## Testimony of Richard H. Counihan Vice President of Government Affairs, EnerNOC, Inc.

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## Don DiCristofaro Air Quality Meteorologist and President, Blue Sky Environmental LLC

## PA House of Representatives Environmental Resources & Energy Committee HB 1699 Hearing

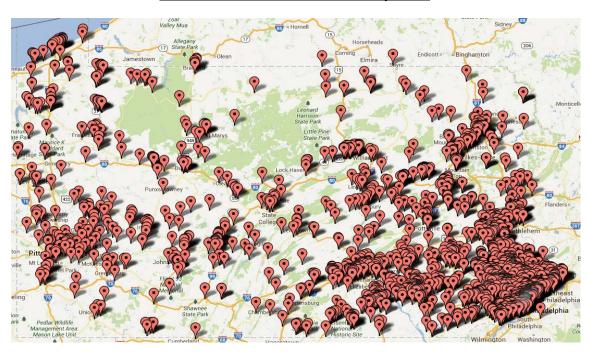
November 20, 2013

### Introduction

Chairman Hess, Chairman Vitali, and members of the Committee,

Thank you for inviting us to provide EnerNOC's views on H.B. 1699. EnerNOC is a leading provider of energy management services to commercial, industrial and institutional electric users and the largest provider of demand response ("DR") services in the world. In Pennsylvania we work with customers at over 1800 sites across the Commonwealth, primarily to provide demand response capacity to the PJM Interconnection ("PJM") in its Emergency Load Reduction Program ("ELRP"). These customers range from steel mills, to food processing facilities to municipal waste water treatment plants to universities and school districts. Below is a map of those customer sites.

### **EnerNOC Customer Sites in Pennsylvania**



EnerNOC is opposed to H.B. 1699 because it would impose unnecessary and burdensome regulations on PA businesses and institutions that go well beyond what has been deemed necessary by the federal Environmental Protection Agency ("EPA"). This bill, if passed into law, would prevent many of our customers, and those of our competitors, from providing demand response capacity to PJM thereby eliminating their demand response income, raising costs to all Pennsylvania consumers and providing no environmental benefit.

The air regulations proposed in H.B. 1699 are far more restrictive than recent rules for emergency generators finalized in January of this year by the federal EPA.

On January 30<sup>th</sup> of this year, the EPA finalized rules for Reciprocating Internal Combustion Engines in its National Emission Standards for Hazardous Air Pollutants (the "RICE NESHAP").<sup>1</sup> These final rules followed three years of study, multiple public hearings and hundreds of comments from the public including most of the parties that you will be hearing from today.

The EPA concluded that owners of emergency diesel generators, the subject of H.B. 1699, would not have to add pollution control equipment to their engines if all they only utilize them during 1) blackouts, 2) testing and maintenance and 3) participation in an emergency DR program or market. The EPA further placed a restriction of 100 hours per year on the allowable run time in the last two categories along with the requirement to use ultra-low sulfur diesel fuel and report annually to EPA if the engine was to run in an emergency demand response program.

However, if an engine owner wants to play the energy market, shave their peak demand, or do other sorts of economic, as opposed to emergency, demand response then the RICE NESHAP requires them to upgrade the pollution controls on their emergency generator.

The pollution controls called for in H.B. 1699 go way beyond what the EPA has required. H.B. 1699 proposes to take the costlier controls for economic demand response and apply them to emergency demand response where EPA did not require any controls because emergency demand response is so rarely called.

H.B. 1699 will not result in customers installing pollution controls on their emergency generators, but instead will result in them dropping out of PJM's capacity market.

The supporters of H.B. 1699 may claim that it will lead to the clean-up of existing diesel generators through retrofitting of pollution controls. It will not. The owners of these generators will not install the controls; they will simply drop out of PJM's capacity market.

<sup>&</sup>lt;sup>1</sup> 40 CFR 63 Subpart ZZZZ; EPA also finalized changes to the New Source Performance Standards ("NSPS") (40 CFR 60 Subparts IIII and JJJJ) for newer engines

#### How do we know this?

First, complying with H.B. 1699 would be expensive. We obtained a quote from Caterpillar to upgrade an existing 2,000 kW diesel generator to Tier 4 emission limits which is what H.B. 1699 would require. This cost quote is attached to our written testimony.

