INSTITUTE OF CLEAN AIR COMPANIES

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Rep. Andy Harris, M.D.
Chairman
House Subcommittee on Energy and the Environment
2321 Rayburn House Office Building
Washington, DC 20515-6301

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Dear Chairman:

Thank you for inviting the Institute of Clean Air Companies (ICAC or the Institute) to testify at the October 13, 2011 hearing of the House Subcommittee on Energy and the Environment and present the air pollution control and measurement industry's perspective on coal pollutant control technologies, and industry's capacity to deliver and improve upon technologies used to meet various requirements. Also as requested, we are pleased to describe opportunities and challenges and role of research and development (R&D) on improving the utilization of coal.

ICAC appreciates the opportunity to present its perspective on what motivates the air pollution control and measurement industry (APC) to innovate and deploy commercial ready technologies that enable power generators and manufacturers to operate responsibly and ensure cleaner air to the populations they serve. To provide some perspective about our industry, we are a growing number of technology manufacturing and service companies that have a sustainable industry due to the demand for our technologies and services; and that demand comes from clean air regulations and policies. This industry has matured greatly in the more than half century ICAC has been its public representative, and we are proud of having met and often exceeded the regulatory control and measurement challenges of the industries we serve. It should come as no surprise that the APC industry is well prepared with suites of affordable technologies and an eager and experienced workforce to achieve the air quality improvements needed to deliver healthy air.

The science of air pollution control and measurement are well understood by our industry, and technologies are continuously refined through healthy competition – if the demand is there. The energy of our industry comes directly in response to the certainty of demand for these technologies and services, and without demand, innovation, competition and jobs are lost, adding to an unhealthy economy. This is evident in the documented rise and fall in employment in the boilermaker industry that particularly during the past decade has tracked remarkably well with the demand for control technology installations as a response to major air quality regulations (see attached slide). The APC industry designs, engineers and constructs projects that can use thousands of tons of steel, large quantities of concrete, and specialized equipment such as fans, pumps, motors, rotary mixers, filter bags and cages, and milling equipment, while employing skilled craft labor such as welders, steam fitters, and electrical workers. Because former utility and industrial plant personnel have valuable field experience, these workers often find themselves 'repurposed' in our industry in the work of retrofitting or operating the clean air

technologies on facilities in which they are familiar. Once constructed and operated, the control technologies often depend on supplying and preparing reagents and sorbents such as activated carbon, Trona, lime, limestone, urea and ammonia, as well as other consumables including catalysts and filter bags. Nearly all of the materials and equipment can be manufactured and supplied from the U.S. Manufacturing and installing this equipment creates upstream and downstream employment and economic benefits. For example, during a recent seven year period, the implementation of CAIR Phase 1 resulted in 200,000 jobs in the APC industry, with about 80 percent dedicated to construction and 20 percent for engineering and project management. The workforce from that effort is now highly motivated and eager to apply itself to upcoming clean air regulations.

Air pollution control and measurement (APC) technologies are available to meet upcoming regulations for hazardous and conventional air pollutants emitted by firing coal. To the extent refinements and improvements will be needed, R&D is always helpful; however, a highly motivated and competitive industry generally achieves similar or better innovations and enhancements to their technology offerings. Regulatory requirements are the primary motivation for these technology developments, improvements, and commercial offerings; creating a demand for not just one but many different technologies offered by many technology vendors. As a result, technology offerings like the facilities they are applied to are not monolithic; there is no one size fit all. The biggest challenges we face in the control and measurement of hazardous and criteria pollutants is when any emission limit approaches zero and there is little room for control or measurement error, or for designs that can provide a margin for performance guarantees. However, we are confident that these issues can be addressed with the framework used to develop regulations, and do not require any priority for R&D funding. Therefore as an industry largely made up of engineers, we innovate and build the equipment that serve our clients in the marketplace; in a market fostered by clean air regulations and policies.

