



The Chairman's Corner

Rep. Scott E. Hutchinson, Chairman

At the invitation of committee member Rep. Jeff Coleman (R-60), the committee recently traveled to Saltsburg, Indiana County to learn more about regional watershed problems presented by Acid Mine Drainage (AMD). The committee also wanted an update on what Pennsylvania is doing to solve the problem statewide.

AMD is an unfortunate legacy of the state's abandoned mine workings, in both the anthracite and bituminous fields. The availability of good quality water is compromised by the presence of AMD in 45 of Pennsylvania's 67 counties. While the committee heard of problems, we also found good progress toward solutions.

Pennsylvania Department of Environmental Protection (DEP) Secretary David E. Hess presented a before and after look at Pennsylvania's AMD problem. Before the advent of programs like ReclaimPA and Growing Greener, and the "Good Samaritan" legislation enacted by the Pennsylvania General Assembly, Pennsylvania had 250,000 acres of abandoned mines needing reclamation, 2,400 miles of AMD-polluted streams, more than 200 miles of unreclaimed highwalls, more than 1,000 old mine openings, 45 known deep mine fires and tens of thousands of acres of subsidence-prone land.

Now, thanks to industry efforts in conjunction with DEP and new local watershed partnerships built as part of Growing Greener, nearly 29,300 acres of abandoned mines have been reclaimed, water quality has been improved in 528 miles of mine polluted streams, 54

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Craig D. Brooks, Director

Perhaps the fact that the bulk of a water or wastewater system's infrastructure is underground is part of the problem with generating support for infrastructure funding — out of sight, out of mind. Stuff that is not visible just doesn't attract public attention like potholes or crumbling bridges, even though failing infrastructure also poses a considerable health threat.

Last fall, the Water Infrastructure Network (WIN) issued *"Clean and Safe Water for the 21st Century,"* a report that summarized the infrastructure needs and the funding shortfalls that drinking and wastewater systems are facing. Because WIN represents a broad coalition of water organizations (including the American Water Works Association - AWWA), municipal and state government agencies, and engineering and environmental groups, the report had significant credibility.

This prompted a large number of legislative funding proposals at the federal level.

The WIN report estimates that in the next 20 years drinking water systems will have to invest about \$300 billion more than their current level of spending to keep pace with compliance and infrastructure needs. This estimate does not include expansion to accommodate growth and development. The comparable estimate for wastewater is \$400 billion.

Earlier this year the U.S. Environmental Protection Agency (EPA) released its own needs estimate based on a survey of large water systems. The results suggest that drinking water systems alone will require an additional \$150 billion in the next 20 years. This estimate was limited, however, to identifying needs that were eligible for

funding through state revolving loan funds and did not include needs such as replacement of aging treatment facilities or distribution systems. These needs are not currently eligible for funding, yet they often constitute the greatest challenge for utilities.

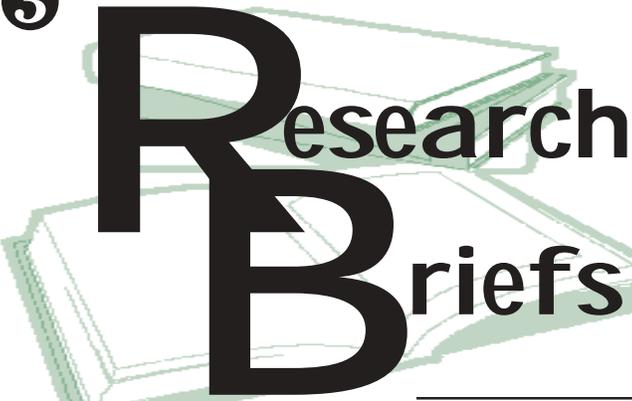
Another analysis of 20 major utilities released this summer by the AWWA concluded that an additional \$250 billion in public and private expenditures may be needed to replace the nation's drinking water infrastructure over the next 30 years. Unlike the EPA report, the AWWA study's conclusions are not based on surveys but on specific information about infrastructure aspects such as pipe age and break rates from 20 of the nation's major utilities.

"Regardless of... methodology..., the WIN, EPA, and AWWA reports show substantially increasing cost for water and wastewater infrastructure."

In the 20 utilities that were studied, AWWA estimated that infrastructure repair and replacement will require an additional \$6 billion in revenue above current spending levels, resulting in increases in water rates

ranging from \$550 to almost \$2,300 per household over a 30 year period. On a national basis, estimates could range from as much as \$250 billion and up to \$6,200 for some households. This figure does not include costs associated with new drinking or wastewater infrastructure standards, only maintenance and repairs.