The emission control equipment quote was \$261,772 and the labor was \$101,000 for a total of \$362,772. There are also ongoing costs for chemicals, maintenance, and additional testing and reporting. If a business or hospital has this kind of capital to spend they are much more likely to spend it on improving their manufacturing process or buying a new MRI machine.

Secondly, our customers tell us so. We have been talking to customers about this for 3 years during the EPA's consideration of this same issue. In fact, the few EnerNOC customers who had been using their emergency generators for economic demand response in PJM have declined to upgrade their engines in response to the RICE NESHAP and instead have stopped providing economic demand response.

Finally, while most of the states surrounding Pennsylvania including Ohio, West Virginia, Maryland and New York do allow emergency generators to participate in emergency DR, Delaware and New Jersey do not and in those states we do not see generators installing the expensive pollution control upgrades in order to participate in PJM's emergency load reduction program.

In summary, this bill will NOT lead to cleaner emergency generators. They will continue to exist, they will continue to need periodic testing and they will turn on when a blackout hits, but they won't be available to prevent a blackout.

### What will be the effects on Pennsylvania if these generators drop out of the market?

First, remember that the owners of these generators are Pennsylvania businesses, water districts, hospitals and local governments. They will directly lose out on annual direct payments in the tens of millions of dollars which can be used to keep the doors open, fund expansions, keep on extra employees, maintain their generators, or whatever they choose to do with it. It is hard to estimate an exact number for this because we don't know the exact amount our competitors infuse into the PA economy. But based on estimates of the total amount of demand response in Pennsylvania we believe almost \$50 million will be paid to Pennsylvania businesses and institutions that make their emergency generators available to PJM in 2013. Prices vary year to year, and this is an estimate, but we are confident that the total loss to Pennsylvania businesses and institutions will be in the tens of millions of dollars per year.

Second, PJM will tell you that if H.B. 1699 were to be enacted, other resources would take their place in the capacity auction. This is true. But, there is no guarantee that the resources that will replace this demand response will be located in the Commonwealth. The replacement could come from existing power plants in Ohio, or imports of electricity from the Midwest, or demand response from Maryland.

While PJM will say that these resources can be replaced in the capacity auction, they also have said that DR has been very reliable and helped them through emergencies as recently as this September. PJM stated in a press release (attached to our written testimony):

"Unusually hot weather this week created two of the highest electricity use days of the year in the 13-state region served by PJM Interconnection, operator of North America's largest electric power grid. Demand response, consumers' voluntary reduction in power use, played a vital role in keeping the power grid stable and air conditioners running."

"Generation performance and demand response played significant roles in balancing the supply and demand on the grid during unusual conditions this week," said Andy Ott, PJM executive vice president–Markets. "PJM continues to see the value and success of demand response participating in PJM markets." 2

What is certain is that the replacement capacity will be more expensive. Why? Because these DR resources were bid into PJM's capacity auction and as winners, they beat out other, higher priced resources. If you take DR out of the bidding, they will be replaced by some other, unknown higher priced resources. This is the goal of the proponents of H.B. 1699. They want to remove a low-cost competitor from the market to increase capacity prices for their own preferred resources whether they be solar, wind, coal, nuclear or natural gas.

How much will it raise prices to Pennsylvania customers? Hundreds of millions of dollars per year.

The PJM Market Monitor, who will be testifying here today, estimated that in 2013 the presence of all kinds of DR in the PJM capacity market reduced the overall cost of capacity by over \$11.8 billion across the entire PJM footprint.<sup>3</sup>

<sup>3</sup> "Analysis of the 2013/14 RPM Base Residual Auction, Revised and Updated", The Independent Market Monitor for PJM, September 20<sup>th</sup>, 2010, p. 52.

<sup>&</sup>lt;sup>2</sup> "PJM Meets High Electricity Demand During Unusual Heat Wave", PJM Press Release, September 12, 2013, <a href="http://www.pjm.com/~/media/about-pjm/newsroom/2013-releases/20130912-pjm-meets-high-electricity-demand-during-unusual-heat-wave.ashx">http://www.pjm.com/~/media/about-pjm/newsroom/2013-releases/20130912-pjm-meets-high-electricity-demand-during-unusual-heat-wave.ashx</a>

If we assume roughly 25% of that was from emergency generators in PJM, and approximately one third of those generators are located in Pennsylvania, you get savings to PJM ratepayers of roughly \$1 billion.

