

Statement of Paul Kempf, Director of Utilities, University Of Notre Dame

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Chairman Whitfield, Ranking Member Rush, Members of the Committee, Good Morning and thank you for inviting me to testify before the committee today. My name is Paul Kempf and I am the Director of Utilities at the University of Notre Dame in Indiana.

The University of Notre Dame, a national Catholic university, was founded in 1842 by a priest of the Congregation of the Holy Cross. The campus is located in northern Indiana approximately 90 miles east of Chicago Illinois. With 1,250 acres containing two lakes and over 140 buildings with a replacement value in excess of \$2.8 billion, Notre Dame is well known for the quality of its physical plant and beauty of its campus. Student enrollment for the 2008-09 academic year was 11,731 students overall and 8,363 undergraduates, representing every region of the United States and many foreign nations.

Notre Dame became the first university in the United States to generate electricity – reportedly up to 10 kilowatts powered eight lights in the Main Building – shortly after Edison made incandescent light practical for use outside the laboratory. In keeping with that historic tradition, the University takes seriously its leadership role in demonstrating stewardship, sustainability and social justice and therefore seeks to lead by example in all areas including energy and the environment. We are proud of the efforts of the campus group "Students for Environmental Action" and of the accomplishments through our Office of Sustainability, which has led these and other energy and environmentally protective approaches:

- Food Services recycles its cooking oil, supports sustainable seafood and coffee production, and purchases 25 percent of its foods locally.
- Reuse programs have kept hundreds of tons of discarded student items and office equipment out of landfills and raised tens of thousands of dollars for local charities.
- Annually we celebrate Energy Week, a student-driven series of films, activities and presentations co-sponsored by Student Government, the Notre Dame Energy Center, the administration's Energy & Environmental Issues Committee and other groups. For one project, students and faculty directly measured the benefit of conserving energy through a "lights out" across campus, demonstrating how just one hour of conserving energy could translate into a savings of \$250,000 from the University's annual electricity bill.
- Since 2008 the University has been engaged in an energy conservation measures program, investing over \$10M that is projected to reduce campus energy use by over 10%.

The University seeks to strike the appropriate balance of all issues in an effort to achieve the maximum benefit we hope to lead by example for our students who will go forth and become our future leaders.

I appreciate the opportunity to tell the committee about the difficulties that face Notre Dame and many other universities across the nation if the full range of regulations currently pending at EPA are implemented as expected. We are concerned about the cumulative impact of all the rules, which will force a virtual deadlock in our long term planning for our facilities because potential costs could increase exponentially, depending on the various policy decisions made by EPA in the final rules. We at Notre Dame are most immediately concerned about the suite of four rules known as the Boiler MACT rules.<sup>1</sup> The four rules will regulate a range of air

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<sup>1</sup> National Emission Standards for Hazardous Air Pollutants for New and Existing Sources for Major Source Industrial, Commercial, and Institutional Boilers and Process Heaters, 76 Fed. Reg. 15608 (Mar. 21, 2011); National Emission Standards for Hazardous Air Pollutants for New and Existing Sources for Area Source Industrial, Commercial, and Institutional Boilers, 76 Fed. Reg. 15554 (Mar. 21, 2011); Standards of Performance for New Stationary Sources and Emission Guidelines for Existing Sources: Commercial and Industrial Solid Waste

pollutant emissions from large industrial and institutional boilers, smaller area sources and solid waste incineration units. In addition, the rules limit what types of materials can be combusted for their energy value in boilers.

These rules will significantly impact many universities, including Notre Dame, which, in an effort to ensure a reliable and affordable source of energy for their campuses, installed their own utility plants, many powered by boilers, and most of which use coal as the primary fuel. These plants have proven to be an efficient, cost effective, and environmentally sound source of energy for universities. EPA's final rules, however, impose unrealistic and very costly requirements that EPA has not justified by corresponding environmental and health protection from reductions of hazardous air pollutants. EPA's Boiler MACT rule will require significant changes, most of which are not achievable, affordable, or realistic in the timeframe set out by EPA.

EPA's definition of a large unit as having heat input capacity greater than 10 MMBtu per hour is also inappropriate and encompasses most university units, including Notre Dame's, without concern for the huge capital expenditures associated with performance testing, fuel sampling and analyses, and add-on air pollution controls. Improving the environment at reasonable cost - benefit rates is certainly in all our best interests, but changes in the recent rules will require significant additional capital and operational expenditures, assuming compliance is even possible. Compliance testing costs alone will likely increase near twenty-fold from our past expense based on increased levels of testing and testing frequency.

