

The Honorable Kathleen A. McGinty
Secretary
Pennsylvania Department of Environmental Protection
Testimony - Waste Coal Incentives
Before the Senate Environmental Resources and Energy Committee
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Chairman White and members of the Committee it is my privilege to be here today to discuss the administration's efforts to reclaim land and mitigate and eliminate the environmental impacts of waste coal piles while making use of this potential energy resource. I would especially like to thank Senator Stout for holding this timely hearing in his district and calling specific attention to this very important matter and opportunity.

Pennsylvania is a remarkable state with abundant natural riches, including a tremendous heritage of coal production that fueled the industrial revolution and provided hardworking residents with opportunities for a better life. Unfortunately, that legacy also left significant parts of our state scarred from past mining activities.

Travel the back roads of our Commonwealth and it's not uncommon to see refuse piles of unused coal and rock. These waste coal mixtures, commonly called gob or boney piles in the western half of Pennsylvania and culm in the eastern coal fields, are a significant problem in Pennsylvania, which has some 220,000 acres of abandoned mine lands and more than 2,200 miles of streams impaired by polluted mine drainage.

Western Pennsylvania in particular has a significant and proud coal-mining heritage, but as we will hear today from members of this Committee, other speakers and our tour of the Champion waste coal site, this part of Pennsylvania has been especially impacted by the legacy of waste coal disposal. As I will discuss further below, we look at this legacy not as a liability to be mitigated but as an opportunity to be exploited and I will outline proposals that we are developing to take advantage of this unique Pennsylvania resource.

While Pennsylvania's coal economy has indeed contributed greatly to the economic expansion of this country and its success in two world wars, it has left behind numerous scars across the landscape. According to DEP estimates, as of Dec. 2003, there were an estimated 8,529 acres of unreclaimed coal refuse piles throughout Pennsylvania. These piles include at least 258 million tons of waste coal that cause polluted mine drainage, scar the landscape and, in some cases, result in coal refuse fires which contribute to air pollution. Coal refuse piles are also used regularly as dumping piles for trash and other waste. Just one example of the magnitude of these sites is the coal refuse pile that we are going to tour, the Champion site, which, at 500 acres, is the biggest coal refuse pile east of the Mississippi River.

As you know, the department has initiated numerous programs to address the environmental impacts caused by waste coal. One of the most successful programs is the re-mining program, where mining companies re-mine, or remove the culm banks, screen

the material, and transport the suitable refuse material to fuel nearby power generation plants. This removes much of the pyritic material left behind by past coal mining activity that contributes to acid mine drainage, one of the leading causes of stream degradation in the Commonwealth.

When the refuse is burned in the plant, alkaline material is commonly added, and the resulting coal ash -- high in alkalinity -- is then returned to the refuse sites to help reclaim those areas. This prevents any leftover pyritic material from causing acid mine drainage. The removal of the refuse piles can also result in cleaner air due to the elimination of dust sources and, in some cases, uncontrolled burning of the piles. Removing the piles also removes unregulated dumping areas, because people often access these piles through construction access roads in order to dump garbage and other waste.

The Commonwealth has analyzed coal ash and coal ash leachate (water run-off from ash) from many different sources of ash, and has determined that coal ash -- when used appropriately -- is safe to use in mine reclamation projects. This is in part due to the fact that when coal ash is placed at a mine site in an appropriate fashion, it is placed above the ground water table to prevent direct contact with water. In addition, coal ash is usually capped with topsoil -- in many cases up to a four-foot layer -- and that topsoil is then re-vegetated and graded with a three-percent slope. This ensures that rainwater will run off of the site before it comes in direct contact with the placed coal ash. Even if water permeated the topsoil, the compaction of the ash would likely prevent the permeation of water through the ash. The capping with topsoil, sloping of the ash and the compaction of the ash also prevents the rainwater from contacting the pyritic material left behind from the mining operation, so acid mine drainage is never formed.

