



The Chairman's Corner

Rep. Scott E. Hutchinson, Chairman

Much has been written and commented upon recently regarding coal's role in the energy production scene. While the nation looks for alternative sources of energy, including established sources such as natural gas and oil, new "old" sources like wind farms, and truly new technologies such as hydrogen fuel cells, coal remains a sleeping giant.

Supply is not the problem. As reported in the Pennsylvania Coal Association's (PCA) most recent publication *Pennsylvania Coal Data 2001*, Pennsylvania is home to nearly 25 billion tons of bituminous and 7 billion tons of anthracite coal reserves. If all of these reserves were mined at today's production rate, there would be enough coal to last for more than 300 years.

Coal remains a player in the energy game in Pennsylvania

Despite the fact that Pennsylvania coal production and employment is a far cry from its heyday – circa World War I – the Commonwealth remains a player in the game. According to PCA, Pennsylvania ranked fourth in the nation in total production, accounting for 7.29 percent of production nationwide. More than 60 percent of total nationwide production came from only three states – Wyoming, West Virginia and Kentucky.

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Craig D. Brooks, Director

A U.S. Forest Service study suggests that deer populations are dramatically changing the composition of forests in Pennsylvania and other eastern states, reducing the number of species and hampering their growth. For years now, similar findings have been reported by plant experts and foresters alike, but this study is particularly significant because of its attempt to quantify the problem.

The Joint Committee's Legislative Forestry Task Force and Advisory Committee have been following this particular research for many years. In 1996, the task force had the opportunity to visit research enclosures and revisit them again in 2001, and then made recommendations to the General Assembly regarding forest regeneration and deer management. Clearly, we have the tools for regulating deer numbers, altering the age composition, estimating deer densities, and as this study now shows - measuring their impacts on the forest environment.

Researchers at the Allegheny National Forest Research Lab in Warren, PA set up four 160 acre enclosures in northwestern Pennsylvania with different number of deer - 10, 20, 38 and 64 per square mile - and monitored the tree growth for a decade. This study was unique because it relied on enclosures instead of "enclosures" - fenced in areas without deer, in which tree growth is compared to that in the larger forest where the exact number of deer is unknown.

As suspected, tree density and species composition were dramatically different between the enclo-

sure that contained 10 deer per square mile and the others. In addition, the trees were shorter in the enclosures with more deer. The damage resulted, in part, because deer eat the saplings of species such as ash, hickory and sugar maple, clearing the way for less desirable species like ferns and striped maple to take over. The impacts can last for decades even if deer populations are brought under control.

This study has implications for all eastern states with hardwood forests. When one element of the forest, like the white-tailed deer, is out of balance with the rest of the system, the impacts can be far reaching. Far reaching enough that they're altering the forests, changing species composition for trees, shrubs and wildflowers, and eliminating the habitat for wildlife. Researchers chose Pennsylvania for the experiment because the deer problem is considered the worst and the oldest of all the eastern states. Pennsylvania also has a forest resource base and potential deer resource that rivals any in the country.

After considering input from many research and government agencies, and hunting and environmental organizations, the Pennsylvania Game Commission has initiated corrective actions by adopting new hunting regulations designed to allow hunters to harvest more deer, especially females. Also, the commission has increased the number of licenses for hunting antlerless deer and also extended the doe season from three days to two weeks, simultaneous with the buck season. Hopefully, these extended seasons and bag limits will improve the chances of balancing the deer herds with the forest habitat.

When one element of the forest is out of balance with the rest of the system, the impacts can be far reaching

New Reports Now Available...See Page 7 for Details



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.

Reducing Economic Losses Along America's Coastal Barriers

- Tony M. Guerrieri, Research Analyst

From Maine to Texas, barrier islands stretch along 2,700 miles of the nation's shoreline. Hundreds of miles of beaches, dunes and wetlands act as coastal barriers and critical defenses along the Pacific and Great Lakes shores, sheltering coastline areas from storm and wind damage, erosion, flooding and rising seas.

However, barrier islands and beaches, shackled by development, lose the ability to mitigate these forces. Communities on coastal barriers are left ever more vulnerable to natural forces they can neither control nor adequately defend themselves against. The price tag for federally provided disaster assistance, amounting to billions of dollars a year, to flood-prone communities is already immense. For example, in 1995, Hurricane Opal made landfall near Pensacola Beach, Florida, as a Category 3 hurricane and did damage estimated at close to \$3 billion.

