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## Comments to the Joint Legislative Air and Water Pollution Control and Conservation Committee on the Coal Refuse to Energy Industry

On behalf of the  
Appalachian Region Independent Power Producers Association  
(ARIPPA)

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On behalf of ARIPPA, I want to thank the Joint Legislative Air and Water Pollution and Conservation Committee (JCC) for scheduling this roundtable discussion to address the anthracite coal industry in Pennsylvania and particularly Senator Argall for his invitation to our industry to participate. As we discuss the current and future state of the anthracite coal industry, we cannot forget about the critical role the coal refuse to energy industry plays in addressing the legacy of the early coal mining industry by remediating the coal refuse sites that scar the landscape, pollute our waterways, and constitute a continuing risk to the health and safety of our local communities. Today, I will share with you not just the benefits to Pennsylvania derived from the coal refuse to energy industry, but also the challenges faced by our industry.

ARIPPA's membership is comprised of electric generating facilities located in Pennsylvania and West Virginia that provide environmental remediation of coal refuse sites by utilize circulating fluidized bed (CFB) boiler technology to convert coal refuse into electricity and use the resulting beneficial use ash to reclaim the polluted sites where the coal refuse was removed. Of the 14 Pennsylvania facilities, there are currently 9 located in or near the anthracite coal region, while the remainder are situated in the western bituminous coal region. Although relatively small in size, these facilities have a total generation capacity in excess of 1,400 megawatts. Moreover, these plants play a critical role in environmental remediation by removing abandoned coal refuse piles and cleaning-up the land and water polluted by the piles with minimal to no cost to the taxpayers.

Both the federal government and the Commonwealth of Pennsylvania have long-recognized and embraced the environmental benefits of the consumption and reclamation of coal refuse. For example, during regulatory development of the Mercury and Air Toxics Standards Rule (MATS), the U.S. Environmental Protection Agency (EPA) stated that, "Units that burn coal refuse provide multimedia environmental benefits by combining the production of energy with the removal of coal refuse piles and by reclaiming land for productive use..." (76 Fed. Reg. 25,066).

In Pennsylvania, the Alternative Energy Portfolio Standards (AEPS) program recognizes coal refuse energy as a Tier II alternative energy source. In 2016, the Pennsylvania General Assembly and Governor

Wolf approved the Coal Refuse Energy and Reclamation Tax Credit to support the reclamation and consumption of coal refuse, acknowledging it as a beneficial environmental option to improve the Commonwealth's scarred and polluted landscape.

### **What is Coal Refuse?**

Coal refuse is a legacy of previous coal mining and consists of low-quality coal mixed with rock, shale, slate, clay and other material. Also known as waste, culm, gob and boney, it was discarded as a "waste" during the original coal extraction process and randomly disposed in piles near the mine sites. These piles represent public health and safety hazards, as they can spontaneously combust or catch fire from lightning strikes, leach acid mine water and hazardous substances, and are major sources of ground, air, and water pollution.

Due to the costs associated with the removal of coal refuse and fiscal constraints governing public funding, the threats posed by these piles are mostly backburner issues for government authorities unless or until the mounds suddenly combust and become an immediate health and safety threat to nearby residents. Prior to the development of CFB technology, there was no productive use for coal refuse. As a result, these hazardous piles littered the local landscapes and polluted nearby land and water for decades.

As of 2016, the Pennsylvania Department of Environmental Protection (DEP) had identified 840 piles (52 of which were at the time burning) located in the Commonwealth on nearly 10,000 acres of abandoned mine lands containing at least 300 million tons of coal refuse. Frankly, if these piles are not removed during the refuse to energy generation process, the likelihood is that they will remain in place.