R&D is best used judiciously to develop and test technologies where none already exist, and this is clearly not needed to effectively address the air pollutant emissions of conventional pollutants such as the criteria and hazardous pollutants in the electric power sector. History has proven that where markets do not already exist, such was the case for mercury measurement and control in the electric power sector almost a decade in the past, that a well managed R&D program minimizes large uncertainties and builds confidence in new technologies, but the movement to commercial ready technologies offered by multiple vendors relies greatly upon regulations and policies. In the case of mercury control and measurement, in the absence of commercially ready mercury-specific technologies, R&D helped identify the challenges and provide confidence in previously untested technologies. As a result, commercial offerings preceded and even anticipated national regulations although real sustainable markets resulted from federal and state requirements that fed the innovation and competitiveness of our industry. Today, mercury control is widely considered to be one of the easier pollutants to control and measure, and the electric power sector has a broad range of technologies to choose from, and a broad range of vendors competing for their business. Because of state mercury control programs, that operate in the void created by the Court's remand of the federal program (CAMR), the U.S. arguably now has the most accomplished workforce of skilled technology vendors that can meet U.S. demands and spread its innovations across the globe.

Because of the diversity of control and measurement technologies, and the offerings by multiple vendors in a mature industry, there are many choices available to sources affected by regulations. Looking at our industry now it is easy to see that the broad needs and demands of the market have created an equally broad range of technology choices that can fit into the planning of the electric power sector. For example, some of the largest SO2 scrubbers may have a large capital cost, but also allow sources to take advantage of cost savings of using higher sulfur coal that is often much less expensive. It is possible that for some facilities the cost savings realized from less expensive coal may cover most if not all of the cost of the control technology. Alternatively, lower capital cost technology options allow a facility to minimize capital costs, incurring primarily operation and maintenance costs for only as long as the facility plans to remain viable in the energy market. Therefore the facility can reduce stranding large amounts of capital in a facility that otherwise may be slated for retirement. In general, less resource and time-intensive technologies are available to be quickly deployed and offers the power generation industry the needed flexibility it may need to comply with upcoming clean air regulations. For example direct sorbent injection (DSI), circulating and dry scrubbers are technology options with costs and install times less than with the larger Wet FGD systems that already serve as the backbone of SO2 removal of the previously retrofitted fleet. Today, nearly two-thirds of the coal-fired electric power fleet is being controlled, leaving approximately one-third of the fleet substantially uncontrolled. Decisions to control much of the power fleet generally installed controls on units that were most cost-effective to control. And retirement is inevitable, despite the best engineering, boilers and equipment have a defined and useful life, and that life means fitting into a modern healthier world. Plant retirements are inevitable, even in the absence of regulations.

As an industry built on innovations, we seek new challenges and opportunities, particularly those that serve both public health and industrial progress. And there are certainly challenges for all fossil fuels, particularly coal, which will benefit from well spent R&D dollars. Chief among these challenges is carbon capture as part of a CO2 control strategy. Here the challenge, and the opportunity, is to enable coal to be a more sustainable fuel choice whereby all emissions are well controlled. If we regard post-combustion CO2 capture (carbon capture) as a scaled up flue gas scrubbing technology, we should look historically at how the flue gas desulfurization (FGD) technology market was developed, has grown, innovated, and diversified to the extent that high sulfur, previously regarded ‘dirty’ coals can now be a sustainable part of fuel choice diversity offering a source of well scrubbed, affordable, and much more energy efficient option. Similarly, carbon capture has large initial hurdles and risks to overcome in preparation for commercial readiness, but the rewards are great. Once these technologies have been adequately vetted, the next step is not technical but rather one of ensuring appropriate policies and regulations are in place to promote more innovation in the marketplace. We are aware of no energy ‘map’ that does not include fossil fuels, particularly coal, as being essential to a load following, demand responsive, reliable energy strategy. If these maps are accurate, the challenges to deliver clean energy from fossil fuels will only increase, requiring our industry to – innovate – with a reasonable expectation of some payback through demand for these products.