The Coastal Barrier Resources System (CBRS), which was created by the Coastal Barrier Resources Act of 1982 (CBRA), uses a combination of policy measures to protect ecologically significant barrier island habitats and to discourage development within designated CBRS units. The system includes 1.3 million acres of undeveloped coastal barrier habitats, including barrier islands, barrier spits and peninsulas, and bay barriers, along the Atlantic Ocean, Gulf of Mexico, Great Lakes, Puerto Rico, and the Virgin Islands.

The CBRA restricts federal expenditures or financial assistance within designated CBRS units. The act does not prohibit development in CBRS units by owners willing to develop their properties without financial assistance from the federal government. The denial of federal development subsidies, particularly

federal flood insurance, is significant, because the financial burden of coastal development is placed squarely on the shoulders of the private developer.

A report by the U.S. Fish and Wildlife Service estimates how much money the CBRA has saved taxpayers by restricting federal spending. According to the report, *"The Coastal Barrier Resources Act: Harnessing the Power of Market Forces to Conserve America's Coasts and Save Taxpayers' Money"*, the savings from 1983 through 1996 was about \$686 million and the savings from 1997 through 2010 will be about \$592 million, a total of nearly \$1.3 billion.

The price tag for federal disaster assistance is immense

The report notes that the CBRA is enhanced when state and local governments add their own layers of protection. Texas, for example, prohibits state-backed windstorm insurance on designated coastal barriers, and on Dauphin Island in Alabama, the state's coastal construction control line coincides with federal boundaries.

To estimate the savings of disaster relief, the report examined federal spending for declared disasters from 1988 through 1996. If future expenditures are similar to those, then about \$5 million will be saved every year after 2010. The report estimates that another \$200 million in disaster relief funds could be saved by 2050.

By guiding development out of hazardous, flood prone areas, the CBRA discourages development that places people at serious risk from storms, hurricanes, erosion and rising sea levels. By discouraging development in disaster prone areas, the CBRA saves tax dollars that otherwise would be used in support of coastal development and redevelopment.

A copy of the U.S. Fish and Wildlife Service report is available online at www.fws.gov/cep/cbrtable.html.



Electric Utilities Save Money By Early Remediation

—Jason H. Gross, Research Analyst

The Yale School of Forestry and Environmental Studies has released a report entitled “*Environmental Exposures in the U.S. Electric Utility Industry*” that focuses on how the electric utility industry economically copes with environmental regulation.

According to the report, the electric utility industry is one of the most environmentally sensitive sectors in the U.S. economy. Or, said another way, new regulations that change the allowable emissions by an electric utility can have serious consequences for the utility’s economic stability. Most companies who generate revenue in this sector are heavily exposed to the impact of state or federal environmental regulation, and substantial investment and expenditure, enough to sometimes create instability in the electric utility sector, are required to comply with past and current environmental standards.

Even now, Congress, federal regulatory agencies, and their state counterparts are contemplating stricter environmental regulations which will mean future expenditures for electric utilities. Among the most significant restrictions will be new regulations on emissions of nitrogen, sulfur dioxides, airborne particles, mercury, carbon dioxide, greenhouse gases and other toxic air pollutants.

Policy makers should understand economic costs when legislating environmental compliance

The financial risks and impacts associated with environmental compliance vary widely from company to company, depending on several factors, including the mix of technologies and fuel generation systems used by a utility. For instance, a utility with a mixed portfolio of renewable and traditional electric generation systems should be better able to deal with the economics of new electric regulation since the renewable facilities may already be compliant or closer to it.

According to the report, policy makers should understand the economic costs when legislating environmental compliance measures. Failure to realize the full economic impact of regulation can leave a state

with reduced energy capacity should a utility go bankrupt if it cannot afford compliance costs.

The report also takes the position that the economic issues of environmental control costs are particularly acute in deregulated electricity markets. In these more competitive, open marketplaces, utilities, even in the wholesale market, are not assured of survivability if faced with increasingly expensive and cost prohibitive environmental compliance. Companies will differ in their ability to recover the costs of regulatory compliance depending on their regulatory status and their market position.

The challenge for utilities, says the report, is to manage themselves to economic profitability despite the uncertainties surrounding impending environmental regulation. The report suggests that companies within the utility sector should be prepared to take different public policy positions and adopt various investment strategies so that they can adapt to impending environmental issues. Far from a one-size fits all scenario, the issues that a particular utility must deal with vary depending on its energy portfolio as well as the specific regulatory scheme that is adopted.