### **Genesis of the Coal Refuse Energy Industry**

In response to the oil shortages during the 1970s, U.S. Congress sought to diversify the nation's electric generation mix by promoting the use of alternative fuels (e.g. electricity produced from unconventional fuel sources like coal refuse). Toward this end, Congress enacted the Public Utility Regulatory Policies Act of 1978 (PURPA). PURPA required that electric utilities buy alternative energy generated by qualified facilities at an "avoided cost" rate. The avoided cost mandate proved instrumental in

encouraging developers to invest in what was then “new and risky” business ventures like generating electricity from coal refuse through the use of the innovative CFB technology. As a result of fortuitous timing between maturation of the CFB process and the passage of PURPA, a new technology was established providing both economic value in the productive burning of coal refuse and environmental service through the removal of the piles and reclamation of the sites.

### **Benefits of the Coal Refuse Energy Industry**

The coal refuse to energy industry represents a unique paradigm for mine land reclamation in which environmental and economic objectives overlap. The Commonwealth is typically forced to address the environmental impacts of coal refuse piles on a reactive, rather than proactive basis, due in part to the cost structure of remediation for the state government relative to the coal refuse to energy industry. The industry, on the other hand, has developed a comprehensive fuel cycle approach to the problem. By removing coal refuse piles from the environment, reclaiming the sites to productive uses and using the refuse as an alternative fuel for the production of electricity, the coal refuse to energy industry provides a range of environmental, economic, and societal benefits to the Commonwealth.

The coal refuse is removed from these blighted areas and transported to the facilities where it is used to produce energy – offsetting mining and transportation costs – and beneficial use ash is then returned to mining sites for remediation and restoration. The Commonwealth, by contrast, cannot generate energy and attendant revenue with coal refuse, does not have beneficial ash available for reclamation, and most crucially, must pay to safely remove, transport, and dispose of the coal refuse in a new location. As a result, the remediation activities of the industry are far more cost effective than those of the Commonwealth and result in a greater volume of environmental remediation.

Since the late 1980’s when the first CFB facilities were built, the 14 plants that currently make up Pennsylvania’s coal refuse to energy industry have removed and burned as fuel more than 200 million tons of refuse, improved or restored more than 1,200 miles of stream and reclaimed more than 7,000 acres of

abandoned mine lands (AML). In addition to these environmental benefits, the industry also provides much needed employment opportunities and a solid economic impact to our rural communities.

According to the Econsult Solutions' Report, "Economic and Environmental Analysis of Pennsylvania's Coal Refuse Industry," at historic operating levels, the industry removes and uses 10 million tons of coal refuse and reclaims 200 acres of land per year, improving numerous waterways in the process. According to the Report, the environmental benefits of this activity total more than \$520 million, averaging over \$26 million per year over a twenty-year period. Additionally, the fiscal impact of the industry to the Commonwealth in terms of fees and taxes totals almost \$20 million per year.

Not only has Pennsylvania's coal refuse to energy industry saved the Commonwealth millions of dollars in environmental clean-up costs, it is also an economic engine, generating annual economic benefits to Pennsylvania of nearly \$740 million. The industry directly and indirectly supports 3,600 jobs with total earnings of more than \$220 million. These high value family and community sustaining jobs, with salaries over \$70,000 per year, relate to every facet of our fuel cycle, ranging from mining, transportation, plant operations and management to environmental remediation.

Not to be overlooked is the fact that these benefits are primarily concentrated in the financially distressed rural communities of Pennsylvania which are not only disproportionately burdened by the environmental legacy of past mining, but also struggle to create new economic opportunities. Despite the efforts of the coal refuse to energy industry, the volume of remaining coal refuse across the Commonwealth is daunting.

### **Challenges facing the Coal Refuse Energy Industry**

The problem simply is that a variety of economic forces have recently conspired to undermine the fundamentals of our industry. As the industry declines so too does the amount of environmental remediation that can be accomplished. These plants face unique challenges that jeopardize their financial viability as employers and taxpayers, including restrictive regulatory requirements, a stagnant demand for

electricity, state and federal pricing subsidies for competing electricity technologies, and a glut low-priced natural gas in the region.

