

# ENVIRONMENTAL SYNOPSIS

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



Can we predict the future? It is certainly fun to try.

The U. S. Energy Information Administration (EIA) recently released its most recent effort to predict the future when it issued its *Annual Energy Outlook 2012* (AEO). The 239-page AEO is an attempt to track changes in American energy production and consumption between 2010 and 2035, based on a number of scenarios. While its accuracy remains to be seen, the 2012 AEO provides food for thought and discussion.

The scenario that contains the least amount of "guesswork" is called the "Reference" scenario. It predicts what would happen in the U.S. if "current laws and regulations remain unchanged." In other words, if the provisions of current laws/regulations were to be allowed to continue until 2035, where would we be energy-wise.

A second scenario is known as the "No Sunset" option. It makes predictions based on a scenario in which no new policies are enacted, but all existing legislation is prevented from expiring between now and 2035. So, policies in place that might be scheduled to "sunset" between now and 2035 would not sunset but continue on. It's a subtle but significant difference to the "Reference" scenario.

The final scenario, requiring the most guesswork, is called the "Extended Policies" scenario. It includes all facets of the "No Sunset" plan, but anticipates potential new and often ambitious national changes, such as enhanced efficiency standards for buildings, appliances and vehicles.

The three scenarios have a number of possible outcomes in common, even though there are significant differences in the amount and scope of several individual energy production and consumption components. Among the commonalities found in the predictions/projections of all three scenarios are:

- modest growth in energy demand;
- increased domestic oil and natural gas production (mostly from tight oil and shale sources);
- reduced reliance on imported oil;
- enough natural gas production to exceed consumption, thus allowing for net export;

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# NOTES FROM THE DIRECTOR

**CRAIG D. BROOKS, EXECUTIVE DIRECTOR**



There are some new figures regarding the recycling of electronics.

Consumer electronics manufacturers and retailers reported recycling 460 million pounds of used electronics in 2011, a 53 percent increase from the 300 million pounds recycled in 2010.

Of that, 96 percent was recycled through third-party certified facilities. And, access to drop-off locations rose from 5,000 sites in 2010 to nearly 7,500 locations in April 2012.

These figures were announced in a report from the eCycling Leadership Initiative. The initiative was launched in April 2011 by the Consumer Electronics Association (CEA). The initiative's aim is to recycle one billion pounds of electronic waste by 2016, an ambitious goal.

Recycling one billion pounds of electronics by 2016 would be more than a threefold increase over 2010. One billion pounds of electronics not properly recycled would fill about 88.9 million cubic feet, equivalent to an entire 71,000 seat NFL stadium.

The 2011 initiative, also known as the "Billion Pound Challenge", aims to spread consumer awareness about collection sites, promote transparency about e-waste recycling and improve consumer access to collection opportunities. The "Challenge" represents a collaboration among consumer electronics manufacturers, retailers, collectors, recyclers, non-governmental organizations and governments at all levels.

According to CEA the initiative is continuing to gain momentum and is on its way to meeting the billion pound goal. The organization says it is committed to increasing recycling and doing it the right way.

CEA is the leading trade association promoting growth in the \$196 billion U.S. consumer electronics industry. There are more than 2,000 companies that are members of CEA. Major companies that participated in the initiative during 2011 include: Apple Inc.; Best Buy Co.; Dell Inc.; Hewlett-Packard Co.; Mitsubishi; Nintendo Co.; Panasonic Corp.; Samsung; and Sony Corp., among others.

In the fall of 2011, CEA started the new website [www.GreenerGadgets.org](http://www.GreenerGadgets.org) as a consumer education website about eCycling and energy consumption. According to CEA, the site was created to help make the process of recycling electronics as easy as possible for consumers. By using their zip codes, consumers can locate the closest e-waste recycler sponsored by the consumer electronics industry.

According to CEA, the average U.S. household owns 25 different consumer electronic products and GreenerGadgets helps educate consumers on how to properly recycle their used electronics and avoid reusable resources from being deposited in landfills or being shipped overseas to developing countries.

