Department of Environmental Protection Testimony on HB 1699 Regulation of Certain Reciprocal Internal Combustion Engines

Given By Vincent J. Brisini
Deputy Secretary
Waste, Air, Radiation and Remediation

Introduction

Good morning, my name is Vincent J. Brisini. I am the Deputy Secretary for Waste, Air, Radiation and Remediation at the Department for Environmental Protection. I am here today to speak in support of HB 1699, which with amendments would provide for the appropriate regulation of certain reciprocal internal combustion engines.

Background and Context

High Energy Demand Day Generation Units

On hot summer days, higher demand for electricity due to air conditioning and other equipment operated to address heat-related issues results in increased ground-level ozone-forming air pollution. This is because additional fossil-fuel fired electric generating units are called into service to supply the increased demand. In order to compensate for these additional electric demands, regional transmission organizations, like PJM, that coordinate the movement of wholesale electricity look to demand response resources to reduce demand on the system. In some cases, the demand response resources include small electric generation units that were originally installed to protect facilities from power outages or for special purposes such as "black start" operations.[1] . Often, these small electric generation units are among the oldest and most polluting of all types of electricity generation.

[1] "Black start" units are used to restart other units that are on the grid because the black start units do not rely on the electricity transmission system to start themselves.

These demand response generating resources typically only operate on the hottest days, when ozone formation is at its highest and when electricity demand and prices are at their peaks. Currently, it is not known where these demand response generation units are operating, but they could be operating primarily in more urbanized areas with high population densities where demand for electricity to run air conditioning and other cooling processes can temporarily exceed electric grid capacity and cause grid instability. Demand response resources are not typically called into service on days when electric demand is normal and grid capacity and stability are not challenged.

Although demand response generation units operate relatively infrequently and are significantly smaller than base load units, demand response generation units have a large Nitrogen Oxide (NOx) emissions impact when operated in great numbers at the same time, especially when compared to the emissions of newer, more efficient and cleaner burning units.

Regulation of These Units Is Necessary

Overall, the Department's air quality programs have had great success in improving air quality to meet the health-based National Ambient Air Quality Standards (NAAQS). Data show significant progress in reducing the extent, magnitude and frequency of elevated ozone concentrations in Pennsylvania. The significant improvement is due, in part, to a variety of regulatory and non-regulatory emission reduction measures and strategies developed in collaboration with technical advisory committees, the regulated community and citizens of the Commonwealth. However, these gains may be muted if the use of demand response generation units increases significantly and deviates from their original purpose of grid stability and reliability.

DRAFT

The combination of increased NOx emissions and ground-level ozone-forming weather can result in a significant increase in ground-level ozone levels measured over eight hours. The authors of the paper entitled "The Costs, Air Quality, and Human Health Effects of Meeting Peak Electricity Demand with Installed Backup Generators," Elisabeth A. Gilmore, Lester B. Lave, and Peter J. Adams, used air quality modeling to show that there was significant contribution to nonattainment and interference with maintenance of the ozone NAAQS from these generators.[2] Emissions of NOx are also precursors to the formation of fine particulates. Therefore, emissions from uncontrolled older demand response generation units operated beyond their limited role of ensuring grid reliability and security may be a significant impediment to attaining and maintaining the ozone and fine particulate NAAQS in this Commonwealth and in downwind states.

Ozone Pollution

NOx emissions are a precursor to ground-level ozone formation, which is formed by a photochemical reaction between NOx and volatile organic compounds in the presence of sunlight. When ground-level ozone is present in concentrations in excess of the Federal health-based 8-hour NAAQS for ozone, public health and welfare are adversely affected. Ozone exposure correlates to increased incidences of respiratory disease and higher mortality rates. Ozone can inflame and damage the lining of the lungs. Within a few days, the damaged cells are shed and replaced. Over a long time period, lung tissue may become permanently scarred, resulting in permanent loss of lung function and a lower quality of life. When ambient ozone levels are high, more people with asthma have attacks that require a doctor's attention or use of

[2] Environ Sci Technol. 2006 Nov 15;40 (22):6887-93.

DRAFT

medication. Ozone also makes people more sensitive to allergens including pet dander, pollen and dust mites, all of which can trigger asthma attacks.

The U.S. Environmental Protection Agency (EPA) concluded that there is an association between high levels of ambient ozone and increased hospital admissions for respiratory ailments including asthma. While children, the elderly and those with respiratory problems are most at risk, even healthy individuals may experience increased respiratory ailments and other symptoms when they are exposed to high levels of ambient ozone while engaged in activities that involve physical exertion. High levels of ozone also affect animals in ways similar to humans.