Pennsylvania coal refuse plants are part of the PJM Interconnection, a Regional Transmission Operator that runs the wholesale electricity market for most of Pennsylvania and all or part of 12 other states and the District of Columbia. New development and extraction techniques have turned the natural gas in the Marcellus Shale formation into an abundant fuel source, significantly lowering the price of natural gas. The decreasing price of natural gas – the most significant variable cost for thermal electricity plants – has translated into falling electricity prices on the PJM Interconnection market into which our coal refuse plants sell their electricity. This effect is particularly pronounced in Pennsylvania, where local prices are even lower due to a lack of infrastructure necessary to transport this natural gas to larger markets, thus trapping the gas and overwhelming the supply in the Commonwealth.

Relative to natural gas producers, coal refuse plants are labor intensive and have an expensive fuel cycle with several components. Both coal refuse and limestone must be transported to plants, and beneficial use ash is then transported back to the mining sites for use in environmental remediation. This series of steps and the attendant cost structure relative to increasingly prevalent natural gas production have created major marketplace challenges for the industry.

It also cannot be ignored that other renewable electricity generation technologies, most prominently solar and wind, receive substantial price support at the federal and state levels. That price support permits those projects to bid their energy pricing into the PJM market at rates that are actually below their true cost to produce such electricity. This subsidization has a further dampening effect upon electricity pricing and upon the coal refuse to energy facilities' ability to compete. Recently, several states in the PJM market have enacted hundreds of millions of dollars in subsidies to support the nuclear power generation industry. These subsidies will similarly have a suppressive effect on wholesale energy market prices, further harming the viability of the coal refuse to energy industry.

Competition from low-priced natural gas and subsidized renewables has driven wholesale electricity prices in the PJM down dramatically in recent years. Weighted average prices per megawatt hour (MWh) fell from \$64 in 2014 to \$31 in 2017. Total production cost at Pennsylvania coal refuse to energy plants was estimated at \$39/MWh as of 2016. Consequently, the price we can receive for our commodity is significantly below the cost to produce it.

Furthermore, the PJM pricing scheme undervalues coal refuse generated electricity because it fails to recognize the environmental value of remediating hazardous abandoned refuse sites and the beneficial environmental externalities attendant to this industry. However, the Federal Energy Regulatory Commission (FERC) in an order dated June 29 of this year found that the current rules by which PJM operates its annual Base Residual Auction were “unjust and unreasonable” and required PJM to submit a revised replacement rate for the PJM Tariff. This case is currently pending before FERC, and ARIPPA along with several of our member companies have intervened in the docket.

The viability of the coal refuse energy industry has also been greatly affected by a bevy of burdensome environmental regulations at both the federal and state level. Perhaps the most onerous of these being the federal Mercury Air Toxics Standards (MATS) Rule, which sets specific emission limits for coal-fired power plants – including coal refuse generators – relating to particulate matter (PM), mercury (Hg), nitrogen oxides (NOx), hydrochloric acid (HCl) and sulfur dioxide (SO<sub>2</sub>).

All coal refuse-fired electric generating units in Pennsylvania qualify as mercury and particulate matter low emitting electric generating units as specified by the MATS rule requirements. However, four Pennsylvania plants consuming bituminous coal refuse are unable to comply with the regulation’s HCl and SO<sub>2</sub> acid gas requirements. These bituminous coal refuse plants were not designed to meet the acid gas emission limits set out in MATS. ARIPPA has worked with Congressman Keith Rothfus to introduce legislation – the SENSE Act – that would establish a single additional, alternative acid gas limit that will allow these coal refuse to energy plants to remove, use and remediate the higher sulfur content bituminous coal refuse piles without any increase in other air toxic emissions or particulate emissions. It has

also been reported that the EPA is currently considering repealing or revisiting the MATS rule, which could address the issues faced by these coal refuse energy facilities. Without a legislative or regulatory fix before the end of this year, the only alternative is to shutter the plants, which given the significant economic and environmental value of the plants is not an attractive option.