Regardless of the methodology used to gain the information, the WIN, EPA, and AWWA reports show substantially increasing costs for water and wastewater infrastructure. Replacement of aging infrastructure, combined with compliance with new regulatory standards under the Safe Drinking Water Act and Clean Water Act regulations, including huge needs for meeting combined sewer overflow and storm water requirements, will compete for revenue on the same household bill.



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.

California Considers Daylight Saving Time to Save Energy

—Tony M. Guerrieri, Research Analyst

Daylight Saving Time (DST) begins for most of the United States at 2 a.m. on the first Sunday of April. Time reverts to standard time at 2 a.m. on the last Sunday of October. One of the biggest reasons for changing clocks to DST is that it saves energy. The change to DST allows the public to use less energy in lighting their homes by taking advantage of the longer and later daylight hours.

The current energy crisis in California has led to inquiries on the advisability of extending DST. A report by the California Energy Commission (CEC) examines whether creating an early DST or going to year-round DST would help California conserve energy. The CEC report, *"Effects of Daylight Saving Time on California Electricity Use"*, also considers the possibility of observing summer Double Daylight Saving Time (DDST), a two-hour shift during the months when DST currently is in effect.

The report suggests that extending DST to cover the late October to early April period, when the state usually observes standard time, would save California an average of 1,100 megawatts, or three percent at the peak. Total daily power consumption would drop by about 3,400 megawatt-hours, or 0.5 percent, mostly as a result of fewer hours of lighting and heating in homes.

According to the CEC report, the financial benefits would depend on the cost of electricity, but California could save as much as \$350 million during the winter. While the power savings are "marginal," significant money savings materialize because electricity use would shift to low-demand hours of the morning and reduce electricity use during hours of higher demand.

Under DDST, electricity use would drop in the afternoon when it is most valuable and rise in the morning, for a savings of around 1,500 megawatts per day, or about 0.2 percent of use. California could save nearly \$1 billion by employing DDST.

DST was used in the past century when there were compelling needs to conserve energy. It was first instituted in the United States to save energy during the last seven months of World War I. It proved unpopular, and after the war it was repealed. During World War II, year-round DST was instituted as part of the wartime effort. Again, it was repealed after the war ended. From 1945 until 1966 there was no federal law regulating DST, and its observance was inconsistent. In 1966, Congress standardized the observance of DST, from the last Sunday in April through the last Sunday in October.

...significant money savings materialize because electricity use would shift to low-demand hours...and reduce use during hours of higher demand.

The period of DST observance changed again during the oil embargo of the 1970s, when the United States temporarily experimented with winter DST in an effort to reduce overall energy consumption. After the 1973 oil embargo, Congress mandated a year-round DST that lasted from 1974 to 1975, and had the U.S. Department of Transportation measure energy savings. The 1975 study found that by employing DST, the nation's electricity consumption was reduced by about one percent each day. The period of observance changed again in 1986 with the extension of DST starting the first Sunday in April.

Currently, a state can only employ DST during the months of April thru October, as specified by federal law. Legislation has been introduced in Congress to allow California and other Pacific Time Zone states (Nevada, Oregon, and Washington state) to adjust their time if the state finds that an adjustment would lead to energy reductions. The CEC report is available for viewing or downloading on the California Energy Commission's website at www.energy.ca.gov/reports/index.html or by calling (916)-654-5200.

Coal Ash Report Says Burning Coal Byproducts Safe

—Jason H. Gross, Research Analyst

Earthtech recently released a 119-page report with a companion appendix on behalf of the Anthracite Region Independent Power Producers Association (ARIPPA) entitled *“Occurrence and Fate of Selected Trace Elements in Circulating Fluidized Bed Combustion Byproducts”*. ARIPPA represents twelve Pennsylvania companies that generate electricity using environmentally friendly Circulating Fluidized Bed (CFB) boiler technology to burn coal mining refuse.

Since Pennsylvania is one of the largest users of coal-fired power plants there is a need to find environmentally friendly methods of disposing of the waste coal ash that is produced in these plants. There are hundreds of millions of tons of this, until recently, largely unusable mine refuse called “culm” in the anthracite coal mining region and “gob” in the bituminous coal mining region. Until recently the coal burning byproducts were simply landfilled or piled near coal burning power plants.

Through CFB technology, coal waste can be disposed of in an environmentally responsible way.

The waste piles are not new, having been largely derived between 1900 and 1970. Waste deposit piles can often be in excess of 8 million tons, cover tens of acres and reach up to 50 feet in depth, creating an unsightly black mass of unvegetated waste. Acid mine drainage from these piles contributes to pollution of over 2,400 miles of Pennsylvania waterways.