In addition to causing adverse human and animal health effects, the EPA concluded that ozone affects vegetation and ecosystems, leading to reductions in agricultural crop and commercial forest yields by destroying chlorophyll; reduced growth and survivability of tree seedlings; and increased plant susceptibility to disease, pests and other environmental stresses, including harsh weather. In long-lived species, these effects may become evident only after several years or even decades and have the potential for long-term adverse impacts on forest ecosystems. The economic value of some welfare losses due to ozone can be calculated, such as crop yield loss from both reduced seed production and visible injury to some leaf crops, including lettuce, spinach and tobacco, as well as visible injury to ornamental plants, including grass, flowers and shrubs. Other types of welfare loss may not be quantifiable, such as the reduced aesthetic value of trees growing in heavily visited parks. High levels of ground-level ozone can also cause damage to buildings and synthetic fibers, including nylon, and reduced visibility on roadways and in natural areas.

DRAFT

In July 1997, the EPA promulgated primary and secondary ozone standards at a level of 0.08 part per million (ppm) averaged over 8 hours. *See* 62 FR 38855 (July 18, 1997). In 2004, the EPA designated 37 counties in Pennsylvania as 8-hour ozone nonattainment areas for the 1997 8-hour ozone NAAQS. Based on preliminary data for the 2013 ozone season, all monitored areas of the state are attaining the 1997 8-hour ozone NAAQS. The Department must ensure that the 1997 ozone standard is attained and maintained by implementing permanent and enforceable control measures to ensure violations of the standard do not occur for the next decade.

In March 2008, the EPA lowered the standard to 0.075 ppm averaged over 8 hours to provide even greater protection for children, other at-risk populations and the environment against the array of ozone-induced adverse health and welfare effects. See 73 FR 16436 (March 27, 2008). In April 2012, the EPA designated five areas in Pennsylvania as nonattainment for the 2008 ozone NAAQS. *See* 77 FR 30088, 30143 (May 21, 2012). These areas include all or a portion of the following counties: Allegheny, Armstrong, Berks, Beaver, Bucks, Butler, Carbon, Chester, Delaware, Fayette, Lancaster, Lehigh, Montgomery, Northampton, Philadelphia, Washington and Westmoreland. The Commonwealth must ensure that these areas attain the 2008 ozone standard by 2015 and that they continue to maintain the standard thereafter. Furthermore, the five monitor areas that EPA considered "unclassifiable/attainment" when it designated nonattainment areas in April 2012 violated the 2008 standard in 2012. The Commonwealth must also ensure that these "unclassifiable/attainment" areas attain and maintain the standard to avoid having them designated as nonattainment areas. Implementing control measures for reducing the emissions of NOx, such as those in HB 1699, is a strategy that the Commonwealth can use to attain and maintain the ozone standard in all of these areas.

DRAFT

Fine Particulate Pollution

In addition to reducing ozone concentrations, a secondary benefit of using lower emitting demand response generation units would result in lower emissions of fine particulate less than or equal to 2.5 micrometers in diameter (PM2.5) and their precursors. The existence of PM2.5 in the atmosphere not only contributes to the formation of regional haze, but also has significant adverse health and welfare effects. Epidemiological studies have shown a significant correlation between elevated PM2.5 levels and premature mortality. Other important health effects associated with PM2.5 exposure include aggravation of respiratory and cardiovascular disease (as indicated by increased hospital admissions, emergency room visits, absences from school or work and restricted activity days), lung disease, decreased lung function, asthma attacks and certain cardiovascular problems. Individuals particularly sensitive to PM2.5 exposure include older adults, people with heart and lung disease and children. Aside from human health impacts, the welfare effects include visibility impairment, soiling and materials damage.

The EPA revised the PM NAAQS to add a new standard for fine particles, using PM2.5 as the indicator, at 62 FR 38652 (July 18, 1997). The EPA set the health-based (primary) and welfare-based (secondary) PM2.5 annual standard at a level of 15 micrograms per cubic meter ($\mu g/m^3$) and the 24-hour standard at a level of 65 $\mu g/m^3$. The EPA lowered the primary and secondary 24-hour NAAQS for PM2.5 to 35 $\mu g/m^3$ from 65 $\mu g/m^3$ at 71 FR 61236 (October 17, 2006). The following counties or portions thereof have been designated by the EPA as nonattainment for the 2006 fine particulate matter 24-hour NAAQS: Allegheny (partial), Armstrong (partial), Beaver, Bucks, Butler, Cambria, Chester, Cumberland, Dauphin, Delaware, Greene (partial), Indiana (partial), Lancaster, Lawrence (partial), Lebanon, Lehigh, Montgomery,

DRAFT

Northampton, Philadelphia, Pittsburgh/Liberty-Clairton (partial), Washington, Westmoreland and York. *See* 74 FR 58688, 58758 (November 13, 2009).