# While Emergency DR Has Kept Overall Costs Down, It Has Not Retarded the Growth of Renewable Energy

Supporters of H.B. 1699 may say that banning emergency generators from participating in PJM will result in greater expansion of renewable energy, presumably because higher prices will make it more economic, but there is no evidence that DR in the capacity market has had any negative effect on the growth of renewable energy.

For example, in PJM, where DR has grown faster than anywhere else, renewable energy resources are growing at an equally fast pace. Figure 1 below illustrates the amount of MW of DR and renewable capacity that has cleared in the last three Base Residual Auctions for the PJM Capacity Market. It is difficult to conclude that renewable energy growth in PJM has been slowed by DR, as both have grown at approximately the same rate.

Over the last two auctions in PJM, 1,341 MW of renewable resources were offered into the auction, and all 1,341 MW cleared the auction.<sup>4</sup> Clearly neither DR, nor any other resource, has prevented renewable energy from securing a commitment in the PJM Capacity Market. Also, it is important to remember that as long as it is available, renewable energy will always be dispatched by the system operator before emergency DR engines.

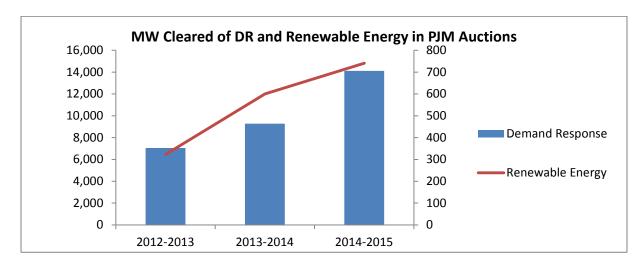


Figure 1.

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<sup>&</sup>lt;sup>4</sup> PJM Base Residual Auction Results: 2012-2015

### There is no correlation between emergency DR and air pollution.

While H.B. 1699 would cause economic hardship on Pennsylvanians, especially the hundreds, perhaps thousands of businesses, schools, local governments that are currently receiving payments to help keep the lights on, it will NOT result in a cleaner environment. My colleague Don DiCristofaro will go into more detail on this point.

### Conclusion

In conclusion, I would like to close my portion of the testimony by saying that the federal EPA came to a good compromise on this issue after three years of study, hearings and comment rounds. The compromise they came to is similar to the current regulations in effect in PA. The compromise is that if you only want to use your emergency generator to help out in a PJM declared emergency, then you do not have to upgrade your pollution control equipment. However, if you want to play the energy market, shave your peak, or do other sorts of economic, as opposed to emergency, DR then you have to upgrade your emergency generator. This is a good compromise and Pennsylvania should stick with it.

#### <u>Introduction of Mr. DiCristofaro</u>

My name is Don DiCristofaro and I am an Air Quality Meteorologist who is President of Blue Sky Environmental LLC. I am also a Certified Consulting Meteorologist as designated by the American Meteorological Society. More importantly I am a proud Penn State alumnus with two degrees from Penn State in meteorology. Penn State is the premier meteorological school in the world; one in every four meteorologists in the world graduate from Penn State. I have been permitting the use of engines in demand response or DR programs since 2002.

### **Emergency Demand Response Events are Rare**

I have attached to our testimony a memo entitled Analysis of Emergency DR and Ozone Concentrations for Pennsylvania that analyzes data from 2003 to the present. To understand why this legislation will have little or no impact on air quality, one first needs to understand that such emergency demand response events are very rarely called by PJM. Table 1 presents the ELRP events in each of the seven PJM zones in Pennsylvania from 2003 to 2013. For the past eleven years, the ELRP has been called from zero to 3.7 hours per year on average. For four of the past eleven years, the ELRP was not called at all.