As consumer e-waste recycling continues to increase, CEA is planning to broaden its outreach efforts to consumers about where they can recycle their old electronics and participate in the nationwide recycling initiative.

CEA is also looking for suggestions on how to improve the eCycling Leadership Initiative and meet the Billion Pound Challenge.

If you have suggestions, please send comments to Walter Alcorn, CEA Vice-President of Environmental Affairs and Industry Sustainability at: [walcorn@CE.org](mailto:walcorn@CE.org).

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**Have ideas and suggestions about how to meet the "Billion Pound Challenge"?**

**E-mail comments to Consumer Electronics Association Vice-president Walter Alcorn at [walcorn@CE.org](mailto:walcorn@CE.org)**

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# 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.

*Please Note: The information and opinions expressed in the Research Brief articles do not necessarily represent the opinions or positions of the Joint Legislative Air and Water Pollution Control and Conservation Committee, nor those of the Pennsylvania General Assembly.*

## Report on the Value of Investing in Bike/Pedestrian Infrastructure

-- **Tony M. Guerrieri, Research Analyst**

If government builds effective biking and walking systems, will individuals choose to walk and bike for regular transportation needs? Yes, they will, is the conclusion of a U.S. Department of Transportation (DOT) report that examines the impact of concentrated investment in biking and walking infrastructure.

The DOT report highlights the four-year Non-Motorized Transportation Pilot Program (NTPP), which dedicated \$25 million to each of four pilot communities across the country to determine whether such investments equate to significantly higher levels of walking and bicycling, and a corresponding reduction in vehicle miles traveled.

The new findings come at a time when many cities are trying to promote bicycling and walking as ways to improve public health and reduce traffic congestion. The idea of the program was to go beyond the usual patchwork of trails, bike lanes and pedestrian paths.

The four communities in the pilot program – Minneapolis, Minnesota; Sheboygan County, Wisconsin; Marin County, California; and Columbia, Missouri – were given wide latitude in how they spent their grants. The four communities selected to participate in NTPP all have a track record of progressive bicycle/pedestrian planning. They were chosen with the goal of representing the diversity of U.S. communities and with the belief that each had the potential to make significant advancements during the four-year term of the program.

The four pilot communities worked to create a network of non-motorized transportation infrastructure facilities that connect directly with transit stations, schools, residences, businesses, recreation areas and other community activity centers. All four communities have started a number of projects - some as

simple as installing a sidewalk - as well as developing safe pedestrian crossings, bike lanes, shared-use trails and bridges and bicycle parking facilities. The program built 333 miles of on-street biking and walking routes, 23 miles of off-street facilities, and 5,727 bike parking spaces in the four communities. The projects also included outreach and education.

Using data from all four, the report found that between 2007 and 2010, the four communities saw an estimated 36 percent increase in bicycling mode share and a 14 percent increase in walking mode share. During that time, driving mode share decreased by an estimated three percent. The report suggests that these results show that investments in bicycling and walking can have a significant impact on the share of non-motorized trips taken in a community.

### **If you build it, will they come? DOT report says yes**

At the beginning of the program in 2007 and again in 2010 after many of the NTPP facilities had been constructed, each community counted bicyclists and pedestrians on a weekday and a weekend day in September. The communities conducted these counts to estimate the impacts that NTPP investments had on bicycling and walking in the four communities.

These counts revealed that walking increased by 22 percent and bicycling by 49 percent across 65 bicycle and 58 pedestrian count locations. In addition to the counts, the NTPP conducted surveys of people who were out bicycling and walking in the four communities to learn more about their transportation choices. The surveys indicated that the increase in bicycling and walking was attributable primarily to utilitarian trips, although recreation and exercise activity also increased.