The Need for Transparency

Due to the number of sites, diversity of demand response resource configurations, evolving market rules, and confidentiality concerns of market participants, an inventory of diesel generators enrolled in demand response programs is not readily accessible to the Department. An inventory of the resources that are enrolled in or operate under demand response programs, including characteristics such as generator size, installation year, fuel type, emissions rates or controls, and run time is needed. Without this information, the Department cannot reasonably assess the air quality impacts of these resources' participation in demand response programs. Older diesel generators, installed prior to national engine emission standards, could have emission rates of approximately 21.8 lbs. of NOx per megawatt – hour as compared to 2 lbs. of NOx per megawatt – hour emitted by an uncontrolled simple cycle gas turbine.

Reducing emissions from small diesel generators used in demand response programs is complicated as these sources are widely distributed and difficult to identify. Because the sources are relatively small and originally dedicated for backup emergency generation only, they have not always needed to obtain operating permits. In addition, the frequency and duration of deployment periods for these types of generators when used as demand response resources are difficult to estimate because their activity levels have not historically been reported. Additionally, the amount of pollution emitted as well as the location of where that pollution is emitted is critical information.

DRAFT

The demand side participation in the capacity market was approximately 2 GW in the 2007/2008 energy year, and has increased to approximately 15 GW in the 2015/2016 energy year.[3] With the financial incentives now available to these resources, their use will increase as evidenced by capacity market results.[4] Therefore, the Department will not have complete knowledge about their locations and activity levels when used in demand response programs, making it difficult to assess the extent of their emissions impact on peak demand days and apply emissions restrictions where necessary. Given the substantial differences in emissions between these backup diesel generators and other generators, there is the potential that the emissions and health impacts could be significant.

House Bill 1699 Will Address the Environmental Impacts from Demand Response Units

The Department Believes the Bill with Amendments Moves the Commonwealth in the Right Direction

HB 1699, with amendments, would address the environmental impacts from demand response generation units. As noted in the Background and Context Section of my testimony, demand response may involve actual reductions in electricity consumption (curtailment), but it can also involve the use of on-site backup generators in place of grid-delivered power. These engines are generally diesel-fired. The Department is concerned that demand response programs, by allowing the use of uncontrolled backup diesel generators, may aggravate air

[3] "2016/2017 RPM Base Residual Auction Results", PJM DOCS #753726, May 24, 2013, Available at http://www.pjm.com/~/media/markets-ops/rpm/rpm-auction-info/2016-2017-base-residual-auction-report.ashx. Accessed November 13, 2013.

[4] "Air Quality, Electricity, and Back-up Stationary Diesel Engines in the Northeast" Prepared by Northeast States for Coordinated Air Use Management (NESCAUM), August 1, 2012
Updated September 10, 2013. Available at http://www.nescaum.org/activities/major-reports.

pollution problems. The electricity markets deploy all eligible supply- and demand-side resources without consideration of respective environmental performance. In particular, concerns have been raised that demand response programs provide financial incentives for the use of uncontrolled backup generators on the hottest summer days, creating a spike in air emissions, including NOx, when conditions would be most conducive to the formation of ground-level ozone. Because emergency diesel generators are often located in densely populated areas near ground-level, their increased use for electricity generation will also increase the public's exposure to their harmful emissions.

HB 1699 as proposed does several things to address these concerns. HB 1699 proposes emission standards and other requirements for all non-emergency generators, including engines participating in a Demand Response Program. The owners and operators of these engines will be required to submit information to the Department, and every five years thereafter, and immediately upon a change in the requisite information. The Department would be required to forward the registration data to the Pennsylvania Public Utility Commission (PUC). The bill includes emission standards for new and existing engines and reporting and recordkeeping requirements. The bill addresses penalties for violations of the standards, and the disposition of fees, fines, and penalties levied or collected under the act. The bill would require the Department to publish a technical guidance document detailing measurement, compliance verification options, and compliance certification procedures. The owner and operator of each engine would be assessed a registration fee.

The Department believes that the proposal as written is a good start in identifying these engines to control their emissions. The increasing attractiveness of using backup diesel engines in demand response programs has the potential to undermine successful efforts to date in

DRAFT

reducing air pollution and impede the Commonwealth from achieving increasingly more health-protective air quality standards in the future. The bill would also address the need for an inventory of the engines that are enrolled in or operated under a PJM demand response program. The Department needs information like generator size, installation year, fuel type, emissions rates or controls, and run time so that our air quality planners can reasonably assess the air quality impacts of these engines. These units' participation in the PJM market may be one factor, among other changing market signals, discouraging the development of new generating facilities with advanced pollution control systems. They may also discourage cleaner demand reduction measures that could meet the region's resource needs while reducing air pollution emissions. The Department is concerned with the lack of transparency regarding the operation of these engines. The operational data of these engines are treated as confidential business information by PJM.