### **ARIPPA Pennsylvania Priorities**

Today, I want to address three Pennsylvania specific issues affecting the coal refuse energy industry. First, the inequitable fee structure for Title V air permits that leads to our facilities paying up to 23 times the cost of other types of EGUs based upon their amount of heat input and essentially leads to coal refuse and coal fired EGUs subsidizing our competition. Second, the limited benefits of the current Alternative Energy Portfolio Standards (AEPS) program on the coal refuse to energy industry. Finally, the current and potential impact of the Coal Refuse Energy and Reclamation Tax Credit on the industry.

#### **1. Inequitable Title V Air Permit Fee Structure**

Pennsylvania's Air Pollution Control Act (APCA) requires the Environmental Quality Board (EQB) to establish fees sufficient to cover the indirect and direct costs of administering the air pollution control plan approval process and operating permit program required by Title V of the federal Clean Air Act (CAA). The fee schedule includes fees for a variety of plan reviews and changes, as well as a fee corresponding to the amount of regulated criteria pollutants emitted each year from Title V facilities. The current Title V emissions fee is \$87.43 – projected to increase to \$93.87 per ton by year 2020 – and capped at 4,000 tons for any regulated pollutant. Regulated pollutants include Nitrogen Oxide (NO<sub>x</sub>), Sulfur Dioxide (SO<sub>2</sub>), Particulate Matter (PM), Volatile Organic Compound (VOC), and other Hazardous Air Pollutants (HAPs), but does not include greenhouse gas (GHG).

The income generated from these fees gets deposited into the Commonwealth's Clean Air Fund. According to DEP, Clean Air Fund expenditures currently exceed total revenue, thus the fund, which accounts for more than half of the Air Quality Program's total budget, is projected to have a negative

balance by fiscal year 2021-22 absent an increase in revenue. Remarkably, one of the primary reasons cited by DEP for the Clean Air Fund's dwindling balance is the fact that there has been a significant trend in emissions reductions, and therefore a corresponding reduction in emissions fees due, over the past 15 years.

Thus, DEP is moving forward with proposed fee increases to generate additional funding for the Air Quality Program. DEP is proposing to increase existing fees for permit applications and to establish new fees for the review of certain information by the Air Quality Program for which no fees are currently required. The proposed fee changes would be meaningful. For example, major sources would see the base fee for a New Source Review Plan Approval application increase from \$5,300 to \$10,000. Likewise, an annual operating permit maintenance fee for Title V facilities of \$10,000 would replace the current annual administration fee of only \$750. If finalized, these changes would affect thousands of facilities in the Commonwealth.

With respect to annual emissions fees, DEP initially considered increasing the cost per ton of pollutant emitted from approximately to as much as \$118. DEP had also considered establishing an emissions fee revenue floor of \$5,000 for all Title V facilities. However, an emissions fee increase was not included in the current DEP fee increase proposal. Unfortunately, even without an emissions fee increase, this plan fails to address the underlying issues of sustainability and unfairness of the existing Title V fee structure.

The current Title V fee structure creates a market disadvantage for coal refuse facilities in terms of competition with natural gas-fired EGUs and with EGUs in other states within the PJM market, which is contributing to the Title V funding crisis. Annual emission fee revenue from 569 Title V facilities in PA is \$14.9 million. For SO<sub>2</sub> and NO<sub>x</sub> alone, EGUs paid \$6.6 million in 2017. Of that, the 13 coal refuse paid \$1.83 million and 7 coal-fired facilities paid \$4.16 million, or more than 90% of the total emissions fees paid by EGUs, while the other 10% was paid by the other 71 EGUs (i.e. natural gas, oil, etc.). When considering all Title V major sources, the 20 coal refuse and coal-fired EGUs pay about 45% of the total SO<sub>2</sub> and NO<sub>x</sub>

emissions fees and the remaining 549 Title V sources pay about 55% of the total SO<sub>2</sub> and NO<sub>x</sub> emissions fee. When all pollutants are considered the coal refuse and coal-fired EGUs pay over 50% of all current emission fees.

