible.

There is currently a memorandum of understanding with the Federal Aviation Administration to develop biomass feedstocks that can be processed into jet fuel. USDA also announced that replacing petroleum gasoline with less expensive ethanol would reduce domestic spending on motor fuels, with cost savings to households.

There is a federal plan to deploy 10,000 pumps capable of dispensing ethanol blends at U.S. fueling stations

This program came on the heels of USDA's announcement of a final rule establishing the Biomass Crop Assistance Program (BCAP), which will provide up to 75 percent of the cost of establishing new biomass energy crops, as well as annual rental payments to cover the cost of transition from current cash crops. The BCAP is intended to expand biomass energy production by assisting farm and forest land owners with the collection, harvest, storage and transportation of eligible materials for use in biomass energy production facilities, such as power plants that burn biomass.

The program provides two types of assistance. Matching payments are provided to farmers who sell eligible biomass to a qualified energy production facility. The payments match the return given to the farmers from the biomass energy facility. The program also provides funding for producers of eligible renewable biomass crops to cover the costs (up to 75 percent) of establishing eligible perennial crops. Annual payments are provided for up to five years for non-woody perennial crops and up to 15 years for woody crops.

USDA will create regional biomass research centers around the country for the development of non-food biomass feedstocks. Non-food biomass feedstocks include wood, grass and crop residues.

The department will also fund the creation of five new biorefineries to process biomass. Funding for these projects is authorized under the 2008 Farm Bill and requires no new appropriations. Instead, existing money will be reprogrammed.

USDA also supports the temporary extension of the volumetric ethanol excise tax credit that expired in 2010. However, critics suggest that billions of dollars have already been spent to develop what they call an unsustainable fuel. It has been suggested that performance-based tax credits should be used to reward biofuels producers for reducing oil use.

More information on the USDA programs is available at <http://www.ers.usda.gov/Publications/ERR102?ERR102.pdf>.

State Roles in Reducing Greenhouse Gas Emissions from Transportation

-- Tony M. Guerrieri, Research Analyst

Between 1990 and 2007, greenhouse gas emissions nationwide jumped 27 percent. Nearly half the net increase was attributable to the transportation sector, which accounts for 32 percent of the country's total carbon emissions. As a result, emissions reductions from this sector must be a component of any comprehensive program to reduce greenhouse gas emissions. A key point is that transportation decisions are made primarily at the state level.

According to a report prepared by the Natural Resources Defense Council (NRDC) and Smart Growth America (SGA), a number of states have undertaken a variety of policies and programs to reduce greenhouse gas emissions from the transportation sector. The report, *"Getting Back on Track: Aligning State Transportation Policy with Climate Change Goals"*, reviews state roles in transportation policy as they relate to climate change.

The report evaluates state-level transportation decisions to reduce greenhouse gas emissions by examining a selection of state transportation policies currently in place. Each state is evaluated based on 17 key policy options that indicate a commitment to achieving transportation sector greenhouse gas reductions. The selected policy options fall into three categories because all are needed in order to achieve significant emissions reductions in this sector. They are aimed at:

Infrastructure Policies – These are policies that result in specific changes in transportation infrastructure projects and associated land use patterns, or that change the way people use infrastructure through pricing and other incentives.

Investment Decisions – This category tests the degree to which states support their overall policy intentions with corresponding investment decisions.

Touchstone Policies – These policies show the depth of a state's intention to reduce transportation sector emissions, such as a target for reducing the number of vehicle miles traveled and allowing gas taxes to be used for transit projects.

Taking each of these into account, each state was scored on a 100-point scale. The states were then grouped into three "tiers" based on the scores.

The three states in the best performing top tier were California, Maryland and New Jersey. These top-ranked states had policies in place to support alterna-

tives to cars like biking, walking and public transit, and had developed goals to reduce vehicle emissions and balance transportation spending on cleaner modes of transportation.

Aside from those three states, which earned 82, 77 and 75 points respectively, the other top scorers included Connecticut (70 points), Washington (68), Oregon (65), Massachusetts (64), Rhode Island (61), and Delaware and Minnesota (59 each).