Typically, these diesel fired engines emit approximately 21.8 lbs. of NOx per megawatt – hour as compared to 2 lbs. of NOx per megawatt – hour emitted by an uncontrolled simple cycle gas turbine. Again, it is important to note that these engines typically operate during peak ozone days (high-energy demand days).

Under Section 4 of the Air Pollution Control Act the Department has the authority to issue orders to have access to information regarding air contamination sources like demand response generation units. The Department also has the ability under Section 13.2 of the act to keep this type of information confidential. However, since demand response generation units are unpermitted and spread widely throughout the state, using this statutory authority is impractical. While the Department has requested this type of information from PJM, they are reluctant to provide it given that the owners and operators of these units have requested confidentiality from

DRAFT

PJM. Consequently, HB 1699 provides a mechanism that would assist the Department in gaining access to this information for air quality planning purposes.

The Bill Should Be Amended as Follows

As noted earlier, the Department believes the HB 1699 as currently proposed is a good start in addressing the air quality issues surrounding demand response generation units. However, the Department offers the committee some of the more important recommended changes to the proposal in order to make it more effective.

Section 1. Definitions.

The definitions in the original bill make it clear that an emergency generator cannot be a participant in a demand response program. As such, the Department recommends amending the bill to remove the definitions for "Emergency", "Emergency generator", "Nonemergency generator", and "Stationary generator", changing the definition of "Demand Response Generating Resource", and adding the definition of "Generator". Also, if the amendments in Section 5 are adopted, the definition of "Federal Energy Regulatory Commission" or "FERC" may also be removed.

In keeping with this proposed amendment, any reference to a "nonemergency generator" or to "nonemergency generators" should be replaced with a "demand response generating resource" or "demand response generating resources", respectively.

Section 2. Registration of nonemergency generators.

This section details the registration program, the compliance certification process, and fees. Several responsibilities are assigned to the Department, including creating the registration

form within 90 days of passage of the bill, creating a technical guidance document within 120 days of passage of the bill, creating a compliance certification form no later than the beginning of energy year 2016, and creating and maintaining a database for all registered engines. The original fee structure is $40 per nonemergency generator.

Because of the scope of the Department's duties and the complexity of the subject matter, 120 days is inadequate for the development of the technical guidance document. The Department recommends 180 days to develop the technical guidance document. The Department believes that the current wording in Section 2(a)(4) may cause confusion as written. The standby power rating refers to the generator output (i.e., electrical output) and the engine powering the generator has a rated power output of which horsepower is a type of unit used to describe this rated power. In order to be more concise, and to keep the units used in outlining the law consistent, the Department recommends rewording this subsection.

Section 3. Reporting and recordkeeping requirements for nonemergency generators.

The requirement for the Department to receive the annual reports from owners or operators of demand response generating resources will necessitate the creation of a database to manage and maintain the information submitted. Also, the Department recommends amending this section to tailor the data submitted by the operator and kept in the recordkeeping requirements to be consistent with the proposed changes in Sections 1 and 2. Specifically, the Department recommends adding a clause akin to that in Section 2 that gives flexibility to the Department to request additional information that the Department deems necessary.

DRAFT

Section 4. Emissions standards for nonemergency generators.

HB 1699 establishes emissions standards for the nonemergency generators beginning in energy year 2016. The Department recommends that compliance for new engines should be effective upon installation. However, the proposed year of 2016 may be too early for existing engines to comply with these standards as some of the existing engines may be required to install pollution controls. Federal regulations typically require existing sources to comply within three years. Therefore, the Department recommends the compliance year for existing sources be amended to 2017. A compliance date of 2017 is also appropriate because it is consistent with a three-year timeframe that is typically provided for sources to come into compliance with state implementation plan requirements. Moreover, other industrial sources will have until 2017 to come into compliance with additional reasonably available control technology requirements. As a result, a 2017 deadline for demand response units allows sufficient time for compliance and is on par with what other industrial sources are required to meet.

The Department has identified several issues in the current version of the bill that we recommend be addressed to improve the legislation's effectiveness. As there are no Tier 3 emission standards applicable to new engines (engines of model year 2014 or later), we recommend eliminating references to Tier 3 in this section. Also, the language in HB 1699 bill appears to suggest Tier 3 or Tier 4 standards are applicable to spark ignition engines, which they are not. Therefore, the Department recommends removing reference to the Tier standards when addressing spark ignition engines. The breakpoint of the rated power for existing engines in the current bill shows engines between 37 kilowatts and 750 kilowatts would abide by Tier 3 standards. As there are no existing Tier 3 standards for engines above 560 kilowatts, the

DRAFT

Department recommends changing the breakpoint to 560 kilowatts. For engines above 560 kilowatts, the emission standards transition from Tier 2 directly to interim Tier 4.