Table 1:

ELRP Events in Pennsylvania since 2003 by PJM Zone

| Year    | Date | Hours   | All Zones   | METED | PECO  | PENLC | PPL   | ATSI | DQE | APS |
|---------|------|---------|---|-------|-------|-------|-------|------|-----|-----|
| 2008    |      | 0       |   | 0     | 0     | 0     | 0     | 0    | 0   | 0   |
| 2004    |      | 0       |   | 0     | 0     | 0     | 0     | 0    | 0   | 0   |
| 2005    | 7/27 | 5.2     | METED, PECO, PENLC, PPL   | 52    | 52    | 5.2   | 5.2   | 0    | 0   | 0   |
| 2000    | 8/4  | 2.75    | METED, PECO, PENLC, PPL   | 2.75  | 2.75  | 2.75  | 2.75  | 0    | 0   | 0   |
| 2006    | 8/2  | 6.5     | METED, PECO, PENLC, PPL   | 65    | 65    | 6.5   | 6.5   | 0    | 0   | 0   |
| 2000    | 8/3  | 5       | METED, PECO, PENLC, PPL   | 5     | 5     | 5     | 5     | 0    | 0   | 0   |
| 2007    | 8/8  | 3.7     | METED, PECO, PENLC, PPL   | 37    | 37    | 3.7   | 3.7   | 0    | 0   | 0   |
| 2008    |      | 0       |   | 0     | 0     | 0     | 0     | 0    | 0   | 0   |
| 2009    |      | 0       |   | 0     | 0     | 0     | 0     | 0    | 0   | 0   |
| 2010    | 7/7  | 4       | PE CO   | 0     | 4     | 0     | 0     | 0    | 0   | 0   |
| 2011    | 5/31 | 2       | METED, PENIC, PPL, PECO   | 2     | 2     | 2     | 2     | 0    | 0   | 0   |
| 2011    | 7/22 | 5 - 5.5 | METED (5), PECO (5.5)   | 5     | 55    | 0     | 0     | 0    | 0   | 0   |
| 2012    | 7/18 | 2       | PECO, PENLC, METED, PPL   | 0     | 0     | 0     | 0     | 2.5  | 0   | 0   |
|         | 7/15 | 2.5     | ATSI  | 0     | 0     | 0     | 0     | 3    | 0   | 0   |
|         | 7/16 | 3       | ATSI  | 0     | 0     | 0     | 0     | 3    | 0   | 0   |
| 2013    | 7/18 | 2.3-3.3 | PECO (2.3), PPL (2.3), ATSI (3.3)                                 | 0     | 23    | 0     | 2.3   | 3.3  | 0   | 0   |
|         | 9/10 | 5.7     | ATSI  | 0     | 0     | 0     | 0     | 5.7  | 0   | 0   |
|         | 9/11 | 3.3-6   | DQE (3.5),PPL (3.3),PENIC (3.3), METED (3.3),PECO (3.3), ATSI (6) | 33    | 33    | 3.3   | 3.3   | 6    | 3.5 | 0   |
| TOTAL H |      |         |   | 77.45 | 40.75 | 20.45 | 20.75 |      |     |     |

TOTAL HOURS 33.45 40.25 28.45 30.75 23.5 3.5 AVERAGE HOURS PER YEAR 30 37 2.6 2.8 2.1 0.3

### There is no correlation between emergency DR and air pollution

Some allege that emergency DR is dispatched by PJM on days of high ozone thereby implying that the use of emergency generators will increase the number of ozone exceedance days. I am an air quality meteorologist with over 30 years of experience and I have studied this issue extensively. There is no correlation between emergency DR and ozone exceedance days. Although some emergency DR events are called during high ozone days, many DR events occur on non-ozone exceedance days and many more days have ozone alerts but no DR events. The data does not show that the use of emergency engines during emergency DR events causes high ozone, particularly since in many instances the ozone concentrations are as high or higher on the days preceding a DR event.

The EPA reviewed my analysis and found (and I quote directly from the EPA):

"This more robust and comprehensive study, concluded that there is no correlation between emergency DR and high ozone concentration.... While EPA acknowledges that emergency DR may be called during High Electric Demand Days in the summer when days are especially warm and ozone is problematic, the use of emergency DR at such times cannot be directly correlated as causing or contributing to the ozone exceedances." <sup>5</sup>

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<sup>&</sup>lt;sup>5</sup> U.S. EPA Memo Response to Public Comments on Proposed Amendments to National Emission Standards for Hazardous Air Pollutants for Existing Stationary Reciprocating Internal Combustion Engines and New Source

I would like to supply the EPA Response to Comments with the pages marked that has this and other quotes (attached to our written testimony). EPA went on to say:

"The EPA does not agree that emissions of diesel exhaust are likely to go up significantly .... given the very limited usage of such engines in emergency DR. It is worth noting that the circumstances during which these engines will be permitted to run under the rule are in circumstances that would prevent blackouts, which, if not prevented, would mean the use of all emergency engines in the affected area, which would create substantially greater emissions from diesel engines than if these limited emergency DR engines are used for a short period of time." 6

#### EPA went on to state

"[i]n the event of blackouts, people's health and safety are jeopardized. During a blackout, there are human health effects that can result from extreme weather temperatures, hot or cold, that become uncontrollable during the loss of electricity. .... in a study published by NIH, it was found that during the blackout of 2003 in New York City put people in greater health peril."

