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**Testimony of ARIPPA before the
House Committee on Energy and Commerce,
Subcommittee on Environment,
in Support of H.R. 1119 (the SENSE Act)
September 13, 2017
Summary Points**

- Coal refuse is a legacy problem in coal regions.
- Coal refuse piles produce multi-media environmental, safety and health problems.
- The coal refuse to energy industry effectively and permanently addresses the coal refuse problems in a fashion that is good for the environment as well as local and state economies.
- Total economic output of the PA & WV coal refuse industry, including direct, indirect and induced activity, is estimated at about \$800 million.
- The coal refuse to energy industry in PA and WV supports 3,800 family and community sustaining jobs per year, with total annual employee earnings of more than \$231.5 million.
- Environmental benefits resulting from plant activities (which include water quality benefits, public safety benefits, and land value benefits) are estimated at about \$30 million per year.
- A number of bituminous coal refuse fired units can't meet either of the Mercury and Air Toxics Standards rule's acid gas limits and face a threat of imminent closure absent the SENSE Act.
- The SENSE Act provides an additional performance based sulfur dioxide acid gas limit for bituminous coal refuse fired units only.
- The SENSE Act provisions ensure that all of the monetized health benefits of the Cross State Air Pollution Rule and the Mercury and Air Toxics Standards rule are preserved.
- The SENSE Act is responsible legislation that allows six (6) bituminous coal refuse-fired units to continue to provide a permanent solution to the legacy coal refuse problem in coal regions while ensuring there aren't any negative environmental impacts.



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Mr. Chairman, Members of the Committee:

Good morning. On behalf of ARIPPA, I would like to thank the Chair and Committee for holding this hearing today on the “Satisfying Energy Needs and Saving the Environment Act” or “SENSE Act” (H.R. 1119).

My name is Vincent Brisini and I am the Director of Environmental Affairs for Olympus Power, LLC. Today, I am testifying on behalf of ARIPPA, the trade association representing the coal refuse to energy industry. By way of background, and in terms of my perspective on the issues before you today, I have more than 42 years of experience in air resources management, in both public service and the private sector. From 2011 to 2015, I served as Deputy Secretary for the Office of Waste, Air, Radiation, and Remediation in the Pennsylvania Department of Environmental Protection; and prior to that worked for 33 years as an air quality and environmental manager in the electric generation sector, principally in Pennsylvania.

ARIPPA is a non-profit trade association representing the interests of the coal refuse to energy industry. Its membership includes electric generation facilities that utilize environmentally-friendly circulating fluidized bed (CFB) boiler technology to convert coal refuse into electricity. These plants are located principally in or near the anthracite and bituminous coal regions of Pennsylvania and the bituminous coal region of West Virginia.

According to a report prepared by Econsult Solutions, a Philadelphia-based economic consulting firm, the combined economic and environmental benefit of the coal refuse to energy industry to Pennsylvania alone totals about \$780 million per year. The industry directly and indirectly supports 3,600 jobs with total earnings of more than \$220 million per year.

What sets these coal refuse-fired power plants apart is the critical role they play in environmental clean-up and remediation in coal regions by removing coal refuse piles from the landscape, cleaning up the air, land and water polluted by these piles, and protecting public health and safety without shifting the cost of these activities to public sources. Coal refuse is a legacy of previous coal mining and consists of low quality coal mixed with rock, shale, slate, clay and other material. It was discarded as “waste” during the original coal extraction process and randomly disposed in piles near mine sites and the towns that developed near those sites.

CFB technology with limestone injection can effectively combust coal refuse from past mining activities to respond to the formidable environmental challenges posed by the millions, likely billions, of tons of coal refuse deposited throughout Pennsylvania, and other historical coal-mining regions. To date, the coal refuse to energy industry in Pennsylvania has removed and used as fuel more than 200 million tons of coal refuse, restored more than 1,200 miles of streams and reclaimed more than 7,000 acres of mining affected lands. The environmental value of this industry to Pennsylvania has been quantified on average at \$26 million per year.

As the Environmental Protection Agency (EPA) has recognized in the development of a number of regulations, the combustion of coal refuse in CFB units provides critical environmental benefits. Consequently, the Agency should recognize and facilitate, rather than hinder, the continued operation of these units. Importantly, these facilities are such very low emitting electric generating units (EGUs) that [8] of them were used in establishing the mercury standards now required by 40 CFR Part 63, Subpart UUUUU, otherwise known as the Mercury and Air Toxics Standards (MATS) rule. Additionally, the unique

characteristics of the ash generated by these coal refuse to energy facilities is recognized in Pennsylvania law and environmental regulations for beneficial use in the reclamation of mining affected lands and neutralizing acid mine drainage.