The proposed bill requires spark ignition engines to meet the standards set forth in 40 CFR Part 60, Subpart JJJJ. The Department's Best Available Technology requirements for new spark ignition engines are more stringent than those of Subpart JJJJ. For example, Subpart JJJJ specifies that a lean burn engine with a rated power of 500 horsepower or greater is required to meet a NOX emission standard of 1 g/BHP-h (1.34 g/kWh). In order to comply with the Department's BAT requirements, the same engine is required to meet a NOx emission standard of 0.5 g/BHP-h (0.67 g/kWh). Additionally there should also be a reference in the text of the bill that new engines comply with the Department's Best Available Technology requirements established in accordance with 25 Pa. Code Chapter 127.

Section 5 Blind compliance audit

The Department has the duty under this section to provide a list of demand response generating resources to the Pennsylvania Utility Commission (PUC) so the commission can perform an audit. Under (b)(4), the PUC must notify the FERC of a violation if a demand response generating resource is confirmed to be participating in the PJM markets but is not registered with the Department. The Department is further responsible to establish civil penalties for failure to comply with the registration, reporting, recordkeeping, and emission requirements in Section 6. Without notification from the PUC that a demand response generating resource is in violation of the registration requirement, the Department would not be able to carry out the responsibilities under Section 6.

DRAFT

Effective date of Standards

The Committee may wish to consider tying the effective date of standards imposed under this act to the adoption of substantially similar standards by states adjacent to the Commonwealth. As Pennsylvania is a member of PJM Interconnection, we do not wish to see a scenario whereby uncontrolled demand response generation is not reduced – but simply displaced – to other member jurisdictions of PJM Interconnection. Doing so may provide limited environmental benefit while depriving the Commonwealth's residents from participating in demand response programs.

Conclusion

Meeting current as well as future ozone and PM standards may require the Commonwealth to pursue emission reductions from additional sources of NOx and PM emissions. Addressing emissions from the electric generation sector on high electric demand days will be a key component in meeting these challenges. HB 1699 will ensure that the Department has the necessary statutory tools to protect the Commonwealth's air resources, especially if it incorporates the amendments suggested by the Department.

The Department is submitting the following documents to provide additional information on our position, and the environmental need for this law.

Exhibit A– DEP Comments on The Reconsideration of the National Emission Standards for Hazardous Air Pollutants for Reciprocating Internal Combustion Engines; New Source Performance Standards for Stationary Internal Combustion Engines (EPA Docket ID No. EPA-HQ-OAR-2008-0708-1536)

DRAFT

Exhibit B– DEP Comments on The National Emission Standards for Hazardous Air Pollutants for Reciprocating Internal Combustion Engines (EPA Docket ID No. EPA-HQ-OAR-2008-0708-0955)

DRAFT

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION
OFFICE OF WASTE, AIR, RADIATION AND REMEDATION

November 4, 2013

Air and Radiation Docket and Information Centre
Environmental Protection Agency
Mailcode: 2822T
1200 Pennsylvania Avenue, NW
Washington, DC 20460

Attention Docket ID No.: EPA–HQ–OAR–2008–0708

Re: Notice of reconsideration of final rule: National Emission Standards for Hazardous Air Pollutants for Reciprocating Internal Combustion Engines; New Source Performance Standards for Stationary Internal Combustion Engines (78 FR 54606)

To Whom It May Concern:

The Department of Environmental Protection (DEP) appreciates the opportunity to submit comments on the U. S. Environmental Protection Agency's (EPA) reconsideration of the "National Emission Standards for Hazardous Air Pollutants for Reciprocating Internal Combustion Engines; New Source Performance Standards for Stationary Internal Combustion Engines (78 FR 54606)."

The DEP understands the need to address hazardous air pollutants (HAPs) and other air pollutants from reciprocating internal combustion engines (RICE) and stationary internal combustion engines located at major and area sources. However, certain provisions in the reconsidered rule must be addressed prior to final rulemaking. To this end, the DEP provides the following comments on the proposed reconsideration.

Specific Comments

Timing for Compliance with the Ultra Low Sulfur Diesel (ULSD) Fuel Requirement for Emergency Engines

The EPA is soliciting comments on whether it would be reasonable to implement the requirement to use ULSD fuel earlier than January 1, 2015. The EPA requests comment on whether the use of ULSD is already widespread and whether facilities will need to make any physical adjustments to engines (including fuel seals) and other facilities like tanks or other containment structures, as well as any needed adjustments to contracts and other business activities, to comply with these new requirements.