In addition, leachate tests have shown that even when coal ash comes in contact with water, the metals and other constituents found in coal ash tend not to leach out. This is due to the fact that the chemical make-up of the alkaline coal ash binds up the metals and other constituents in the ash. In addition, the alkalinity of the coal ash prevents the development of acid, which would promote leaching (the coal ash is alkaline due to the addition of alkaline material during the combustion process).

The re-use of this material is a prime example of one of the main environmental themes of the Rendell Administration, namely viewing environmentally harmful material as a potential resource that can be re-used rather than remain as a liability. In 2003 alone, DEP issued mining permits which resulted in the removal of nearly a half-million tons of coal refuse in southwestern Pennsylvania.

Of course, government can't pursue the goal of industrial re-use alone. These efforts are a result of the advent of new boiler technology used by power generation plants called "Circulating Fluidized Beds." These plants burn coal refuse and other fuels that have far less "heating value" (BTU's, or British Thermal Units) than the types of boilers used by the large utilities to burn regular coal.

CFB's are also inherently cleaner than pulverized coal-fired boilers. For more than 30 years, the Department has collected company specific information necessary to obtain estimates for all toxic pollutants. This data demonstrates that dioxin levels were approximately four times lower and most metals, with the exception of mercury, were ten times lower per gigawatt hour than pulverized coal-fired generation. Further, CFBs could achieve very high-levels of mercury control, up to 95%, for very low relative costs should mercury standards be set at the federal level. By comparison, mercury controls on pulverized units would achieve lower-levels of control at higher costs.

Similarly, emissions of NO_x and SO₂ were also lower than pulverized coal-fired boilers. It should be noted that newly built pulverized coal-fired units would be able to achieve similar emissions levels for SO₂ due to the installation of scrubbers under Best Available Control Technology determinations. Therefore, newly constructed electric generating combustors of either waste coal or coal would emit at comparable levels because both would be employing very similar BACT for all pollutants. We have attached a comparative analysis of waste coal emissions developed by our Bureau of Air Quality, which provides more details on this matter. MS Word PDF

There are 15 plants burning coal mining refuse in CFB's located in Pennsylvania. The first of these plants came on line in Pennsylvania in 1988. According to ARIPPA, a trade organization representing 13 of the CFB plants in the Commonwealth, from 1988 through the end of 2003, coal refuse plants in Pennsylvania consumed 88.5 million tons of coal refuse, mostly from abandoned refuse piles. Approximately 19 million tons of that were burned in coal refuse plants in the southwest region of the Commonwealth. ARIPPA's records show that the plants in the Commonwealth burn an average of about 7.5 million tons of coal refuse per year, mostly from abandoned coal refuse piles.

The coal refuse that fuels these plants is removed -- or remined -- from the refuse piles under the regulation of DEP. Thanks to DEP's remining program, there have been numerous success stories in southwestern Pennsylvania in the effort to reclaim coal refuse piles. One of these examples is the scheduled removal of 60 million tons of coal refuse from over 40 different coal refuse piles in seven counties, including Allegheny, Westmoreland, Indiana, Cambria, Armstrong, Huntingdon and Somerset. These piles are scheduled to be removed and burned in the newly-constructed Reliant Energy plant, a 500-megawatt fluidized bed coal refuse-burning power plant at Seward in East Wheatfield Township, Indiana County. Reliant received \$400 million in tax-exempt financing (bonds) from the Pennsylvania Department of Community and Economic Development for this project. It is estimated there is an additional 10-20 million tons to be found in piles that are still on a list to be explored and evaluated for possible use by Reliant.

While the project will result in the elimination of harmful coal refuse piles, it is also contributing to the creation of over 300 much-needed jobs throughout southwestern Pennsylvania. This underlies another major tenet of the Rendell Administration: spurring job creation and economic growth. The ability to create jobs while simultaneously cleaning up environmental scars from the past is a double-win for the Commonwealth.