If an appropriate way of disposing of the coal ash waste can be found, thousands of acres of land will be reclaimed and turned into wildlife habitat or into useful development sites.

The refuse banks have long posed an inherited environmental burden on the coal mining regions. Now, according to the report, through the use of CFB technology, coal waste can be disposed of in an environmentally responsible way. CFB plants provide a necessary service in ridding our environment of a dangerous waste product, and areas surrounding coal plants can rid themselves of the unsightly refuse piles and the problems associated

with them. This allows for reclamation of hundreds of acres of wasted land area.

The new technologies in use at CFB power plants are based on the finding that by suspending fuel in air it could be ignited and would swirl around like a fluid, hence the “fluidized bed” part of the name.

By circulating the burning fuel in a tall boiler/furnace, all of the available carbon is consumed and heat is produced, which is then used to power an electricity-producing turbine.

Study results indicate that using waste ash from coal-fired power plants is a relatively safe and clean form of generating electricity.

By using coal waste product, the CFB power plants transform a formerly landfilled waste product into a useful source of energy. This is a valuable alternative to the landfilling of wood waste, agricultural waste, biomass, and coal mining refuse and has resulted in construction of several plants designed to utilize those wastes.

According to the report, there are 14 plants burning coal mining refuse in Pennsylvania, three in West Virginia and several plants burning coal, agricultural waste and wood in California.

The scientific scope of the study includes the following topics and provides a literature search of them:

- an examination of the leaching tests performed on the ash of 12 power plants to determine the potential for released arsenic, cadmium, chromium, lead, mercury, nickel, and selenium;
- an examination of the concentrations of the above chemicals in surface groundwater at 14 ash disposal areas;
- an examination of mercury content of the fuels in 12 plants;
- stack emissions and ash capture mass;
- a sampling of air for the determination of elemental mercury gas emissions at ash placement sites.

The study is designed to be a scientific analysis of CFB plants and any possible negative environmental effects they may produce. The results of the study indicate that using waste ash from coal-fired power plants is a relatively safe and clean form of generating electricity and of disposing of a difficult to eliminate waste product.

For further information regarding the report please contact ARIPPA at 1300 Market St, Suite 7, Lemoyne, PA 17043.

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Automakers Can Use Existing Technology to Raise Fuel Economy

— Tony M. Guerrieri, Research Analyst

Automakers can use existing technologies to help reduce air pollution and U.S. dependence on foreign oil by raising the fuel economy of their cars and trucks, according to a report by the Union of Concerned Scientists (UCS). The report, *“Drilling in Detroit: Tapping Automaker Ingenuity to Build Safe and Efficient Automobiles”*, highlights the energy savings and environmental benefits that would result from improved fuel economy.

During the energy crisis of the 1970s, the federal government imposed average fuel economy standards. Corporate average fuel economy standards were set at 27.5 miles per gallon (mpg) on new passenger cars and 20.7 mpg for light trucks, which includes minivans and sport-utility vehicles. The automakers do not have to meet the standard for each vehicle, but their entire fleet must average the gas mileage standard.

The UCS report claims that the auto industry is capable of producing a fleet of cars and trucks that meet an average fuel economy of more than 40 mpg by 2012. Furthermore, with transportation consuming two-thirds of the nation's oil, the report also recommends automakers use available technologies to improve the fuel economy to an average of 55 mpg by 2020.

The report makes clear that technologies to meet these goals are available today. It details a technological path that applies conventional improvements, such as variable valve engines, high strength steel and aluminum, continuously variable transmissions and low rolling resistance tires, and develops advanced technologies, like

hybrid and fuel cell vehicles.

Reducing fuel use would yield economic benefits, according to the report. By 2010, consumers could be saving \$9.8 billion per year and \$28 billion by 2020. The report predicts that a combination of more consumer dollars in the economy and investments in vehicle improvements could result in 40,000 new jobs in the auto industry within the next ten years and 100,000 new jobs by 2020.

The report claims the auto industry is capable of producing a fleet with an average fuel economy of more than 40 mpg by 2012...and recommends automakers improve fuel economy to 55 mpg by 2020.

Along with these economic benefits comes environmental protection. The report suggests that 273 million tons of annual global warming emissions could be eliminated in 2010, and 888 million tons in 2020.