The NTPP used the counts and other data to develop models that determine the impacts of the NTPP regarding energy consumption, the environment, and health in terms of mode share changes and vehicle-miles averted. The models estimate that between 2007 and 2010 residents of the pilot communities walked or bicycled between 32.3 and 37.8 million more miles than they would have without the NTPP. It appears that the numbers keep climbing – half of that savings happened just in 2010, the last year of the pilot, when an estimated 16 million miles were walked or bicycled that would have otherwise been driven.

Assuming a one-to-one tradeoff between vehicle trips and non-motorized trips, the DOT report estimated that the program conserved 1.67 million gallons of gasoline and averted more than 30.8 million pounds of carbon dioxide emissions between 2007 and 2010.

The report also noted that the increase in non-motorized travel and the decrease in automobile trips resulted in notable reductions in other air pollutants that contribute to health problems. It estimates that boosting the amount of pedestrian and bicycle activity in these communities reduced the economic cost of mortality by about \$6.9 billion in 2007. Doctors and the broader public health community have long been advocating increasing opportunities for biking and walking as a cost-effective strategy to reduce illness and wasteful spending on reactive health care.

The U.S. DOT report, *“Report to the U.S. Congress on the Outcomes of the Non-Motorized Transportation Pilot Program”*, is available at: [http://www.fhwa.dot.gov/environment/bicycle\\_pedestrian/ntpp/2012\\_report/final\\_report\\_april\\_2012.pdf](http://www.fhwa.dot.gov/environment/bicycle_pedestrian/ntpp/2012_report/final_report_april_2012.pdf).

## Infrastructure Funding Is Top Concern for Utilities

-- Craig D. Brooks, Executive Director

Almost two-thirds of water utilities think that they will not have enough funds to maintain aging infrastructure over the next decade - or will have just barely enough funds, according to a report released June 12, 2012. Only 27 percent of those responding to a recent survey believe that funding will be sufficient for capital infrastructure projects, according to *“2012 Strategic Directions in the U.S. Water Utility Industry”* report. The report surveyed waste and wastewater systems and plants, a majority of which were municipal departments or special water districts.

Thirty-four percent of the water companies surveyed said they believe they will lack funds to maintain aging infrastructure over the next 10 years. Nearly 30 percent think they will have just enough money.

Aging water and sewer infrastructure is the most pressing issue for the water utility industry, and managing capital costs and the availability of capital are the next two most important issues, according to the report. Utilities said that they expect revenue bonds to be their primary source of financing to fund projects, but it is unlikely that the revenue bond market will be able to supply the quantity of bonds needed to adequately finance most projects. This is due partly to stricter due diligence standards following the 2008 financial crisis, the report says.

Because of this, utilities are being forced to look elsewhere for funding by forming public-private partnerships. However, the survey found that most utilities are not considering alternative funding sources.

Utilities' widespread failure to consider alternatives may be due to the fact that revenue bonds were so readily available in the past, and because most utilities are largely unfamiliar with establishing reliable sources of alternative funding.

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### The question:

**Will utilities have sufficient funds to meet infrastructure needs over the next decade?**

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According to the report, utilities will have to raise water and sewer rates to fund infrastructure projects, but the public currently does not place a high value on water. Less than half of the major water utilities surveyed think that customers would be willing to pay higher rates to support infrastructure investments. More than 85 percent of the respondents said that they believe the average customer has little or no understanding of the gap between providing upgraded equipment, facilities and safe water, and utility rates.

The report suggests that utilities need to do a better job of helping the public understand the importance and value of providing safe drinking water and reliable sewer systems. According to the report, a catastrophe such as a major water main break usually changes public perception very quickly. However, industry trade groups need to focus on helping the public understand the connection between providing such valuable services and rate structures.

Overall, energy efficiency is the top sustainability issue for the survey respondents, ranking well above water scarcity and reliability. Energy costs can account for as much as 30 percent of a water utility's operating budget. More than 75 percent of the utilities surveyed said that they have taken steps to reduce energy consumption.

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More than 57 percent of the respondents said sustainability is a critical strategic focus for the water industry, while 42 percent said it should not be a focus right now.