It's also important to note that without industry involvement, this type of success in all probability would not be happening: it's unlikely government would have the resources available to reclaim many of these coal refuse piles.

DEP also issues reclamation contracts to mine operators to reclaim refuse piles, such as the nearly 19-acre Crucible Pile in Greene County that is currently being reclaimed, and has granted funds through the Growing Greener program to various organizations to reclaim waste coal piles. For example, DEP awarded two Growing Greener grants for a total of approximately \$4.6 million to the Greene County Industrial Development Authority to reclaim the Mather coal refuse pile in Greene County. That project is still under way and includes the removal of material and the capping of the area with on-site material such as top soil. That project should be completed within a year.

In addition to the environmental and economic benefits derived from the re-use of waste coal, the Commonwealth's 15 waste coal power plants generate enough electricity to power approximately 1 million homes annually. They do this with relatively low air emissions, adding to the environmental success of cleaning up waste coal piles that cause water and air pollution.

According to ARIPPA, since 1988 Pennsylvania's waste coal industry has reclaimed approximately 3,429 acres of abandoned mine lands. The Department estimates the cost of government-sponsored reclamation to be between \$20,000 to \$40,000 per acre. Consequently, these efforts have saved the taxpayers of this Commonwealth between \$68 million and \$137 million since 1988, an amount equal to approximately three to six years of federal abandoned mine land appropriations to our state.

Even the residual ash from electric generation at these facilities provides a benefit for Pennsylvania as it is used to fill strip mine pits with dangerous highwalls. Similarly, because the ash is mixed with limestone, the alkaline mixture makes it effective for use to remediate the acidic drainage that pollutes streams and threatens drinking water supplies.

Using waste coal to produce energy is an innovative process that will attract new investment and help to create the jobs we critically need while ensuring the highest standards of environmental protection and public health. Pennsylvania exports more than \$20 billion a year to import energy fuels--that's nearly as much as our entire state budget. Yet, indigenous energy development has a multiplier effect in the economy that may generate as much as 1.6 times more revenue than from imports. Keeping energy dollars in state clearly is an important step in retaining and generating more jobs in Pennsylvania.

The Rendell administration has recently initiated two actions to help support and promote Pennsylvania's waste coal industry. During his January budget address Governor Rendell announced that the Commonwealth would purchase ten percent of its electricity from clean, advanced energy sources, including waste coal. I am pleased to note that we recently completed this purchase, which includes 10,000 megawatt hours of waste coal -- out of a total of 100,000 megawatt hours of clean, advanced electricity.

In April Governor Rendell reestablished the dormant Pennsylvania Energy Development Authority, PEDDA. As many of the members of this Committee know, PEDDA was first established to encourage the development of Pennsylvania's energy resources. PEDDA possesses \$300 million in tax-exempt bonding authority and in the past this capability has been used to finance waste-coal power plants, notably the Ebensburg, Cambria facility. PEDDA will work in concert with the Pennsylvania Economic Development Financing Authority, thereby expanding the financing capabilities of the Commonwealth. As you know, PEDFA financing was instrumental in enabling the re-powering of the Seward, Reliant power plant to utilize waste coal.

We are currently in discussions with developers seeking to deploy state-of-the-art advanced coal gasification technology, which in some cases will be able to utilize waste coal as a fuel.

Projects utilizing waste coal are also a focus of the Pennsylvania Energy Harvest Grant Program. This \$5 million annual grant program provides funding to projects that improve the environment through advanced energy solutions. Last year, Energy Harvest funded two waste coal projects. The first is a joint project with the U.S. Department of Energy and CO Inc. to demonstrate the utilization of coal fines. The process, termed "Granu Flow," adds asphalt emulsion, or a similar, binder to agglomerate the coal fines. Once these fines are bound together they will be able to be utilized as fuel in waste coal power plants. Energy Harvest also provided funds to the River Hill Power Company Project in Clearfield County for preliminary environmental and fuel quality analysis for their proposed waste coal power plant. Together, Energy Harvest provided nearly \$400,000 for these two projects.