Those are all direct quotes from the EPA that performed its own exhaustive study of the use of emergency generators in emergency DR. Finally I updated my analysis through 2013, specifically for Pennsylvania, and the results did not change. I am attaching that updated analysis to this written testimony.

According to Pennsylvania Department of Environmental Protection ozone summary data, in 2012, there were 263 recorded exceedances over 25 days and only one emergency DR event. In 2011, there were 136 recorded exceedances over 27 days and there were only two emergency DR events.

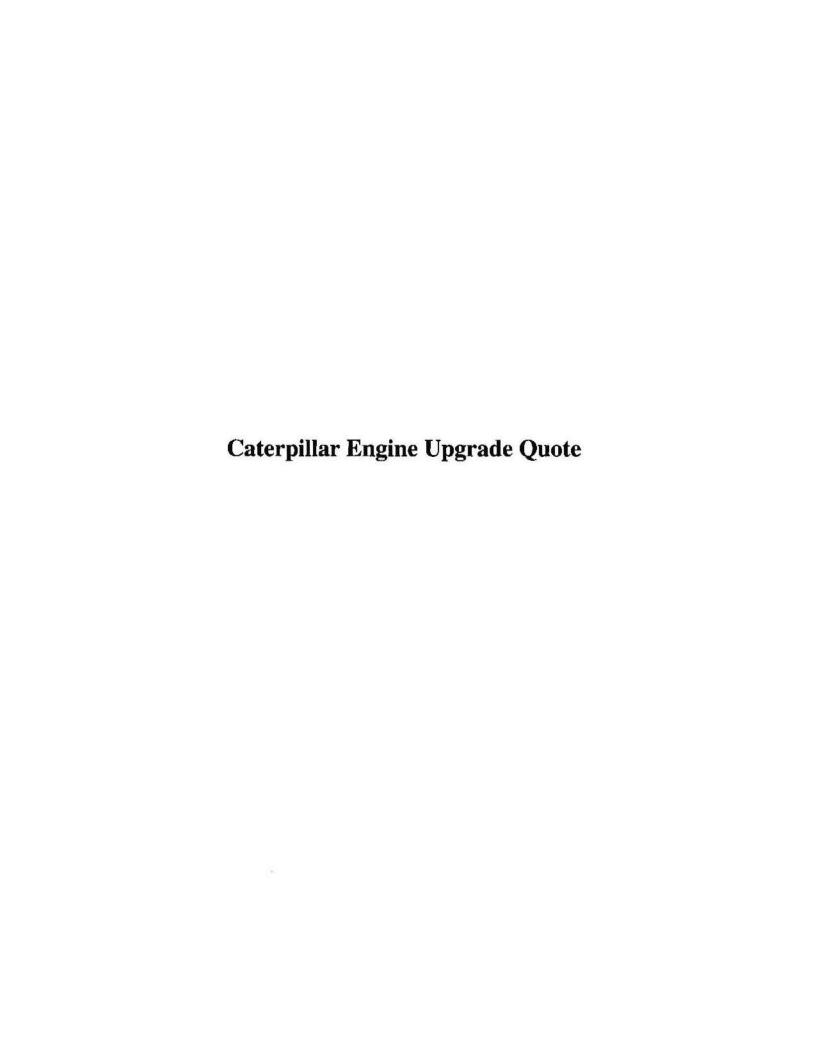
### Conclusion

Other testifiers are going to tell you that the use of backup engines for emergency DR is bad for the environment. I, along with the U.S. EPA, disagree with that. The EPA and I have studied this issue extensively for over three years. I have provided you today with updated data that further confirms the EPA's findings. This concludes my prepared testimony.

Performance Standards for Stationary Internal Combustion Engines from Melanie King to EPA Docket EPA-HQ-OAR-2008-0808, January 14, 2013. Pages 80 and 133.