DEP believes that it is reasonable to provide time to meet the ULSD requirement and agrees with the January 1, 2015 deadline. This concurrence is based on EPA's arguments regarding modification and replacement of seals and gaskets, procuring new contracts and gearing up production of ULSD, all of which will likely take considerable time. Furthermore, because the NSPS Subpart IIII does not distinguish between emergency and non-emergency engines in

relation to complying with the ULSD fuel requirements, all compression ignition engines should be allowed to use the existing diesel fuel purchased prior to January 1, 2015, before replacing the fuel inventory with ULSD fuel.

Timing and Required Information for the Reporting Requirement for Emergency Engines

The EPA requests comment on whether owners and operators of emergency engines should be required to report operation for the period between the compliance date and January 2015, and when it would be reasonable to submit the report. The EPA also solicits comment on whether the rule should require reporting of the amount and type of diesel fuel used in the engine. The EPA requests information on whether such a requirement would place an unreasonable burden on affected facilities.

DEP believes that owners and operators should be required to include the operating data for the period between the compliance date and January 2015, with the calendar year 2015 report due March 31, 2016. DEP agrees that the subsequent annual reports for each calendar year must be submitted no later than March 31 of the following calendar year. DEP supports the reporting requirement for owners and operators of engines participating in an emergency demand response program to include information on the dates and times the engines are operated to mitigate local transmission and/or distribution limitations. DEP also believes that owners and operators should be required to report the amount and type of fuel used.

Criteria for Operation for Up to 50 Hours per Year for Non-Emergency Situations

The EPA requests comment regarding operation for up to 50 hours per calendar year in nonemergency situations as part of a financial arrangement with another entity. The EPA is particularly seeking comment on whether the criteria could be more clearly defined to eliminate any ambiguity regarding the situations under which engines can operate and to further limit the operation to situations where the reliability of the local system is threatened.

There is some debate whether this sort of on-site generation should be considered as true demand response. The PJM Market Monitor thinks it is not, and this was one of the points made by the PJM Market Monitor in comments submitted on February 16, 2012, in Docket ID No. EPA-HQ-OGC-2011-1030. In addition, PJM itself defines demand response as: "Demand response (also known as load response) is end-use customers reducing their use of electricity in response to power grid needs, economic signals from a competitive wholesale market or special retail rates." http://www.pjm.com/markets-and-operations/demand-response.aspx. Note that for PJM the key is that the end-use customer reduces its use of electricity. Accordingly, demand response should be true management of an end-user's electricity demand, not transferring that demand to the end-user's own generator. It should also be noted that that demand is being met by less efficient and less clean sources of energy generation than is available in the wholesale generation market.

The Market Monitor has pointed out the inverse relationship between allowable run times for these on-site engines and grid reliability. As allowable run times are increased, grid reliability is

decreased. The use of such on-site generators not only artificially suppresses wholesale capacity market prices for generation from better controlled units which would be fully available, but also serves to suppress true demand response resources from the market. The reason wholesale capacity market prices are suppressed is that this distributed generation has an economic advantage due to a lack of the same types and extent of emissions controls that wholesale generation is subject to and the lack of the same scope of operation and maintenance costs as wholesale generation units. The result is a two-pronged negative. First, by undermining Pennsylvania, Jersey, Maryland Power Pool's (PJM's) reliability pricing model (RPM) capacity market, a major assurance of grid reliability, the reliability of the grid is potentially undermined. As stated by the Market Monitor, "[t]he application of the original EPA rule limiting run hours to 15 would not adversely impact reliability." The converse would likely be true as well — to increase that allowable run time to 100 hours from the original 15 hours would decrease reliability. Second, because there is a lack of emissions controls on these onsite generators, overall air emissions across the system are increased when the use of onsite generators displaces controlled competitive wholesale generation units.

At this point in time we do not see the support for either the 15 hours set originally by EPA or the increase to 100 hours that EPA finalized in the January 30, 2013, final rule. Even for what EPA is calling "emergency demand response," the preamble to the June 7, 2012, proposed rule says, for example, in PJM backup generators were dispatched for less than 30 hours during the summers of 2008, 2009 and 2011. Also, EPA says that 50 of the 100 hours are to accommodate the financial benefit of the on-site engine owners. However, as the PJM Market Monitor points out, backup generators are and ought to be treated like what they are—generating resources, not demand response resources. In this way the use of such on-site electricity generating resources would appropriately reflect the true economic and environmental costs of using such resources. The questions are simply: is it appropriate for EPA to provide operating opportunity to the distributed generators simply to have them compensated by the PJM market for 8,760 hours per year, and is it appropriate for these distributed generation units to displace other competitive generation that is capable of operating for 8,760 hours per year.