The existing emission fee system was established when the electric generators were operated by rate-based regulated electric utilities where the Public Utility Commission authorized the fees as part of the rate base and the Title V permit fee costs were spread across all electric ratepayers. In today's deregulated competitive wholesale energy market, these costs are instead borne by the independent power producers. Coal refuse generators are paying significantly more on both a heat input and installed capacity basis than both natural gas and coal-fired EGUs. In 2017, the 13 coal refuse generators paid \$0.02/MMBtu, whereas the coal EGUs paid \$0.009/MMBtu and natural gas only \$0.001/MMBtu. This disadvantage is further compounded by PJM, as we compete with not only in state generation, but out-of-state generation, where Title V fees are much lower (e.g. the emissions fee in West Virginia is \$51 per ton).

The DEP proposal also fails to provide sustainable funding for the Title V program. The proposed Title V funding is still based heavily on emission fees, which continue to decline and remain greatly impacted with the loss of a single coal-refuse or coal-fired unit. The loss of a single coal refuse or coal-fired plant is the loss of a large percentage of the Title V fees, but the workload is not reduced that significantly, and the replacement of emissions fees if that generation is replaced by natural gas-fired generation will be a small fraction of what is lost. This unsustainability problem will either be addressed now or after the coal refuse and coal-fired plants are retired.

By not having equitable Title V fee structure, which also provides sustainability, DEP will be forced to continue to increase fees, which exacerbates the problem by placing EGUs in further economic jeopardy. Addressing the inequity issue will assist in the development of a sustainable funding source, whereas additional fee increases will further threaten the viability of remaining coal refuse EGUs and further jeopardize future funding for Clean Air Fund.

## 2. Alternative Energy Portfolio Standards (AEPS)

Act 213 of 2004 created Pennsylvania's Alternative Energy Portfolio Standards program to provide economic development opportunities by increasing the mix of alternative electricity generation in Pennsylvania. AEPS requires that 18 percent of the electricity supplied by Pennsylvania's electric distribution companies (EDCs) and electric generation suppliers (EGSs) come from alternative energy resources by 2021. EDCs and EGSs can comply with AEPS by procuring Alternative Energy Credits (AECs) from qualified alternative energy resource facilities. Each AEC issued represents a megawatt hour (equal to 1,000 kilowatt-hours) of generation from a qualified alternative energy system.

AEPS establishes two tiers of eligible energy sources. By 2021, EDCs and EGSs must supply 8 percent of their electricity from Tier I energy sources and 10 percent from Tier II energy sources. Tier I sources include facilities that produce electricity from solar PV, solar thermal, wind, low-impact hydro, geothermal, biomass, biologically derived methane gas, coal-mine methane and fuel cell resources. Also within the Tier I obligation, AEPS requires 0.5 percent of electricity be supplied from solar photovoltaic (PV) systems. Tier II sources include waste coal (coal refuse), distributed generation (DG), demand-side management, large-scale hydro, municipal solid waste, wood pulping and manufacturing byproducts, and integrated gasification combined cycle (IGCC) coal facilities.

Whereas Tier I AEPS credits sold for a weighted average price \$12.16 of in 2017 and Solar PV for \$55.20, Tier II credits sold for as low as \$0.01 with a weighted average of only \$0.16 per AEC. Eligible Tier I and Tier II resources must originate within Pennsylvania or within the PJM regional transmission organization (RTO). In 2017, 66% of the Tier II AECs originated on Pennsylvania and 10% from West Virginia. Of that, 61.4% of the Tier II AECs retired in 2017 were produced by coal refuse facilities. Coal refuse energy is clearly a reliable and environmentally beneficial alternative energy source, but unfortunately the price for Tier II AECs does not adequately reflect the true benefit of the industry to the Commonwealth.