The results of the report indicate that for the majority of utilities, dealing with all pollutants in an integrated way is less costly than delaying the control of carbon emissions until regulatory steps to control other pollutants have already been taken. In terms of regulatory burdens, the report suggests that early and comprehensive environmental regulation and emission controls are not only more cost effective for the utility industry but also more beneficial to the environment.

For a copy of the full report visit: <http://www.yale.edu/forestry/downloads/repettohendersonweb.pdf>.

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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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The Federal Government Adopts Environmental Stewardship Practices

— Tony M. Guerrieri, Research Analyst

Stemming from a presidential “Greening the Government” executive order, federal agencies are required to integrate environmental stewardship considerations and sound stewardship practices into all aspects of their operations, policies, and programs.

According to a report by an interagency workgroup, the federal government is making strong progress in beefing up its efforts in environmental management. The report, *“Leading By Example: A Report to the President on Federal Energy and Environmental Management (2000-2001)”*, identifies examples that demonstrate the federal government’s commitment to promoting sustainable environmental stewardship throughout its various agencies and departments. The report concludes that the federal government is more energy efficient and more systematic about environmental management. It releases fewer gas emissions, and spends more on environmentally responsible operations, buildings, and products than ever before. Apart from their enormous environmental benefits, these measures are also spurring new growth and jobs, and saving federal taxpayers millions of dollars each year in energy and other costs.

Over the last several years, federal agencies have made major changes and accomplishments in sustainable procurement, energy-efficiency, and other greening practices, that demonstrate the significant impact and leadership the federal government can make. The report highlights key accomplishments, including:

- Implementation of environmental management systems at more than 180 federal facilities, including strategic frameworks for ensuring compliance with environmental requirements, and integrating environmental accountability into day-to-day decision making and planning.
- Lessening the federal government’s energy intensity (energy use per square foot) by 23 percent since 1985, saving taxpayers \$1.4 billion.
- Reducing total carbon emissions from energy used in federal facilities by 2.8 million metric tons of carbon equivalent from 1990 to 2001 (equivalent to removing almost 2.1 million cars from the road in a year).

- Implementation of 125 energy projects in 2001 using alternative financing mechanisms, with the private sector investing approximately \$477 million, at no cost to taxpayers, for a life-cycle cost savings of \$1.2 billion.

- Qualification of more than 250 federal buildings as Energy Star buildings for their high-energy efficiency.

- Tripling federal agencies’ purchase of electricity from renewable energy sources in 2000-01, to 632 gigawatt hours, enough to serve 60,000 households for a year.

- Increasing federal agency consumption of alternative fuels (such as ethanol, biodiesel, and compressed natural gas) from 1.3 to 8.6 million gasoline gallon equivalents in 2000-01, a six-fold increase. Also, in 2000, federal agencies purchased nearly 8,000 new alternative fuel vehicles, bringing the total federal fleet of such vehicles to 55,000.

- An average of more than 650,000, or approximately 22 percent, of all federal employees commuted to work other than by single-occupancy vehicles, reducing traffic congestion and air pollution.

- Purchasing nearly \$500 million in products containing recycled content in 2001, and more than \$3.6 billion of such products over the last decade. Federal agencies and government contractors now buy more than 50 types of recycled content products.

The report also makes 18 recommendations for the federal government to improve its environmental stewardship through its operations and practices, in the following categories:

- Building partnerships and enhancing education.
- Improving accountability.
- Budgeting for sustainability.
- Building sustainable infrastructure.
- Continuing leadership.

A federal interagency workgroup, consisting of the Federal Environmental Executive and representatives of the Council on Environmental Quality and the Office of Management and Budget’s Office of Federal Procurement Policy, issued the biennial report. The full report can be viewed at <http://www.ofee.gov/whats/leadingbyexample.pdf>.

The Health Risks of Ecosystem Destruction

—Jason H. Gross, Research Analyst

Recently the United Nations Environmental Programme released a report entitled “*An Assessment of Risks and Threats to Human Health Associated with the Degradation of Ecosystems*”. According to the report, the health and well being of humans cannot be separated from the environment. Threats to human health are part of threats to the ecosystem. The challenge, according to the report, is maintaining public health while simultaneously improving the health of the ecosystem as a whole. This combined task can be daunting since improving human health usually requires expenditure of environmental resources.