The report evaluates how well state-level transportation decisions are aligned with efforts to reduce greenhouse gas emissions

Pennsylvania ranked 16th nationwide, with an overall score of 50 points. Pennsylvania got its best score for its decisions on making transportation investments. It ranked 17th for its emissions reducing policies with 47 points, but tied for last (with 19 other states) in touchstone policies with zero points.

Twelve states fell into the bottom tier with overall scores of between two and 24 points. The report ranked these five states as lowest performing: Arkansas (two points), Mississippi (12), West Virginia (13), and North Dakota and Nebraska (18 each).

The report did cite several positive examples of how states can effectively work against the rising tide of emissions, and could serve as models for progress. In Colorado, for instance, legislation was adopted in 2010 requiring the needs of pedestrians and bicyclists to be included in the "planning, for instance, design and operation of transportation facilities, as a matter of routine."

Yet the report suggests that few states adequately assess carbon emissions when deciding whether to build new highways or maintain existing ones, or how much money – if any – to spend on public transit. It says that only 15 states provide incentives for clean transportation commuting or have implemented policies to curb sprawl.

In the report, SGA and NRDC say that states, and the federal government, should make wiser decisions to spend transportation money more effectively. States can make it a priority to repair existing roads and bridges before building new ones and make intentional spending decisions for low-cost and low-carbon transportation options.

The 66-page report is available at: <http://smart-growthamerica.org/documents/getting-back-on-track.pdf>.

Commerce Launches Initiative to Expand Export of Clean Energy Products

-- Craig D. Brooks, Executive Director

The Department of Commerce (DOC) and seven other federal agencies have launched a program to help renewable energy and energy efficiency companies market their products and services overseas.

The Renewable Energy and Efficiency Export Initiative is the government's first coordinated effort to expand clean energy exports. The initiative will increase trade promotion, offer new financing mechanisms and enhance market access.

According to DOC, the initiative lays the foundation necessary to help U.S. renewable energy and energy efficiency companies take better advantage of current market opportunities. It also positions the federal government programs to better support U.S. global competitiveness in these sectors over the long-term.

The initiative is part of a plan to incorporate clean energy exports into the National Export Initiative (NEI), which seeks to double the amount of American exports by 2015.

The Renewable Energy and Efficiency Export Initiative is the government's first coordinated effort to expand clean energy exports

The NEI calls on the federal government to facilitate exports in high-growth areas such as environmental goods and services, renewable energy, health care and biotechnology as a way to promote industries that can create high-paying jobs.

The initiative was developed through the Renewable Energy and Energy Efficiency Working Group, which consists of the departments of Commerce, Energy, State and Agriculture, as well as the Export-Import Bank, the Overseas Private Investment Corporation (OPIC), the U.S. Trade and Development Agency and the Office of the U.S. Trade Representative.

The initiative calls for:

- creation of foreign buyers' guides for American clean energy technologies;
- commitment by OPIC to invest an additional \$300 million in financing for renewable resource projects in emerging markets and to introduce new products to support the exports;
- streamlining of clean energy financing applications at the Overseas Private Investment Corporation and the U.S. Export-Import Bank;
- formation of a new subcommittee at the Office of the U.S. Trade Representative to address market access barriers facing the nation's clean energy industry in foreign markets; and
- expansion of the U.S. Department of Agriculture's Market Access Program to include biomass wood pellets.

According to DOC, expanding U.S. clean energy technology exports is a critical step toward ensuring the nation's economic competitiveness in the years ahead.

The initiative will provide a better understanding of the global clean energy marketplace and hopefully help boost U.S. exports.

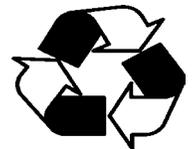
More information on the initiative is available at: http://export.gov/reee/eg_main_023036.asp.

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ON THE HORIZON...

A LOOK AT UPCOMING EVENTS

✓ **Monday, April 11, 2011, 10 a.m., Room G-50 Irvis Office Building, Capitol Complex, Harrisburg, PA – Public Hearing on the Waste Tire Recycling Act of 1996** - The Joint Legislative Air and Water Pollution Control and Conservation Committee will take testimony updating progress being made in regard to recycling waste tires in Pennsylvania.