The report also identified a need to work on recovering water for use in recycling applications. Water utilities in the West and South are leading the way in reclaiming water at their facilities.

The survey is available at <http://brstage.bv.com/docs/management-consulting-brochures/2012-water-utility-report.pdf>.

## Water Used for Oil and Gas Drilling in Colorado Increasing

-- Tony M. Guerrieri, Research Analyst

Many controversies surround horizontal drilling and hydraulic fracturing of underground shale deposits in the quest for oil and gas. But it is water – or more specifically, its scarcity – that is likely to be the greatest stumbling block in the arid Rocky Mountain West. A report by Boulder, Colorado-based Western Resource Advocates (WRA) finds that water use associated with drilling and hydraulic fracturing in Colorado is consuming billions of gallons a year in a state that is suffering drought conditions.

The report, *“Fracking Our Future: Measuring Water and Community Impacts from Hydraulic Fracturing”*, evaluates how hydraulic fracturing, more commonly known as fracking, and drilling activity affect water supplies in the drought-prone state. It concludes that Colorado needs to better plan for the prodigious amount of water use associated with fracking and drilling activity statewide to ensure the industry’s water usage does not significantly affect municipal, agricultural and other uses.

There has been a frenzy of exploration for oil and gas drilling sites in the Niobrara shale formation that lies under much of Colorado. Fracking and horizontal drilling now make it possible to extract gas from shale that was previously thought to be impossible or impossibly expensive to access. Most of the public debate over the impacts of fracking on water supplies has focused on how the practice affects water quality. The WRA report attempts to raise awareness about what increasing drilling activity might mean for water quantity.

Water is an integral part of the drilling process. Based on figures compiled from government and private industry sources, the report calculates that oil and natural gas development in the state will use between 22,100 and 39,500 acre-feet of water annu-

ally (or enough water to serve an estimated 44,200 to 79,000 Colorado households for an entire year). One acre-foot equals 325,851 gallons, enough water to cover one acre to the depth of one foot. The report goes on to say that when re-use of water is factored in at the residential level, the amount of water used by the oil and gas industry could actually serve up to 118,400 homes in Colorado.

The volume of water needed to drill and fracture new wells each year is equivalent to the yield of a sizable water infrastructure project. For example, a proposed reservoir expansion project in the Denver area will provide 18,000 acre-feet of water per year.

Roughly 85 percent of water used each year in Colorado is for agricultural purposes, and just over seven percent is for industrial and municipal purposes. Water consumption by the oil and gas industry has come under greater scrutiny of late as the number of wells drilled in and near cities and towns in Colorado has grown significantly. Because so much new drilling is near populated areas, the report contends that comparing water used for drilling and fracking to municipal use would be a better yardstick than comparing it to agriculture use.

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### The Colorado report examines water quantity – not quality

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The oil and gas industry’s water needs may be just a fraction of water use across Colorado but that is a different story in Weld County, in the far northeast corner of the state. Weld County has been the center of the natural gas boom in Colorado. Fifty-three percent of all new wells in Colorado in 2011 were in Weld County. Using government reports and industry data the WRA report estimates that the oil and gas industry accounted for up to two-thirds of the county’s total public and domestic water use in 2011.

The report notes that it is particularly important to properly manage the amount of water used for hydraulic fracturing in arid Western states because fracked water is 100 percent consumptive. Unlike municipal, agricultural, and most other uses, water used in fracking disappears from the hydrological cycle and cannot be used again.

Tanker trucks haul water up to drilling rigs, where fracking crews mix it with sand and chemicals and pump it thousands of feet underground to release oil and gas. The WRA report also cited a Douglas County, Colorado study that concluded that one well pad with six wells requires 6,000 truck trips to haul frack-

ing water and 3,000 trips for wastewater disposal.

The WRA report calls for improving collection of water use data and making that information more publicly accessible. It also recommends more integrated planning that takes into account drilling's water requirements, particularly in light of recent drought conditions, population growth, and projections that water supplies will be increasingly strained in future decades.