One technology not incorporated into the report is the diesel engine. According to the report, reliance on diesel would guarantee increases in emissions of toxics, particulates, and nitrogen oxides. In contrast, the cleaner pathway prescribed in the report could reduce annual emissions from gasoline refining and distribution by 150 million pounds of toxics and 320 million pounds of smog-forming pollutants by 2010. By 2020, these reductions would reach 481 million pounds of toxic emissions and over a billion pounds of smog-forming pollutants.

Opponents to increasing the fuel standards often cite decreased automobile safety, which they contend could result from producing smaller, more fuel-efficient vehicles. The report suggests there is little research linking tougher government standards for fuel economy and vehicle safety. In fact, using the high-efficiency scenario, the report suggests that the safety of America's cars and truck fleet will be maintained, perhaps even improved. For the largest vehicles, like trucks and sports utility vehicles, improving fuel economy through weight reductions could make them less dangerous to other vehicles on the road.

The Union of Concerned Scientists is a national group of citizens and scientists that offers public policy solutions for the environment. The report is available from the Union of Concerned Scientists, 2 Brattle Square, Cambridge, MA 02238-9105; telephone (617)-547-5552. The report is also online at <http://www.ucsusa.org>.

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 you or 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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Official Report on Global Warming Released to White House

—Jason H. Gross, Research Analyst

Recently the National Academy of Sciences released a report with recommendations to the White House on global warming issues. Issued on June 6, the report is entitled “*Climate Change Science: An Analysis of Some Key Questions*”. The White House made the request in an effort to gather information to use in shaping national environmental policy. The study represents the official scientific position of the National Academy of Sciences in regard to the science of climate change.

According to the academy, the study does not represent political policy recommendations. The academy attempts in its report to avoid getting mired in political rhetoric and to provide a neutral scientific approach. To this end, the report provides policy makers with a balanced overview of what scientists can currently say regarding the potential for future climate change. At the same time the report attempts to outline various uncertainties regarding the current state of scientific knowledge on the topic. The academy also provides a roadmap for reducing these uncertainties by advancing certain scientific techniques and technologies.

There is a wide range of uncertainty in predicting the magnitude of warming and associated climatic changes.

According to the report, the accumulation of greenhouse gases is in fact causing a temperature change in the environment. The academy believes that the global increase in temperature is a direct result of the greenhouse gases generated through human activity. According to the report, human-induced warming will increase through the 21st century. Given the information available now, there is a wide range of uncertainty in predicting the magnitude of the warming and the associated climatic changes.

There are two factors the academy states could reduce the uncertainty in predicting the magnitude and nature of climate change in the future. The first is the accuracy and depth of the data. While there are many sources of worldwide climatic data, the report recommends that these sources should be increased in their

range and accuracy. In order to increase the range of data collection, more areas of the globe will need to be covered by monitoring equipment and data collection devices. The method for increasing data accuracy must include advances in collection technologies and methodologies.

The second issue identified by the academy is the development of more sophisticated climate modeling technologies. Modeling is the scientific process that matches raw climatic data with theories and histories of climate change. By meshing these issues together through the use of computer software, the modeling system develops a map that is used to predict climate change. According to the academy, improvements in the modeling system must be made in order to increase the accuracy of climate change predictions.

The academy further recommends additional research into the factors that determine atmospheric concentrations of greenhouse gases and aerosols. A deeper understanding must be reached regarding the future usage of fossil fuels, methane emissions, and carbon emissions. By gaining an understanding of these and other issues that impact the environment, scientists will be able to more accurately model the future environmental picture.

Using the current techniques and data, the academy made several predictions regarding future global climate change. According to the report, over the next 100 years surface temperature will increase anywhere from 2.5 to 10.4 degrees Fahrenheit. The exact nature of such a degree of global warming cannot be completely predicted, but based on the modeling schemes currently in use, the academy does attempt to make some general predictions.

Among the predictions are the following:

- the consequences of such a temperature increase will be an increased tendency toward drought;
- along with drought, there will be fewer storm events and storm events that do occur will be higher in intensity;
- even in non-arid areas where the effects of drought will not be as pronounced, there will be increased flash flood events; and
- if the production of greenhouse gases is not reversed, the implications of global warming and climate change will be vast.

Copies of the report are available through <http://www.nap.edu> or by calling 1-800-624-6242. The National Academy of Sciences is a private non-profit society of scientists and scholars who are engaged in research and perpetuating general public welfare.