<sup>&</sup>lt;sup>6</sup> Ibid, Page 82.

<sup>&</sup>lt;sup>7</sup> Ibid, Page 82.







### SERVICE/REPAIR QUOTE

CUSTOMER: Enemoc

Date: 06/01/2013

ATTN: Keven Cross
2 Units inside building

IN REFERENCE TO: Tier 4 Update

Caterpillar 3516BITA

Budgetary pricing

**QUOTE TYPE** 

PRICES VALID FOR

LOCATION

REPAIR

During regular service

Parts (PER UNIT)

Qty(1) Selective catalytic reduction housing

CBL, 2-Track SCR Housing with removable catalyst blocks

Qty(1) DPF Housing & Catalysts

CBS, Diesel particulate filter Housing and Catalysts

OTY (1) mixing Section

30" pre-fabricated mixing Section with 2 mixers, 304L stainless Steel

QTY (1) SCR Control System

HMI operation Screen, NO monitor, Wire lables

QTY (1) Reactant pump

QTY (1) Air Compressor

Parts shipped from factory in Texas

\$261,772.00 plus applicable taxes

Labor (Per Unit)

Remove Exhaust

R&R Electrical

Disconnect fuel

Take out and reinstall louver

Remove engine from building

Roof modifications

Install CEM module

Urea

Site layout

Startup

Use portable analyzer

Emission test and audit

Operator training

\$101,000.00





NEWS RELEASE

FOR IMMEDIATE RELEASE

### PJM Meets High Electricity Demand During Unusual Heat Wave

Demand Response Plays Vital Role in Keeping the Grid Stable

(Valley Forge, Pa. – Sept. 12, 2013) – Unusually hot weather this week created two of the highest electricity use days of the year in the 13-state region served by PJM Interconnection, operator of North America's largest electric power grid. Demand response, consumers' voluntary reduction in power use, played a vital role in keeping the power grid stable and air conditioners running.

Although September typically brings lower temperatures and lower demand for electricity, soaring temperatures this week pushed electricity use to record levels for the month. Demand for electricity Tuesday and Wednesday was higher than any day this summer except July 18.

Consumer use of electricity on Tuesday reached a record-setting 144,370 megawatts. To put it in perspective, under non-severe weather conditions, one megawatt could power roughly 800 to 1,000 average-sized American homes. Electricity use was headed even higher on Wednesday until PJM called for demand response. Through demand response, customers voluntarily reduce their electricity use in exchange for payment. An estimated 5,949 MW of demand response resources (the largest amount of demand response PJM has ever received) were called on Wednesday, comparable to five nuclear plants or generators. Demand response resources act like generation resources on the system.

"Generation performance and demand response played significant roles in balancing the supply and demand on the grid during unusual conditions this week," said Andy Ott, PJM executive vice president – Markets. "PJM continues to see the value and success of demand response participating in PJM markets."

The peak demand for electricity on Wednesday was 142,071 MW. By comparison, the peak demand for this summer on July 18 was 157,509 MW. Last year, the highest demand for electricity in September was 129,959 MW.

Tuesday's unusual, extreme heat, combined with local equipment problems, created localized emergency conditions in Indiana, Michigan, Ohio and Pennsylvania. PJM was forced to direct local utilities in those areas to immediately and temporarily reduce demand by small amounts to avoid the possibility of an uncontrolled blackout over a larger area that would have affected many more people. Of the 144,370 MW being served on Tuesday, an estimated 150 MW were cut back to keep the grid stable.

PJM Interconnection, founded in 1927, ensures the reliability of the high-voltage electric power system serving 61 million people in all or parts of Delaware, Illinois, Indiana, Kentucky, Maryland,

Michigan, New Jersey, North Carolina, Ohio, Pennsylvania, Tennessee, Virginia, West Virginia and the District of Columbia. PJM coordinates and directs the operation of the region's transmission grid, which includes 62,556 miles of transmission lines; administers a competitive wholesale electricity market; and plans regional transmission expansion improvements to maintain grid reliability and relieve congestion. Visit PJM at <a href="https://www.pjm.com">www.pjm.com</a>.