The use of coal refuse as fuel in CFB boilers has eliminated many abandoned coal refuse piles located throughout the Commonwealth of Pennsylvania and to a lesser extent West Virginia, Utah, and Montana. However, despite the efforts of the coal refuse to energy industry, the volume of remaining coal refuse across the Commonwealth is daunting. Estimates range from 300 million tons to 2 billion tons in Pennsylvania alone.

These coal refuse piles are more than eyesores. They are a major source of acid mine drainage into surface and ground waters; can spontaneously combust or catch fire causing the emissions of toxic pollutants; are prone to subsidence; and represent real public health and safety hazards. If these piles are not removed and used by the coal refuse to energy industry, it is highly likely that they will remain in place and continue to endanger our citizens, scar our land and pollute our air and our waters. It is estimated that, at any given time, there are fifty abandoned coal refuse piles burning in the Commonwealth of Pennsylvania. The dispersed and varied nature of these piles makes quantifying the total impact on air quality difficult, but in outlining an ongoing study of the issue, the United States Geological Survey (USGS) observed that burning coal refuse piles produce and disperse mercury, methane, particulates, hydrocarbons and other elements such as arsenic and selenium, through the air in a completely uncontrolled manner.¹ USGS observed that these elements also leach in to water bodies and accumulate in fish, entering the food supply.² An example of the dramatic environmental benefits that can be accomplished by the removal and use of coal refuse as fuel in an ARIPPA member facility and the subsequent use of the resulting beneficial ash in reclamation and remediation, is the South Branch of the

¹ U.S. Department of Interior, United States Geological Survey, "Emissions from Coal Fires and Their Impact on the Environment," Fact Sheet 2009-3084, Sept. 2009.

² Id.

Blacklick Creek, in Pennsylvania. Post-reclamation, the Pennsylvania Department of Environmental Protection has documented an acid loading reduction of 96%, an iron loading reduction of 99%, an aluminum loading reduction of 94%, a manganese loading reduction of 87% and a sulfate loading reduction of 82% in the watershed of the South Branch of Blacklick Creek³. The creek, once iron-stained and devoid of aquatic life, is now stocked with trout by the South Branch Fishing Club for the enjoyment of sport fishermen. This stocking has occurred for the past three years.

As identified in the Pennsylvania Department of Environmental Protection's Citizens Advisory Council's 2015 Transition Report, Pennsylvania faces a cost to recover abandoned mine lands of approximately \$16.1 billion. Costs of this magnitude can be expected for other coal producing states in the eastern portion of the United States as well. There simply is not adequate public funding available to address all of these piles.

For these reasons, EPA, the Pennsylvania Department of Environmental Protection (PADEP), the Office of Surface Mining Reclamation and Enforcement, and other non-governmental organizations have long-recognized the multi-media environmental benefits of the coal refuse to energy process used by the ARIPPA member facilities. In fact, as discussed further below, in the preamble to the MATS rule, EPA explained why they were not proposing changes to the New Source Performance Standards for coal refuse fired power plants:

"Coal refuse (also called waste coal) is a combustible material containing a significant amount of coal that is reclaimed from refuse piles remaining at the sites of past or abandoned coal mining operations. Coal refuse piles are an environmental concern because of acid seepage and leachate production, spontaneous combustion, and low soil fertility. 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. Consequently, because of the unique environmental benefits that coal refuse-fired EGUs provide, these units warrant special consideration so as to prevent the amended NSPS from discouraging the construction of future coal refuse-fired EGUs in the U.S."⁴

³ PA Department of Environmental Protection, "Reclamation of Refuse Piles using Fluidized Bed Combustion Ash in the Blacklick Creek Watershed, Pennsylvania," <https://wvmdtaskforce.files.wordpress.com/2017/05/2017-aaron-martin-wed-salon-c-1100.pdf>

⁴ EPA, 76 Fed. Reg. 25066, May 2011, <https://www.gpo.gov/fdsys/pkg/FR-2011-05-03/pdf/2011-7237.pdf>

However, despite their manifest environmental benefits, and due to erroneous assumptions in certain federal environmental regulations, some bituminous coal refuse-fired power plants are threatened and may be unable to continue to provide these publicly-important environmental, safety and health benefits.