Faced with clean air regulations, now reinforced by judicial decisions, we are hearing the doom and gloom “what if” scenarios of technology availability, energy reliability, and our industry’s ability to meet demand for installations. However, as these issues have all been raised

in the past, history shows these predictions be unfounded then, and again will prove to be unfounded. As I remarked earlier, our industry understands the science of air pollution control and measurement, we have a history of successes in meeting the demands of customers for technology options and timely installations, we work well with customers to utilize the compliance flexibility the U.S. Environmental Protection Agency continues to offer in regulations, and we are confident that effective checks and balances are in place to ensure energy reliability.

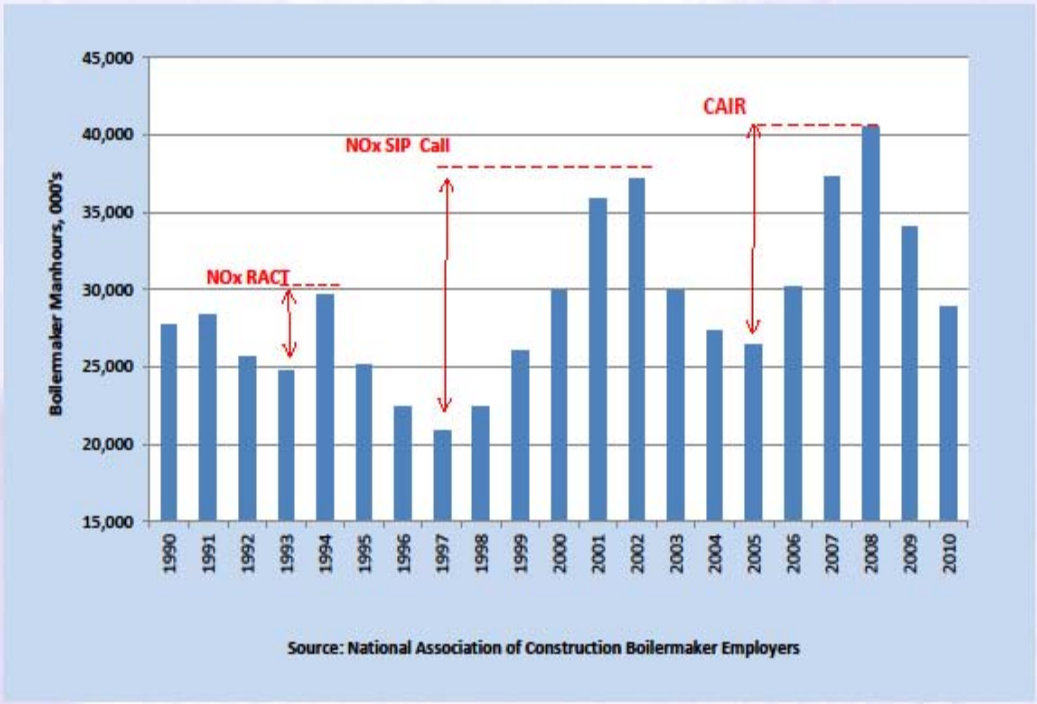
In our industry, it is clear that regulations designed to improve air quality for public health, is the primary driver for much of the technology development and innovations. For example, as the understanding of particulate emissions and regulations to control these emissions have evolved, so to have the science and availability of particulate control and measurement technologies. In this example, we have successfully moved from controlling total or coarse particulates to technologies that now address coarse, fine and even condensable forms of particulates. The robust benefit-cost analysis prepared by the U.S. Environmental Protection Agency continues to show that for every dollar spent on clean air technologies, there are consistently high benefits, on the order of $4 to $20, to direct public health, including prevention of premature mortality. From our industry's perspective, it is comforting to know that the work we do creates jobs and saves lives.

The biggest R&D challenge we see, having effectively addressed hazardous and criteria air pollutants, will be innovating commercial-ready technologies for CO2 capture and reductions. In looking into the future and mapping how fossil fuels can be a sustainable energy resource, innovation needs to come from the private and public sectors, and ideally both to ensure that the skills and tools will be ready when they are needed once again. In regards to hazardous and criteria pollutants, we have all the skills and tools needed, so it is the right time to let our industry get to work.

Sincerely,

David C. Foerter, ICAC Executive Director

Labor Responds to Clean Air Initiatives



Source: National Association of Construction Boilermaker Employers

Andover Technology Partners

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