### 3. Coal Refuse Energy and Reclamation Tax Credit

The Coal Refuse Energy and Reclamation Tax Credit (Coal Refuse Tax Credit) Program was established by Act 84 of July 13, 2016 (the "Act") in recognition of the significant and tangible benefits to the environment and savings in commonwealth funds provided by eligible facilities reclaiming coal refuse piles and previously mined lands. These eligible facilities must generate electricity in the commonwealth by using coal refuse for power generation, control acid gasses for emission control, and use ash produced by the facilities to reclaim mining-affected sites. The program is administered by the Department of Community and Economic Development (DCED) in consultation with the DEP.

Under the program, eligible facilities may receive a credit of \$4 multiplied by the tons of coal refuse used to generate electricity at in the commonwealth during the previous calendar year. The total amount of Coal Refuse Tax Credits was limited to \$7.5 million in the fiscal year 2016-2017 and \$10 million in each fiscal year thereafter until expiration of the program on December 31, 2026. However, if the total amount Coal Refuse Tax Credits applied for by all eligible facilities exceeds the annual limit, the Coal Refuse Tax Credit to be received by each eligible facility is reduced equal to the percentage for which each facility would otherwise be eligible, subject to a limit of 22.2% to a single facility in any fiscal year.

In 2016, the 13 eligible coal refuse to energy facilities in Pennsylvania reclaimed and consumed a total of 8,271,415 tons of coal refuse. At \$4 per ton, this would have produced a potential tax credit of \$33,085,661. However, with the Coal Refuse Tax Credit capped at \$7.5 million, the actual value of the tax credit was less than \$1 per ton for each eligible facility. In 2017, these same 13 plants consumed 8,028,581 tons of coal refuse for a potential tax credit of \$32,114,326. With the cap increased to \$10 million, the actual value of the credit increased slightly to between \$1.00 and \$1.34 per ton of coal refuse consumed. When you consider this \$10 million dollar investment yields \$26 million in annual environmental benefits, that sounds like a pretty good return for the people of the Commonwealth, and that is not including the

\$736 million economic impact and \$20 million in additional taxes and fees paid by the industry for a total benefit to PA of nearly \$780 million per year.

At historic operating levels (2009-2013), these 13 facilities could remediate and consumed more than 10 million tons of coal refuse annually. Unfortunately, most if not all of them are not operating at full base load capacity due to economic considerations. Some plants have even moved to seasonal operation (i.e. cycling) where they only operate during the peak pricing summer and winter months. However, these plants were not constructed for the frequent startups and shut downs that this type of operation entails, leading to increased forced outages due to mechanical issues and shortening the useful life of their equipment. With the shortened running period comes an attendant loss of environmental remediation activity with less coal refuse being consumed each year. Likewise, the economic impact of the plants is reduced by cycling with a direct reduction in jobs at the plants and the indirect impacts from decreases in limestone purchases, trucking, and other services.

### **Conclusion**

This coal refuse to energy industry is a unique private-public partnership that allows our facilities to generate electricity and at the same time restore the environment of the Commonwealth. However, we need to strengthen our partnership whereby the Commonwealth helps us to manage a portion of our fuel cycle costs in return for saving the taxpayers from bearing the inevitable cost of state funded remediation efforts to remove these environmentally threatening coal refuse piles. While the industry is appreciative of your continued support for the state tax credit for the coal refuse to energy industry, unfortunately our plants continue to struggle in the face of costly regulations and low energy prices.

Recently, Vistra Energy Corp. announced that at the end of the year it will be closing the Northeastern Power Company (NEPCO), a waste coal facility in McAdoo, Schuylkill County, citing “uneconomic operations and negative financial outlook.” Last year, this 52 MW facility reclaimed and consumed 270,675 tons of coal refuse, while at historical levels it could use up to 559,000 tons per year. The coal refuse sites that this facility could have reclaimed will now continue to scar the land, pollute the

water, and create a safety and environmental hazard for years to come until the taxpayers of Pennsylvania are forced to pick up the full tab to clean them up – and it is a hefty bill.