We applauded EPA's request to the DC District Court to be given more time to write the Boiler MACT rules, however the request was ultimately rejected by the Court. Now that EPA has announced that it will reconsider the rules, we urge EPA to address what we consider to be fundamental problems with the rules. We support an extended period of time for EPA to propose and adopt sensible amendments of its rules. We hope that Members of Congress would urge the Agency to move in that direction. Once EPA develops rules that reflect corresponding

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Incineration Units, 76 Fed. Reg. 15704 (Mar. 21, 2011); Identification of Non-Hazardous Secondary Materials That Are Solid Waste (76 Fed. Reg. 15456 (Mar. 21, 2011)).

hazardous air pollution benefits, without crippling educational institutions and industry, it will be crucial that sources have enough time to plan for the changes and come into compliance.

Universities, although not alone in their difficulties in navigating an increasingly shifting regulatory landscape, face unique challenges in adapting to new rules. First, most universities plan over a range of a decade, at a minimum. It is nearly impossible to account for all of the possibilities in planning at this range when EPA is able to change rules outside of the statutory planning and regulatory cycles established by Congress. Second, universities are unable to make the types of changes that are options for businesses impacted by these rules. We cannot consolidate with other universities, move to a different state, or expand production overseas. And raising prices for our "customers" would be a tuition hike, imposed on our students and families already stretched by the nation's current struggling economy.

At Notre Dame, our facilities have operated as a combined heat and power (CHP) system since 1953, being one of the first adopters of this highly efficient and environmentally conscious means of producing energy. Our system provides energy to over 9 million square feet of academic buildings, residence halls, research facilities and public assembly spaces. Using steam-driven turbine generators, the University's system also produces nearly 55% of the campus's electrical demand.

Our CHP system is critical to campus operations, as its optimum performance ensures reliable heating, cooling and power supply to the various laboratories, teaching facilities, and public assembly spaces. In addition to ensuring research and teaching functions continue despite possible grid failure, the University's ability to supply reliable power directly impacts the safety and smooth functioning of daily campus activities of faculty and students.

The inherent design of the University's CHP system results in overall increased efficiency of the integrated energy process as compared with other widely-used heating, cooling and power systems. Stand-alone electricity generation systems have a typical efficiency of 30%. CHP facilities result in typical efficiencies upwards of 60%. Additionally, the improved energy efficiency of the CHP system minimizes environmental impacts, including reduced emissions of

air pollutants. It warrants noting that this inherent benefit of CHP does not provide any regulatory consideration as typically rules are based on heat input and give no credit to higher efficiency means of energy production. CHP systems are the most energy efficient, environmentally responsible, fiscally responsible and reliable means of meeting heating, cooling, and power needs for campus applications.

Our CHP system currently includes six boilers of various age and type; each unit has a maximum heat input capacity greater than ten million British thermal units per hour (MMBtu/hr). The boilers are fired using coal, fuel oil and pipeline natural gas. This energy strategy allows valuable capital resources to be invested in our students and faculty, while keeping higher education as affordable as possible, and still providing fuel diversity which offers a hedge against volatility, shortages and other market factors.

Subsequent to the original promulgation of Boiler MACT in 2004, the University set about to add controls to its solid fuel boilers to achieve the regulation. Having been granted a one year compliance extension for adding controls, we targeted September 2008 for our project completion. In 2007, just months before the compliance date for the rule, and as foundations were being placed and equipment was shipping to campus, the former Boiler MACT rule was vacated by the DC Court of Appeals. The University was left to decide whether to proceed with its nearly \$20M investment in pollution control equipment or to halt the project. Considering how far along the project was, we decided to continue, complete the project, achieve emissions reductions and await the resulting reissuance of the rule. Having purchased systems guaranteed to achieve the compliance limits of the original Boiler MACT, we were left to wait and see how EPA would revise the Boiler MACT and whether our newly installed systems would be sufficient to comply with the revised standards.