DEP does not believe it is appropriate to provide special consideration for distributed generation units that would displace controlled electric generating units. According to PJM's recent Load Activity Report, generators supply over 21% of the electricity in the demand response market, of which 88% are powered by diesel-fired engines. Typically, these diesel- fired engines are exempted from permitting requirements and are not required to be equipped with air pollution controls. Uncontrolled diesel-fired engines emit approximately 21.8 lbs. of NO_X/MWh, as compared to 0.2 lbs. of NO_X/MWh for a controlled simple cycle turbine. In an attempt to reduce the number of uncontrolled engines participating in demand response programs, the Pennsylvania legislature has introduced a bill (HB 1699) that will require any engine participating in a demand response program to register with the Department and meet specific emission limits.

DEP believes that, instead of EPA arbitrarily selecting 100/50 hours to accommodate fitting into various regional transmission organization (RTO) minimums for capacity and peak shaving

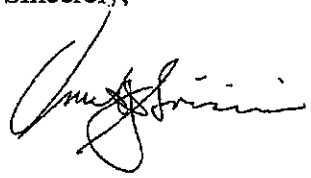
markets, EPA should consult with Regional Transmission Operators regarding the appropriate base level amount of hours necessary to accommodate real emergency demand response needs.

Conclusion

DEP appreciates the EPA's efforts in developing the amendments to this final rule but believes that the issues discussed above should be addressed before EPA promulgates the amendments.

Thank you for the opportunity to comment on the reconsideration of the final rule. Should you have questions or need additional information, please contact me by e-mail at vbrisini@pa.gov or by telephone at 717.772.2724. You may also contact Joyce E. Epps, Director of the Bureau of Air Quality, by e-mail at jeepps@pa.gov or by telephone at 717.787.9702.

Sincerely,



Vincent J. Brisini
Deputy Secretary

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

SECRETARY

August 3, 2012

Air and Radiation Docket and Information Center
U.S. Environmental Protection Agency
Mailcode: 6102T
1200 Pennsylvania Avenue, NW
Washington, DC 20460

Attention: Docket ID No. EPA–HQ–OAR–2008–0708

Re: National Emission Standards for Hazardous Air Pollutants for Reciprocating Internal Combustion Engines; New Source Performance Standards for Stationary Internal Combustion Engines, Proposed Amendments (77 FR 33812, June 7, 2012)

To Whom It May Concern:

The Pennsylvania Department of Environmental Protection (DEP) appreciates the opportunity to submit comments on the U. S. Environmental Protection Agency's (EPA) proposed amendments of the "National Emission Standards for Hazardous Air Pollutants for Reciprocating Internal Combustion Engines; New Source Performance Standards for Stationary Internal Combustion Engines" (77 FR 33812, June 7, 2012).

The DEP understands the need to address hazardous air pollutants (HAPs) and other air pollutants from reciprocating internal combustion engines (RICE) and stationary internal combustion engines located at major and area sources. However, certain provisions in the proposed rule must be addressed prior to final rulemaking. To this end, the DEP provides the following comments, on the proposed amendments:

EPA has proposed to set the 100 hours run time demarcation point solely for the purpose of allowing uncontrolled distributed on-site engines to qualify for inclusion in the capacity markets and peak shaving programs of various Regional Transmission Organizations (RTO). This seems to be trying to fit a square peg into a round hole. If the goal is to allow a certain leeway of run time to provide for true emergency, grid-threatening conditions, the allowable run hours should be set at a level that achieves that goal, rather than artificially set at a level for the sole purpose of allowing such engines to participate in the financial rewards of the capacity and peak shaving markets.

There is some debate whether this sort of on-site generation should be considered as true demand response. The PJM Market Monitor thinks it is not and this was one of the points made by the PJM Market Monitor in comments submitted on February 16, 2012, in Docket ID No. EPA-HQ-OGC-2011-1030. In addition, PJM itself defines demand response as: "Demand response (also known as load response) is end-use customers reducing their use of electricity in response to power grid needs, economic signals from a competitive wholesale market or special retail rates."

http://www.pjm.com/markets-and-operations/demand-response.aspx . Note that for PJM the key is that the end-use customer reduces its use of electricity. Accordingly, demand response is true management of an end-users demand not simply by transferring the same demand by going off the grid by turning on your own generator. It should also be noted that that demand is being met by less efficient and less clean sources of energy generation than is available in the wholesale generation market.

The Market Monitor has pointed out the inverse relationship between allowable run times for these on-site engines and grid reliability. As allowable run times are increased, grid reliability is decreased. The use of such on-site generators not only artificially suppresses wholesale capacity market prices for generation from better controlled units which would be fully available, but also serves to suppress true demand response resources from the market. The reason wholesale capacity market prices are suppressed is that this distributed generation has an economic advantage due to a lack of the same types and extent of emissions controls that wholesale generation is subject to and the lack of the same scope of operation and maintenance costs as wholesale generation units. The result is a two-pronged negative. First, by undermining PJM's RPM capacity market, a major assurance of grid reliability, the reliability of the grid is undermined. So, as the Market Monitor put it, "[t]he application of the original EPA rule limiting run hours to 15 would not adversely impact reliability." The converse would be true as well—to increase that allowable run time to 100 hours from the original 15 hours would decrease reliability. Second, since there is a lack of emissions controls on these on-site generators, overall air emissions across the system are increased when their use displaces wholesale generation units.