According to the report, dangers to environmental health can be divided into two main sources: 1) lack of development and the inability to cope with natural hazards and/or lack of access to essential environmental resources; and 2) unsustainable development leading to ecosystem degradation. Major causes of ecosystem degradation are characterized as environmental hazards such as biological, physical and chemical hazards. Both of these issues are related to improper human development of the environment either in type or quantity. According to the report, as human development degrades the environment, human health suffers concurrently.

The goal of the study is to establish to what degree there is a link between ecosystem degradation and human health. To achieve this, the study seeks to review key emerging and re-emerging threats to human health at global, regional, and local levels due to ecosystem degradation. The environmental conditions that foster the transmission and spread of disease, exposure to harmful chemicals and hazardous conditions must be reviewed and synthesized in order to gain an understanding of the connection between ecosystem and human health.

An ecosystem is a functioning unit of nature that combines diverse communities of biological and plant communities. According to the report the three main characteristics of a healthy ecosystem are vigor, resilience, and organization. A healthy ecosystem is a sustainable component of the biosphere that has the ability to maintain its own organization and vigor through time and in the face of external stresses. Healthy ecosystems provide support for the human community and provide the essentials of food, shelter, and the capacity to assimilate and recycle wastes, clean air and water.

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According to the report, humans have modified approximately 50 percent of the land surface, account for more than 20 percent of the atmospheric carbon dioxide concentration, utilize over 50 percent of the accessible surface fresh water and are responsible for 60 percent of all nitrogen fixation. The total impact of these human modifications to the environment are a significant danger to the correct functioning of the natural support system that makes human health and life possible in the first place, creating conditions that lead to disease and other human health risks.

The report states that while environmental changes and ecosystem degradation are caused by a host of man-made and natural occurrences, the major responsibility for changes in ecosystems that affect human populations is the result of direct or indirect consequences of manipulation of the environment by human activity. Manipulation of the environment includes development and intensification of agricultural practices that convert the forest, grassland, and wetland ecosystems into agro-ecosystems. Changes such as these result in poor biodiversity and less stable and resistant ecosystems that are easily damaged by chemicals, pesticides and land degradation.

The three main characteristics of a healthy ecosystem are vigor, resilience and organization

According to the report, the impact on human health due to the degradation of the ecosystems is a result of deforestation, pollution, and global climate changes. Most of these changes to the environment indirectly affect human health. Rising world temperatures increase the survivability of insects that carry diseases. Lower precipitation as a result of global warming decreases our ability to provide clean drinking water. Degraded foliage contributes to poor air quality and increased respiratory conditions. All these scenarios can be controlled if we better understand how environmental degradation leads to health emergencies.

According to the report, government agencies that are responsible for health assessment, policy, regulations, and health quality assurance must have ongoing analysis and information on the impact of ecosystems on human health. Public health programs must recognize the health impacts caused by ecosystem degradation. For more information, visit <http://grid.cr.usgs.gov/publications/heireport.pdf>.

On The Horizon...

a look at upcoming events

► **Tuesday, May 13, 8:30 a.m., Hilton Harrisburg and Towers (2nd floor), 1 N. 2nd Street, Harrisburg – Special Environmental Issues Forum.** The committee is joining with the following associations to help kick off the observance of their Environmental Infrastructure Legislative Day: PA Municipal Authorities Association, American Water Works Association – PA Chapter, PA Water Environment Association, Professional Recyclers of PA and the Keystone Chapter of the Solid Waste Association of North America. In this special forum program, representatives of each of the participating organizations will speak to General Assembly members and the public regarding environmental infrastructure needs and concerns.

► **May 19-20, Penn State Conference Center, State College – Water Reuse and Recycle Symposium.** The Pennsylvania Department of Environmental Protection (DEP) is sponsoring this series of technical sessions on water reuse/recycling planning, innovative reuse/recycle and conservation technologies. For more information, visit DEP's website at www.dep.state.pa.us and type in Water Reuse 03 in the directLINK box on the home page.

Environmental Issues Forums are open to the public. Please call the committee office at (717) 787-7570 if you would like to attend.

Two New Reports Now Available from JCC

You can now obtain copies of the committee's 2002 Annual Report and the Report of the Forestry Task Force. The Annual Report summarizes the committee's actions and events throughout the past year. The Report of the Forestry Task Force describes the issues taken up during 2002 and the recommendations of the task force and its advisory committee.