Whether, after large expenditures, we will be able to comply is a significant concern shared by all regulated sources. As technology improves, and major pollutant emission reductions have already been accomplished, regulatory standards are being set at increasingly tighter levels. EPA sets its standards, presumably, at limits based on data that demonstrates the maximum efficiency of control equipment. While this works in theory, actual plant conditions

are highly variable, and sources must count on a certain compliance margin between the theoretically achievable limit and the limit that accounts for real life operations at a plant. When EPA removes this compliance margin through unreasonably tight standards based on data that represents only a snapshot in time of emissions, it leaves plants vulnerable to sanctions for failing to meet the standards, despite having installed the most expensive, best available, EPA-recommended control technology.

Now nearly four years later, we are faced with a revised rule that is patently different from the original rule and one that presents uncertain compliance capabilities for our investment. With new limits significantly lower than previously proposed and regulation of more constituent pollutants, we are grappling with what to do next. Having installed baghouses, lime and powdered activated carbon injection systems on our solid fuel fired boiler, we have applied some of the best technology currently available and can only hope that we can find a means of complying.

It is interesting to look back at EPA's cost estimate for compliance with the 2004 rule in light of our actual compliance costs. EPA had estimated that the 2004 proposed rule would impose an overall capital cost on coal-fired sources of \$1.6 billion, or an average per-unit cost of \$0.5 million. Notre Dame spent \$20 million to comply with that rule for its three solid fuel fired boilers. Now, for the recently finalized Boiler MACT, EPA projects overall capital costs for solid-fired units to be \$2.2 billion, or an average per unit cost of \$2.2 million. Given EPA's consistent undervaluation of the cost to upgrade facilities to meet its standards, we must plan for compliance costs that greatly exceed EPA's projected costs.

It is even more interesting to consider the value of \$20 million in a university setting. For \$20 million, we could provide a full year of tuition for 500 students, or provide 125 students a full, four year scholarship. Major expenditures for regulatory compliance come at a direct cost of other highly valuable services to our students. There should be no guessing about whether those major expenditures will ensure regulatory compliance and in this context, correspondingly beneficial hazardous air pollutant reductions.

While Notre Dame is a private university, many public universities are bound by their state's legislature to burn coal from their home state as a way of guaranteeing local economic benefit. EPA acknowledges that solid fuels, especially coal, are very heterogeneous and vary in composition by location. Even though EPA acknowledges this variability, there is insufficient flexibility in the proposed rule to account for variability. When some universities are bound by state law to use a specific type of coal, it can be extremely costly to bring their plant into compliance, as they are not allowed to switch to another fuel with different characteristics. This is challenging even for Notre Dame, which is not bound by state law to use Indiana coal; suppliers typically are unable to guarantee that coal content will remain consistent for vast reserves yet to be mined. Additionally, it is possible that affected sources may encounter logistic and economic obstacles in procuring fuel with parameters required for compliance with the proposed Boiler MACT.

I have focused largely on impacts of the Boiler MACT rules because they will have the most immediate and largest impact on our ability to provide reliable, affordable, and efficient energy to our students and faculty. Other rules, however, will also significantly increase our costs or fundamentally change the way that we have responsibly powered our campus for decades. Perhaps one of the most pressing other issues under consideration at the EPA is the regulation of coal combustion residuals as hazardous waste. Should this valuable coal by product, which we can efficiently reuse, be deemed hazardous waste, the disposal of that alone would have an exponential increase on our costs. Currently 50% of our coal ash is reused to produce sandblasting material and 50% is used by a local landfill for infill and cover material, which they use in lieu of topsoil. If coal ash is regulated as a hazardous waste, not only will a program which currently recycles 100% of the coal ash be discontinued, but those regulations would impose new, exorbitant disposal costs for with no additional environmental benefit. We are also greatly troubled by EPA's new SO<sub>2</sub> national ambient air quality standards (NAAQS), and the upcoming Ozone NAAQS. These standards, if written and implemented with the same indifference toward certainty of compliance and cost impact, will most surely be another fiscal nightmare for university administrators.

Considering the cumulative effect of all of EPA's pending rules, which will go into effect at approximately the same time, it is difficult to appreciate just how much it will cost Notre Dame to come into compliance. As we are not publicly funded, these added costs of compliance are borne directly by our students and their families. We are committed to continuing our tradition of offering an excellent education as economically as possible to our students, yet with these rules on the horizon, maintaining that tradition is more challenging than ever before.

Mr. Chairman, I thank you for this opportunity to testify before the committee, and I welcome any questions you or other committee members may have.