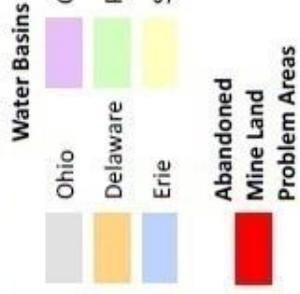
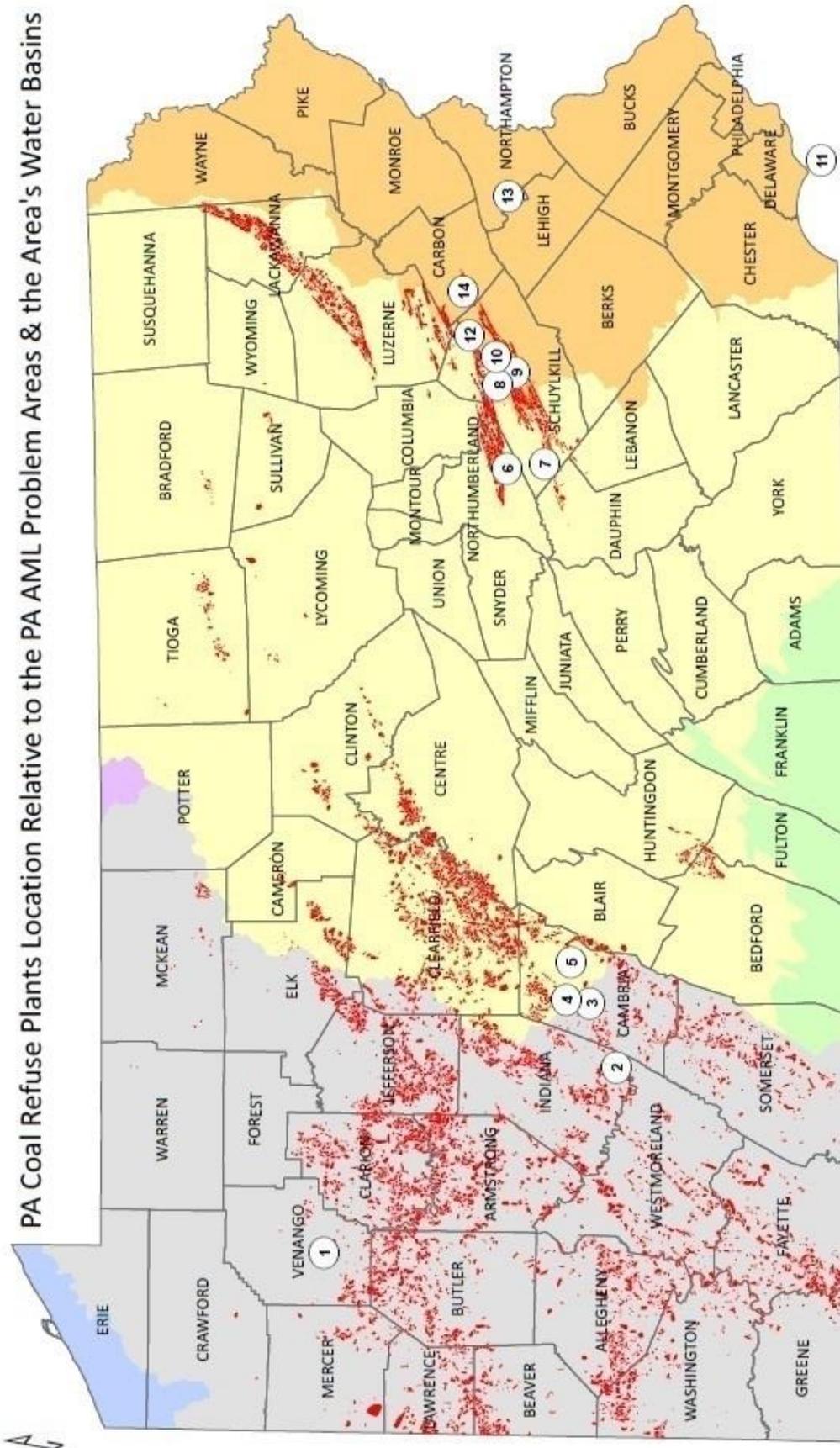
The coal refuse to energy industry is historically the most effective and prolific actor in the remediation of coal refuse piles across the Commonwealth. As public funding of Abandoned Mine Land (AML) remediation continues to dwindle, ARIPPA and our members want to partner with the Commonwealth to promote the values of reclamation and find ways to secure multiple sources of funding that will sustain and increase the current level of AML reclamation activities. No one but the coal refuse to energy industry can remove the abandoned coal waste piles and address these attendant environmental and safety hazards in a holistic, efficient, and permanent manner.