The debate about whether on-site generation to replace demand from the wholesale market and the Market Monitor's comments about the impact of allowable run time combined with the fact that these on-site generation sources can result in increased emissions makes the EPA's choice in this Rule of allowable run time for these types of on-site engines very important.

At this point in time we do not see the support for either the 15 hours set originally by EPA or the 100 hours EPA jumps to in this proposed Rule. Even for what EPA is calling "emergency demand response," the Preamble to the proposed Rule says that, for example, in PJM backup generators were dispatched for less than 30 hours during the summers of 2008, 2009 and 2011. Also, EPA says that 50 of the 100 hours are to accommodate the financial benefit of the on-site engine owners. However, as the PJM Market Monitor points out, backup generators are and ought to be treated like what they are—generating resources—not demand response resources. In this way the use of such on-site electricity generating resources would appropriately reflect the true economic and environmental costs of using such resources.

We would think that instead of EPA arbitrarily selecting 100 hours to accommodate fitting into various RTO minimums for capacity and peak shaving markets EPA should instead consult with Regional Transmission Operators regarding the appropriate base level amount of hours necessary to accommodate real emergency demand response needs.

Another regulatory issue of concern is that these generating resources, which are participating in the demand response program, are not subject to any transport emissions allowance program requirements while affected electric generating units are required to surrender emission allowances to account for their emissions. These aggregated resources are identified by their proponents as a "Virtual Power Plant". The facts suggest that this "virtual power plant" is in every sense a real power plant. The total demand response under control of just one of these providers is claimed to be more than 8,000 MW, which includes generating resources. The provider claims that it can enable contracted distributed generating resources to be started up remotely and simultaneously by the provider during a demand response dispatch event. It is fair to ask, then, why this self-styled "virtual power plant," which operates like a real one, would not be subject to the same emissions allowance program requirements as are any other power plant.

So, why aren't these aggregators (i.e., the operators of these basically real power plants) required to play by the same rules as are all power plants and required to surrender allowances to account for the emissions resulting from the operations of the generating resources which are part of their aggregated demand response resources? This market-based solution would address this issue very economically. Market-based regulations have achieved greater emissions reductions at lesser cost than any other form of environmental regulation.

The Department has discussed emissions trading solutions with EPA in the past including an Electric Power Generation Association (EPGA) proposed market-based solution to address emissions accountability as part of a high electric demand day (HEDD) program, including distributed resources; however, EPA has refused to allow states to incorporate these ideas into any HEDD program. The surrender of emission allowances should be required as a means to account for these generating resources if they are provided this proposed expanded operating opportunity. The EPGA's proposal is enclosed and DEP believes this type of program should be reconsidered to address the HEDD concerns if it is ultimately decided by EPA that these generating resources will be allowed to operate for 100 hours to accommodate their participation and the financial benefit they receive by involvement in the capacity market and for peak shaving opportunities.

EPA admits to not assessing the costs and revenue associated with participation in emergency demand response or peak shaving:

"*The EPA expects there will be savings and/or income generated through participation in emergency demand response programs and peak shaving operation, but the EPA has not accounted for any potential revenue in estimating the costs and benefits of the proposed amendments. It is uncertain how frequently stationary emergency engines would operate if they are called upon. Other factors, such as the annual revenue from demand response programs (which varies), are also uncertain making it problematic to estimate the economic benefit of such programs. As such, the EPA has not estimated any costs associated with the emergency engine amendments.*"

Therefore, it appears that EPA has not adequately considered the cost effectiveness of the installation of emissions control equipment, i.e. oxidation catalyst and selective catalytic

reduction, on these distributed generating resources. This situation should be re-assessed using additional emissions costs and capacity market and peak shaving revenues information.

The DEP appreciates the EPA's efforts in developing the proposed amendments to National Emission Standards for Hazardous Air Pollutants for Reciprocating Internal Combustion Engines and New Source Performance Standards for Stationary Internal Combustion Engines. However, the DEP believes that the issues discussed above must be addressed before EPA promulgates the amendments.

Thank you for the opportunity to comment on the proposed rules. Should you have questions or need additional information, please contact Vincent J. Brisini, Deputy Secretary for Waste, Air, Radiation and Remediation, by e-mail at vbrisini@pa.gov or by telephone at 717.772.2724. You may also contact Joyce E. Epps, Director of the Bureau of Air Quality, by e-mail at jeepps@pa.gov or by telephone at 717.787.9702.

Sincerely,

Michael L. Krancer
Secretary

Enclosures