✓ **Monday, May 2, 2011, 12 noon, Room G-50 Irvis Office Building, Capitol Complex, Harrisburg, PA – Environmental Issues Forum (rescheduled)** – Reclamere, data security experts from Tyrone, PA, will present a program on the effect of PA's new electronic recycling law on e-recycling and data security, and discuss the proper ways to carry out data destruction and security as old electronic items are replaced and recycled.

Please call the Committee office at 717-787-7570 if you plan to attend an Environmental Issues Forum. Check the Committee website at <http://jcc.legis.state.pa.us> for events that may be added to the schedule.

A REVIEW OF SOME
MEMORABLE COMMITTEE
EVENTS

COMMITTEE CHRONICLES...

The Joint Legislative Air and Water Pollution, Control and Conservation Committee (Committee) held its most recent Environmental Issues Forum on March 7 and the topic of the day was building green.

The guest presenter was Dr. David Sheridan, Executive Director of the Green Building Association of Central Pennsylvania (pictured below left during his presentation). Dr. Sheridan was joined by association board Chairman Steve Coulson and board member Mark Lambdin.



The speakers discussed the mission and activities of the association, highlighted current trends in the green building industry regionally and statewide, and examined the forest product industry's involvement in regard to today's green building standards. The speakers also offered suggestions on legislative and regulatory initiatives that could advance the green building industry.

In the photo at right, Committee Chairman Rep. Scott Hutchinson (2nd from left) chats with Sheridan (far left), Coulson (2nd from right), and Lambdin (far right).



For example, the authority's high purity water has been serving a Cintas commercial laundry for about three years now. Miller said the water's properties have saved the laundry a significant amount of money. The rate to use the water is cheaper, its properties mean Cintas does not have to chemically soften it, and the company uses less detergent while producing cleaner clothing. Miller said use of the water has helped to make the company an economically viable part of the community.

A new Best Western Hotel uses the water for its laundry services and fills its swimming pool with it. In what Miller termed a more "unusual" application, the regional Alpha Fire Company uses the water in the heat exchangers of its geothermal system to heat and cool its building. The Centre Hills Country Club uses the water to irrigate its 27 holes. And the authority just added the RedLine Speed Shine Car Wash to its customers. There the water is used to not only wash cars but also is used geothermally in heated floors and pads so water from washing does not freeze.

Miller noted that businesses that need steam for their industrial processes usually have to pre-treat drinking water beforehand, an expensive and time-consuming process. The recycled water needs little pre-treatment, thus saving on equipment costs, as well as labor and materials costs.

The authority is also proud of the environmental benefits that can result from recycling wastewater. Miller said the authority is now in the process of building its first environmental project, a constructed wetland at the end of its water line. High purity water will be reintroduced into the watershed at a point about 11 miles upstream from the current conventional treated water discharge. This should benefit the watershed in general and result in more high quality water in Spring Creek and its tributaries.



As USA Today points out, other areas in the U. S. use similar high-tech processes to recycle water. Orange County, California and northern Virginia are two examples. Miller said he was familiar with some other Pennsylvania locales that are putting recycled water to use, but he said he was certain that the University Area Joint Authority is the only place in Pennsylvania that employs the reverse osmosis process. Reverse osmosis pushes water through a semi-permeable membrane to remove a variety of substances, including salts, viruses and pharmaceuticals.

Miller said that about 4.77 million gallons of wastewater come into the plant each day and about one million gallons a day are reused currently. He said that is about as far as the plant can go for now, but as growth occurs, the capability is there for that figure to increase to meet demand.

None of the authority's high purity water goes directly back into the drinking water system. But areas like Singapore and Orange County which, unlike Pennsylvania, face water scarcity issues are ones that are looking more and more at the "toilet to tap" concept, as well as processes like desalinating (removing salt from sea water), a process Miller described as "not cheap" and very labor intensive.

In looking at the future, Miller did not dispute the quote attributed to Bill Cooper on page one. He said that water is grossly undervalued now, but that will change.

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