Also available is the committee's latest Green Paper, a study of *Cross-Connection Control and Backflow Prevention* by committee research analyst Tony Guerrieri.

Anyone who would like a copy of these publications may contact Lynn Mash in the committee office at (717) 787-7570.

All three publications should also be available in the near future on the committee website to view or download. The website address is <http://jcc.legis.state.pa.us>.

Committee Chronicles...

a review of some memorable committee events

On March 10, the committee held another successful Environmental Issues Forum with a guest presentation by the Pennsylvania Recreation and Park Society (PRPS). The program centered on the topic "Discover What's in it for You: Benefits of Your Community Recreation and Parks Program."

Pictured at right with committee chairman Rep. Scott Hutchinson (left) are the guest speakers (l to r): Director of the PA Department of Conservation and Natural Resources' (DCNR) Bureau of

Recreation and Conservation Larry Williamson; Director of Titusville's Leisure Services Board Tim McGregor; PRPS President Carolyn Hanel; Director of Parks and Recreation for Upper Dublin Township Susan B. Lohoefer; and Director of Chester County's Department of Parks and Recreation John Mikowychok.

At left committee chairman Hutchinson (right) discusses upcoming PRPS activities with its Executive Director Robert Griffith.



Figures for 1998 (the latest available) published by the National Mining Association (NMA), based on a study by the Western Economic Analysis Center, showed that the coal industry provided 10,300 jobs directly (including management and non-mine personnel) and 64,000 jobs indirectly. The same study reported that coal mining had an \$11.4 billion combined economic impact on the state's economy.

A PCA snapshot of Pennsylvania mining employees shows that they are some of the best-paid industrial workers in Pennsylvania, earning an average annual wage of \$49,208. According to the NMA, the average U.S. coal miner is 50 years old and the median term of employment in the industry is 20 years.

The coal industry, like the energy debate, is ever evolving. PCA figures show that the industry in Pennsylvania is not immune to the consolidation trends seen in other industries across the nation. In 2000, for example, 179 companies reported bituminous coal production, compared to 472 a decade ago. The top five producers also increased their collective share of total production from about 33 percent in 1990 to 61 percent in 2000. Bituminous coal prices continue to decline, while anthracite fluctuates significantly. The anthracite mined today is a small fraction of bituminous production and the "hard coal" industry continues to be beset by competition from foreign markets (i.e., China), and conversions to other fuels. As a result, anthracite prices climbed nearly \$8 a ton in 1998, dropped as much again in 1999, and then increased again by about \$5 a ton in 2000.

In terms of energy costs, coal continues to hold a significant edge over other fossil fuels. According to the U.S. Department of Energy (DOE), the nationwide price of steam coal to utilities for electrical generation in 2000 was \$1.20/million Btu. Oil was a poor second at \$4.30/million Btu and natural gas came in at \$4.45. Electric utilities accounted for

nearly 90 percent of Pennsylvania's 2000 bituminous production, and 41 percent of total distribution remained in the Commonwealth. The industrial sector is the second largest user.

While coal has many positives, it also has its negatives, many of which can be read as sulfur dioxide, nitrogen oxides, carbon dioxide and mercury. Or, acid mine drainage and scarred land. As a fossil fuel, coal produces emissions, and as a mined substance, it leaves a mark on the land and water. The industry must deal with these issues effectively if it is to continue to evolve, as opposed to die. The industry has made strides through a combination of clean air and water acts and reclamation requirements, the use of technology and as programs like Growing Greener and innovative reclamation and water purification techniques have taken hold. As

PCA states, however, "The major challenge for the Pennsylvania coal industry...is the need for its electric utility customers to make necessary investments in pollution control and combustion technologies to allow them to continue to burn coal

at a competitive price, in compliance with air quality standards."

Coal is deservedly part of the national energy debate because of its many positives, as well as its abundance. It is also an economics and employment debate in Pennsylvania. That is one reason why "clean coal" technology research and development is important. New uses of coal, such as the Schuylkill County/South African effort to cleanly burn coal waste to create clean-burning diesel fuel, may provide new jobs and new markets. The PCA report states that long-term forecasts predict coal production from the eastern U.S. will continue to decline through 2015, but growth is expected when new electric generation capacity is added after that.

Coal remains a player in Pennsylvania. We need to be ready to keep it in the game as part of a diverse and clean energy production plan.

Coal's role in the energy debate is not only environmental, but one of economics and employment

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