Thank you.

## ARIPPA Plants by County

| County         | Plant                                           | Operating Capacity (MW) | Year First Unit in Service | Tons of Coal Refuse Burned in 2016 |
|----------------|-------------------------------------------------|-------------------------|----------------------------|------------------------------------|
| Cambria        | Cambria Cogeneration                            | 87.5                    | 1991                       | 585,921                            |
| Cambria        | Colver Power Project                            | 110                     | 1995                       | 591,795                            |
| Cambria        | Ebensburg Power Company                         | 50                      | 1991                       | 276,362                            |
| Carbon         | Panther Creek                                   | 83                      | 1992                       | 143,620                            |
| Delaware       | Kimberly Clark Chester Operations               | 67                      | 1986                       | 171,285                            |
| Indiana        | Seward Waste Coal                               | 521                     | 2004                       | 2,428,714                          |
| Northampton    | Northampton                                     | 112                     | 1995                       | 217,392                            |
| Northumberland | Mount Carmel Cogeneration                       | 43                      | 1990                       | 602,452                            |
| Schuylkill     | John B. Rich Memorial Power Station (Gilberton) | 80                      | 1988                       | 663,535                            |
| Schuylkill     | Northeastern Power Cogeneration Facility        | 52                      | 1989                       | 232,413                            |
| Schuylkill     | St. Nicholas Cogeneration (SER)                 | 86                      | 1990                       | 1,478,011                          |
| Schuylkill     | Westwood Generating Station                     | 30                      | 1987                       | 105,354                            |
| Schuylkill     | Wheelabrator Frackville Energy Company          | 42.5                    | 1988                       | 505,328                            |
| Venango        | Scrubgrass                                      | 86.1                    | 1993                       | 440,519                            |
|                | <b>TOTALS</b>                                   | <b>1450.1</b>           |                            | <b>8,442,701</b>                   |

# PA Coal Refuse Plants Location Relative to the PA AML Problem Areas & the Area's Water Basins



## PA Coal Refuse Plants (1,419 MW & 10,922,000 Tons/Year)

1. Scrubgrass Generating - 83 MW; 644,000 TPY
2. Seward - 525 MW; 2,925,000 TPY
3. Ebensburg Power - 50 MW; 536,000 TPY
4. Colver Power Project - 102 MW; 701,000 TPY
5. Cambria Cogen Company - 85 MW; 664,000 TPY
6. Mt. Carmel Cogen - 40 MW; 529,000 TPY
7. Westwood Generation - 30 MW; 384,000 TPY
8. Schuylkill Energy Resources, Inc. - 80 MW; 1,300,000 TPY
9. Gilberton Power Company - 80 MW; 575,000 TPY
10. Wheelabrator Frackville Energy Company - 42 MW; 535,000 TPY
11. Kimberly Clark Chester Plant - 60 MW; 223,000 TPY
12. Northeastern Power Company - 52 MW; 559,000 TPY
13. Northampton Generating Co. - 107 MW; 651,000 TPY
14. Panther Creek Energy - 83 MW; 696,000 TPY

\*MW = Installed Capacity; TPY = Average Tons per Year from 2009-2013