H.R. 1119, the proposed SENSE Act, seeks to address the sulfur dioxide (SO₂) allowance allocation errors contained in the Cross-State Air Pollution Rule (CSAPR) and the erroneous assumptions in the Mercury and Air Toxics Standards (MATS) rulemaking with respect to bituminous coal refuse-fired facilities. Without the SENSE Act, certain coal refuse to energy facilities which use and remediate the coal refuse piles located in the higher sulfur content bituminous regions located in West Virginia and western Pennsylvania will be forced to close. Millions of state and local taxpayer dollars will be required to replace this successful public private partnership, reclaim the areas blighted by coal refuse and to address the associated environmental, health and safety problems – money that is simply not available in the budgets of Pennsylvania and local communities. Federal funding for abandoned mine reclamation is already “drying up” due to the greatly reduced amount of coal that is being mined, and state and local budgets are simply unable to tackle this daunting challenge. Absent the SENSE Act, the end result would be the loss of a bituminous coal region private solution to the public coal refuse problem and the continuation of the health, safety and environmental problems associated with these sites!

Cross-State Air Pollution Rule (CSAPR) - Sulfur Dioxide (SO₂) Allowances

In Phase 2 of CSAPR, sulfur dioxide allowance allocations to electric generating units that burn coal refuse from the historic mining and processing of bituminous coal are reduced to levels that cannot be achieved by these bituminous coal refuse-fired units.

The SENSE Act mandates that in Phase 2 of CSAPR or in any future revised emissions budget under CSAPR, the bituminous coal refuse-fired electric generating units only be allocated SO₂ allowances at the

levels specified in Phase 1 of CSAPR. However, to assure that the annual sulfur dioxide emissions budgets that have been established by EPA are not increased, the SENSE Act provides that the Administrator must “re-allocate” sulfur dioxide allowances from the allowance allocations to other CSAPR affected electric generating units which have been or will be permanently retired or fully converted to burn only natural gas. This will result in a proportional reduction in sulfur dioxide allowance allocations to those units consistent with the number of allowances needed for the re-allocation specified in the SENSE Act.

At the same time, the SENSE Act includes provisions that prevent bituminous coal refuse-fired plant owners receiving these CSAPR emission allowances from gaining an economic windfall. It prohibits qualifying plants from transferring any unused CSAPR allowances to other facilities; and, while allowing unused CSAPR allowances to be "banked" for future compliance periods at the facilities receiving a SENSE Act allowance allocation, it requires the surrender of such allowances if the facility permanently retires or switches to natural gas.

The fact that the ARIPPA facilities can generate electricity and provide jobs while simultaneously remediating a major environmental challenge results in economic benefits to the state and local communities that far outstrips the value of the actual electricity produced. It should be noted that most ARIPPA facilities are very small with typical installed capacities of 80 to 85 megawatts. As such, the impact on electricity markets of these facilities is small, but the loss of their value to the communities they serve would be vast.

Mercury and Air Toxics Standards (MATS)

While some groups have expressed that these units are being provided a “free pass on the MATS rule, nothing could be further from the truth. The SENSE Act only provides an additional alternative SO₂ limit for 6 bituminous coal refuse-fired units to meet the acid gas standard in MATS. Plus, those units must use circulating fluidized bed combustion as that technology is necessary to

produce the beneficial use ash used to remediate and reclaim mining affected lands, including the coal refuse sites. Only one of the bituminous coal refuse-fired facilities can meet the MATS rule's acid gas hydrogen chloride (HCl) limit and one other different facility's units can meet the acid gas sulfur dioxide (SO₂) limit. The one facility that meets the HCl limit cannot meet the SO₂ limit and the other facility that can meet the SO₂ limit cannot meet the HCl limit.

As previously identified, in promulgating New Source Performance Standards (NSPS), EPA concluded that the unique environmental benefits provided by coal refuse facilities warranted special consideration. EPA amended the NSPS so as to not discourage coal refuse facilities by recognizing that the quality of coal refuse varies widely in terms of caloric value and sulfur content, and different vintage waste coal units have different capabilities relative to their ability to control sulfur dioxide (SO₂).

Unfortunately, these same concepts were not carried through in the MATS rule. EPA's definition of "coal" for this purpose combined all of the different types of coal into one category, only differentiating between lignite and all other coal types. Contrary to the recommendation of EPA staff, EPA did not differentiate between the types of combustion technology used; the coal refuse being burned; emission control technologies already in place; or the availability and appropriateness of SO₂ control technologies. EPA included fuel switching as an option for emissions control, with no consideration of the fact that this option is not available for coal refuse facilities. One technology suggested by EPA – dry sorbent injection (DSI) – is not effective to achieve the level of SO₂ reduction required, and would change the chemical makeup of the ash produced, rendering it unusable for remediation purposes and requiring landfill disposal at exorbitant cost. Further, testing showed that the use of DSI to meet the alternative hydrochloric acid (HCl) emission standard resulted in non-compliance with the MATS mercury standard. Coal refuse facilities that burn relatively high-sulfur waste coal would have to achieve an SO₂ capture rate higher than that achieved by even the newest coal refuse-fired

power plant. The end result is that there is no feasible economic way for most of the bituminous coal refuse-fired facilities to meet either of the current acid gas limits required by the current MATS rule.