The WRA is a regional non-profit conservation organization dedicated to protecting the West's land, air, and water. The WRA's 28-page report is available for download at: [http://www.westernresourceadvocates.org/frackwater/WRA\\_FrackingOurFuture\\_2012.pdf](http://www.westernresourceadvocates.org/frackwater/WRA_FrackingOurFuture_2012.pdf).

## EPA Allows Changes in Permits, Plans For Sewer, Stormwater Overflows

-- Craig D. Brooks, Executive Director

Municipalities will be allowed to modify permits or enforcement orders for managing combined sewer overflows and stormwater under an integrated planning framework released in June 2012 by the Environmental Protection Agency (EPA).

The "*Integrated Municipal Stormwater and Wastewater Planning Approach Framework*" contains a provision that for the first time allows municipalities to modify a plan, a permit or an enforcement order to comply with Clean Water Act obligations. The provision also gives municipalities the opportunity to identify, evaluate, and select new projects and make changes to ongoing projects and implementation schedules.

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### **EPA's framework would allow municipalities to modify permits or enforcement orders in managing combined sewer overflows and stormwater**

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This provision, which is supported by the municipal wastewater treatment community, was absent from earlier EPA draft documents. This final integrated planning framework responds to the need of cash-strapped municipalities that are hard-pressed to build or upgrade water infrastructure to manage stormwater and wastewater overflows.

This approach also offers municipalities the option to use their existing Clean Water Act permits or enforcement orders to meet state water quality standards that might be violated due to stormwater and sewer overflows.

Most importantly, the approach allows municipalities to use green infrastructure such as grassy swales and permeable pavement to manage stormwater instead of requiring the use of traditional storm drains and other "gray" infrastructure. The approach will allow municipalities to use water quality trading to meet stormwater runoff requirements.

EPA has identified six elements of the integrated approach. The flexibility provision is in the final element. The six elements are:

1. a description and identification of human health threats, water quality challenges, and future requirements, such as new water quality-based requirements arising from a total maximum daily load (TMDL) set for nutrients;
2. a description of existing wastewater and stormwater systems that would be part of the integrated plan;
3. a method for enabling public participation in an integrated process;
4. a process for identifying alternative means of compliance, such as the use of green infrastructure;
5. a process for measuring and monitoring the effectiveness of controls, compliance and alternative measures such as green infrastructure; and
6. a process for identifying, evaluating and selecting proposed new projects or modifications to ongoing or planned projects and implementation schedules based on changing circumstances, and if this requires modification of a plan, permit or order, collection of appropriate supporting information.

EPA's website is being set up to provide further information to municipalities with additional guidance and practical examples of how they can implement the integrated approach. Municipalities will also have to work closely with states that implement National Pollutant Discharge Elimination System permits.

The responsibility for developing the integrated plans rests with the municipalities. This will allow them to set priorities for water projects, reflecting the impact on human health and a municipality's financial capability.

The framework is available at: [http://www.epa.gov/npdes/pubs/integrated\\_planning\\_framework.pdf](http://www.epa.gov/npdes/pubs/integrated_planning_framework.pdf).

# ON THE HORIZON...

A LOOK AT UPCOMING EVENTS

No events are scheduled at this time.

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

## Don't forget to Visit Our Website

Learn More at  
<http://jcc.legis.state.pa.us>

To learn more about the Joint Legislative Air and Water Pollution Control and Conservation Committee, simply pay a visit to our website.

Website visitors will find information such as the Environmental Issues Forums schedule; the *Environmental Synopsis* monthly newsletter; Committee members; current events; Committee reports; staff contact information; Committee history and mission; and links to other helpful sites.

The website address is <http://jcc.legis.state.pa.us>. Stop by the website often to keep up with Committee information and events.