In addition to the tools provided by the Commonwealth's electricity purchase PEDDA, and Energy Harvest the Governor has also advocated for an Advanced Energy Portfolio Standard that would include waste coal as an eligible resource. I know this Committee has already held several hearings on this subject so I will refrain from covering the basics of portfolio standards and the Governor's proposal in general and, instead, will focus my remarks specifically on the role waste coal can play as an eligible resource.

As you know, many portfolio standards limit eligibility to renewable resources. We do not feel that this is the best approach for Pennsylvania. As I discussed earlier in my testimony, Pennsylvania's unique history and geology mean that we should take a broader view to include other resources, such as fugitive coal-mine methane and waste coal, that while not considered "traditional" renewables, still provide a net environmental benefit to the Commonwealth.

Therefore, the Governor has proposed a two-tiered portfolio standard, an Advanced Energy Portfolio Standard, which includes waste coal as an eligible resource in the second tier. The first tier would be made-up of traditional renewables, energy efficiency, energy conservation, efficiency upgrades at existing power plants, recycled energy and electricity generated from fugitive coal-mine methane. The second tier would include

emissions offsets and electricity generated from fuel cells powered by non-renewable fuel, and waste coal.

Because participation in an Advanced Energy Portfolio Standard will provide economic benefits to qualifying facilities, by making power purchase contracts with those facilities more attractive to electric distribution companies and electric generation suppliers and through the sale of advanced energy credits, we believe that the qualifying facilities should be attaining the highest possible environmental standards. As such, we are proposing that qualifying facilities should meet the highest attainable emissions standards for nitrogen oxide, sulfur dioxide, particulates, and volatile organic compounds. By including an emissions standard we will ensure that our unique Pennsylvania energy resources are utilized in a way that protects the health and environmental quality of all the Commonwealth's citizens.

To clarify, this standard would not replace any facilities existing air quality permits. Facilities would still be in compliance so long as they are meeting the standards set in their current operating permits. These standards would be the requirement, essentially a higher bar, which facilities would need to meet in order to qualify for eligibility as part of the Advanced Energy Portfolio Standard.

In order for waste coal to be a meaningful part of the Advanced Energy Portfolio Standard we believe the portfolio standard targets set for the second tier should be sufficient to include both the existing power plants and to provide incentives for some new plants to be built. As was demonstrated in my testimony earlier, Pennsylvania's existing waste coal industry has and continues to provide tremendous environmental and economic benefits to the Commonwealth's citizens. However, because many of the smaller merchant facilities have power purchase agreements that will expire, in many cases, by 2013 we believe there is a need to continue to incentivize their existence and the reclamation work they are doing.

Still, as we will see later today when we visit the Champion refuse pile, there are still many areas of the state that would greatly benefit from reclamation resulting from waste coal utilization that currently have no outlet for existing abandoned waste coal piles. As such, we believe that a portfolio standard that includes waste coal should consider a target that will also incentivize new projects. We can discuss what such a target should be as we move forward in developing legislative drafts, however, for starters we believe that a second tier target of ten percent in ten years makes sense. Pennsylvania's existing and projected waste coal power plants will likely generate enough electricity to meet as much as 8% of the Commonwealth's projected electricity demand ten years from now. Thus, a ten percent overall goal would be keeping in line with the Governor's original proposal for a three percent second tier to incentivize new projects.

We believe in the view that the waste coal many individuals may see as liabilities can truly be an asset if we use our imagination for innovative solutions. The incentives that we are proposing above will provide both the policy framework and the financial tools to turn these opportunities and solutions into a reality. Again, I thank the Committee for the

opportunity to present to you today. I would be happy to answer any questions that you have at this time.