The difficulty in meeting the MATS Rule acid gas standard SO₂ limit arises from the high sulfur content of most of the remaining bituminous coal refuse fuels. Abandoning the controlled combustion and reclamation of the most high-sulfur coal refuse piles would effectively relegate the surrounding communities to living with the uncontrolled air and water pollution from these sites in perpetuity.

The SENSE Act addresses this oversight in the regulation by establishing an additional alternative performance based acid gas compliance option for coal refuse facilities burning bituminous coal refuse which is based upon the removal and control of SO₂. Absent this provision, three bituminous coal refuse-fired facilities in Pennsylvania and one in West Virginia will be forced to permanently retire due to an inability to meet either of the current acid gas limits. Along with the closure of these plants would be the loss of the multi-media environmental benefits that these plants provide through combining the generation of energy with the removal of coal refuse piles and reclamation and restoration of land and water resources.

To ensure the continuation of the multi-media environmental benefits that the bituminous coal refuse-fired plants provide through the continued removal, remediation and reclamation of coal refuse piles, the SENSE Act legislation establishes an alternative, performance based standard to be provided for these units to demonstrate compliance with the MATS acid gas standard. Specifically, under the SENSE Act, the bituminous coal refuse-fired units would be able to demonstrate compliance with the MATS acid gas standard by demonstrating a 93% removal of potential sulfur dioxide emissions based on as-fired fuel sampling and continuous emissions monitoring systems measurements. This performance based limit is consistent with the concepts established by EPA's New Source Performance Standards (NSPS) for SO₂ emissions for new coal refuse plants by providing a similar limit for existing coal refuse units.

This alternative SO₂ limit would be demonstrated on the same boiler operating day basis as the other acid gas standards in MATS.

It has also been implied that the coal refuse fired electric generating units, including those burning bituminous coal refuse, are high emitters of mercury. In fact, they are among the lowest emitters in the United States. If one reviews the emission rates of the units used by EPA to set the MATS mercury standard, they will find that a disproportionately large number of the circulating fluidized bed electric generating units, including those using bituminous and anthracite coal refuse as fuel, were used to set the mercury standard contained in the MATS rule. Further, the remaining coal refuse-fired units that weren't used to set the MATS mercury standard emit mercury at such low levels that they all qualify under the MATS regulations as mercury low emitting electric generating units (Hg LLE). It is extremely important to tell the whole story rather than imply a circumstance by only providing a portion of the information.

Conclusion

The SENSE Act is a reasonable, targeted effort to address the errors that EPA has made in the CSAPR and MATS rules, and is a very important part of ensuring that bituminous coal refuse-fired facilities are able to continue their mission of reclaiming and recovering these mining affected lands and providing high quality, family sustaining jobs in the communities in which these facilities are located. Importantly, this is accomplished in a fashion that causes no regional increase in SO₂ emissions, preserves the monetized health benefits of the MATS rule and the CSAPR and does not allow any facility to have an emission increase that could cause or contribute to non-attainment of any national ambient air quality standard (NAAQS).

As part of my testimony, and for your records, I am providing to you certain white papers prepared by ARIPPA that more clearly describe the problems associated with coal refuse sites (**Annex A.**) and the

impacts of the finalized CSAPR (**Annex B.**) and MATS (**Annex C.**) rules on the coal refuse-fired industry. Also included is an analysis of the MATS mercury limit.

Thank you to Representative Rothfus for crafting the SENSE Act and thank you for the opportunity to testify today. ARIPPA urges you to support the SENSE Act and its passage this year.

Attachments:

ARIPPA Map with PA Plants, MGW & Tons Per Year 7-27-16
Annex A. ARIPPA Coal Refuse Whitepaper with Photos 10_05_15
Annex B. ARIPPA CSAPR Whitepaper 9_24_15 (with logo)
Annex C. ARIPPA MATS Whitepaper 9_24_15 (With Logo)
Mercury and Air Toxics Standard Mercury Limit Analysis 8_29_17
Mercury MACT Floor highlighted version 8_29_17