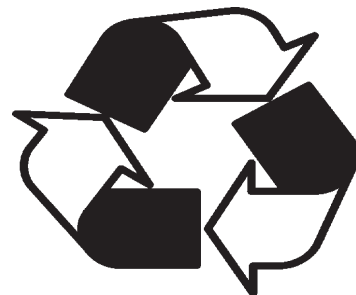


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- a greater percentage of U. S. electric power generation to come from natural gas and renewables and a corresponding generation decrease from coal; and
- energy-related CO2 emissions should remain below 2005 levels, whether or not there are new federal policies designed to mitigate greenhouse gas emissions.

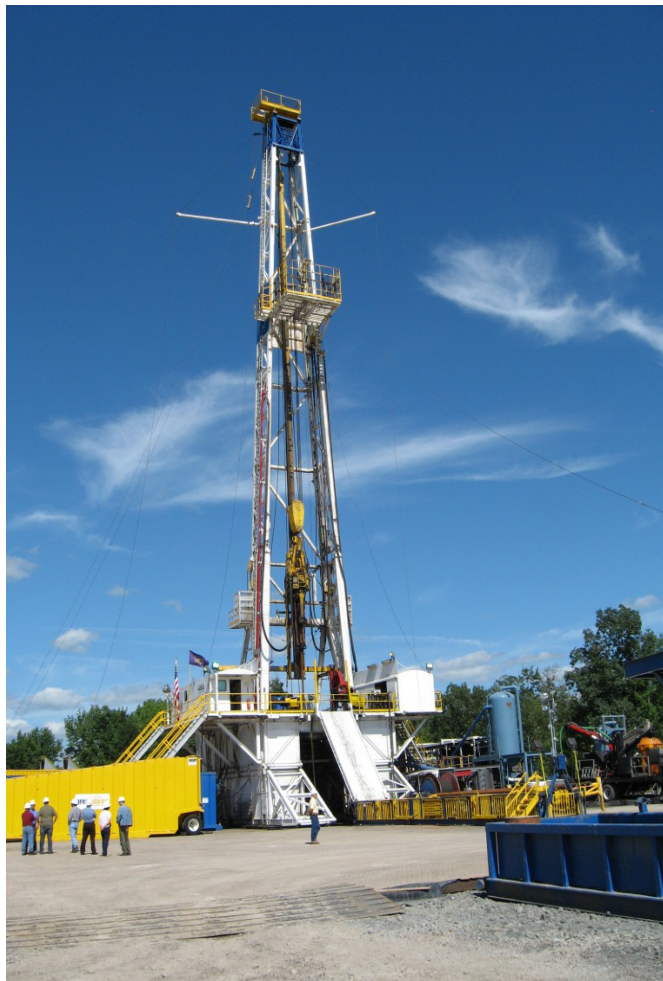
**To read the *Annual Energy Outlook 2012* report, visit the *Energy Information Administration's* website at [www.eia.gov/forecasts/aeo/pdf/0383%282012%29.pdf](http://www.eia.gov/forecasts/aeo/pdf/0383%282012%29.pdf)**

The "Reference" scenario, which could be construed to be the base of all other options and possibilities, makes certain general projections. For example, it presumes a slowing in the rate of growth in energy use, with demand not returning to pre 2008-2009 levels. It bases that presumption on more moderate projected economic growth, as well as more moderate population growth and increasing energy efficiency.

While projecting moderate economic growth, extended growth is predicted as well. The "Reference" scenario also projects that per capita energy consumption will decline by an average of 0.6 percent per year.

The differences in the three scenarios and the many variables that could impact and change outcomes are detailed and examined in a section of the report known as "Issues in Focus", and in a number of appendices. The report takes a look at 29 other possible futures for U. S. energy issues, based upon various changes in the "markets, technologies and policies" affecting the nation's energy economy.

Those who are seriously into energy policy and the future will find much to digest in the 2012 AEO, whether they are looking for just a generalized, overall look, or prefer to pore over charts, graphs and calculations. Or, if predicting the future is more your thing, an examination of the report and its attachments would be an interesting exercise in trying to determine and draw one's own conclusions about what might be coming down the road. Either way, it would be a worthwhile expenditure of energy into the future of energy.



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