On The Horizon...

a look at upcoming committee events

➤ **Monday, October 1 at 11:30 a.m., Hearing Room 1, North Office Bldg., Capitol Complex — Environmental Issues Forum.** Guest presenter is Dr. T. Allan Comp, historian with the federal Office of Surface Mining. An historian of technology with a long commitment to cultural resources, community engagement and environmental recovery, Comp is currently focused on the recovery of the Appalachian coal country. Dr. Comp will discuss his unique *“Designs and Approaches to Acid Mine Drainage, Brownfields and Communities.”*

➤ **Monday, October 15 at 9 a.m., Hearing Room 1, North Office Bldg., Capitol Complex— Infiltration Task Force Meeting.**

➤ **Thursday, October 18 at 10 a.m., Penn Stater Conference Center, State College – Forestry Task Force Meeting.** Discussion of forest legacy program.

➤ **Tuesday, October 23 at 8:30 a.m., Room 140, Main Capitol (House Majority Caucus Room) — Environmental Issues Forum.** Guest presenter is **Prof. Susan Meo** of Shippensburg University. She will describe the life and works of noted conservationist, author, botanist and activist Mira Lloyd Dock.

➤ **Monday, October 29, 9 a.m. to 1 p.m., Hearing Room 1, North Office Bldg., Capitol Complex – Infrastructure Workshop.** A joint workshop with the South-Central Assembly for Effective Governance.

Committee Chronicles...

a review of some memorable committee events

The Joint Conservation Committee recently visited Saltsburg, Indiana County at the invitation of committee member Rep. Jeff Coleman (R-60) to conduct a public hearing on acid mine drainage.

The acid mine drainage problem and testimony presented are discussed in *The Chairman's Corner* on page one.



In the photo above (l to r), committee Executive Director Craig Brooks, chairman Scott Hutchinson (R-64), and committee members Reps. Coleman and Dave Argall (R-124) listen to testimony from DEP Secretary David E. Hess (back to camera at left) on statewide efforts to combat acid mine drainage.

At left, Reps. Hutchinson and Coleman listen intently to further testimony.

JCC miles of highwalls have been eliminated, 145 mine openings and portals have been sealed, fires have been extinguished on 107 acres of mine land and the risk of subsidence reduced on 235 acres of threatened land. All of that has happened over the past six years.

A consistent theme was the need for additional funds from the federal Abandoned Mine Reclamation Fund

Since 1995, DEP has also used \$108 million to reclaim 8,935 acres through its Abandoned Mine Reclamation Program. Reclamation not only remedies environmental problems but also eliminates health and safety hazards, such as 39 dangerous water impoundments, and helps with water supplies. Using the reclamation funds, 36 replacement water supply projects have been completed.

Industry also plays a role in reclamation. Through the cooperative efforts of operators utilizing remining and the ReclaimPA program, 18,305 acres have been reclaimed and 158 miles of stream improved. As Michael Young of the PA Coal Association pointed out, "Pennsylvania doesn't lead the nation in coal production anymore, but we do lead the nation in remining."

Since 1995, the state has implemented a Comprehensive Mine Reclamation Plan that has four main elements:

- new mining operations do not contribute to the reclamation problem;
- active operations are encouraged to reclaim abandoned sites through ReclaimPA;
- federal and state reclamation dollars are maximized; and
- local watershed-based reclamation efforts are encouraged.

One example of just such a local watershed-based approach is the Aultman Watershed Association for Restoring the Environment (AWARE). In existence for fewer than two years, AWARE is beginning a Growing Greener-funded assessment of surface water supply. The Aultman Run Watershed is a 28 square mile watershed whose primary stream is a direct tributary of the Conemaugh River in the Indiana County area. AWARE offered testimony concerning its progress and painted a picture of inter-governmental cooperation and steps forward, while lamenting the complexity of some government forms for small watershed organizations.

A consistent theme that came through loud and clear during testimony was the need for the federal government to release additional funds from the industry-funded Abandoned Mine Reclamation Fund. DEP, the Pennsylvania Coal Association, the Western Pennsylvania Coalition for Abandoned Mine Reclamation, and the United Mine Workers were unanimous in seeking continued and increased funding from this \$1.5 billion fund. Continued funding from Growing Greener is also an important part of helping watershed organizations — 60 of which have formed since Growing Greener was enacted — establish AMD remediation programs.

In summing up the importance of cleaning up AMD, perhaps Arthur Grguric, a former coal miner himself, now active with the Blacklegs Creek Watershed Association, said it best when he testified, "Quality of life is something one cannot put a price on...Take away AMD and poor water quality in towns like Saltsburg and you have the type of place people want to live, work, recreate, and raise a family. How many other Saltsburgs are there in Pennsylvania? When decision-makers at all levels begin to realize that economic development and environment are natural allies and not natural enemies, we will begin to find out."

How to Contact The Joint Conservation Committee

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