Analysis of Emergency DR and Ozone Concentrations for Pennsylvania

### **MEMORANDUM**

To:

Rick Counihan

**EnerNOC** 

From:

Don DiCristofaro

Blue Sky Environmental

Re:

Analysis of Emergency DR and Ozone Concentrations for Pennsylvania

Date:

November 18, 2013

This analysis is an update to the Analysis of Emergency Demand Response ("DR") and Ozone Concentrations that I prepared for the U.S. Environmental Protection Agency in 2011 and then updated in 2012. This updated analysis examines all PJM Emergency Load Response Program ("ELRP") events in each of the seven PJM zones in Pennsylvania. The ELRP is an emergency DR program that is called as a last resort before the start of black outs. As shown in the first two tables of the attached updated analysis, the ELRP is very rarely called. Since 2003, the ELRP was called in seven of the last eleven years. It was not called in 2003, 2004, 2008, and 2009. In the last eleven years it was never called in the Allegheny Power Systems ("APS") PJM zone. For other zones, the ELRP was called on average from 3.7 hours per year (in PECO) to 2.1 hours per year (in ATSI).

For each ELRP event from 2003 through 2013, I examined the daily maximum 8-hour ozone concentrations in parts per million ("ppm") as provided by the U.S. EPA Aerometric Information Retrieval System ("AIRS") website. This ozone data is collected by the Pennsylvania Department of Environmental Protection ("PADEP") and the EPA at numerous air quality monitors across the state. The current ozone standard is 0.075 ppm. Prior to 2008, the standard was 0.08 ppm (or effectively 0.084 ppm with rounding). The attached provides the maximum measured ozone concentrations for each ELRP day along with the concentrations either prior to and/or after the ELRP day if relevant. For example, on July 27, 2005, the ELRP was called for 5.2 hours in PECO, PENLC, METED, and PPL zones of PJM. The maximum measured ozone concentration on the ELRP event day is 0.071 ppm which was well below the 0.084 ppm standard at that time and below the current standard of 0.075 ppm. The day prior to the ELRP event shows maximum ozone concentrations of 0.088 ppm which was above the standard. Thus, the use of generators on July 27, 2005 during the ELRP event did not cause ozone exceedances.

### Below is a brief summary of the results:

- In 2005, the ELRP event on July 27 did not occur on an ozone exceedance day. The event on August 4 did; however, the ozone concentration measured is statistically the same as the prior day which was not an ELRP event day.
- In 2006, the ELRP events on August 2 and 3 measured ozone concentrations as high as or lower than August 1 which was not an ELRP event day.

- In 2007, the ELRP event on August 8 did not occur on an ozone exceedance day.
- In 2010, the ELRP event on July 7 recorded ozone concentrations similar to the prior three days which were not ELRP event days and much lower than July 8 which also was not an ELRP event day.
- In 2011, the ELRP event day on May 31 recorded ozone concentrations slightly above the standard but much less than June 1 which was not an ELRP event day. On July 22, the maximum concentrations were higher than the standard as were the two previous days which were not ELRP event days.
- In 2012, the ELRP event day on July 18 recorded ozone concentrations less than the prior day which was not an ELRP event day.
- In 2013 (not all counties have yet reported), the ELRP events on July 15, 16, and 18 did not record any ozone standard exceedances.

The following EPA conclusions regarding my original analysis remain valid:

"This more robust and comprehensive study, concluded that there is no correlation between emergency DR and high ozone concentration .... While EPA acknowledges that emergency DR may be called during High Electric Demand Days in the summer when days are especially warm and ozone is problematic, the use of emergency DR at such times cannot be directly correlated as causing or contributing to the ozone exceedances."

### The following from EPA also remains valid:

"The EPA does not agree that emissions of diesel exhaust are likely to go up significantly .... given the very limited usage of such engines in emergency DR. It is worth noting that the circumstances during which these engines will be permitted to run under the rule are in circumstances that would prevent blackouts, which, if not prevented, would mean the use of all emergency engines in the affected area, which would create substantially greater emissions from diesel engines than if these limited emergency DR engines are used for a short period of time."

According to PADEP ozone summary data in 2012, there were 263 recorded exceedances over 25 days and only one emergency DR event. In 2011, there were 136 recorded exceedances over 27 days and there were only two emergency DR events. There is no correlation between emergency DR and ozone exceedance days. Although some emergency DR events are called during high ozone days, many DR events occur on non-ozone exceedance days and many more days have ozone alerts but no DR events. The data does not show that the use of emergency engines during emergency DR events causes high ozone, particularly since in many instances the ozone concentrations are as high or higher on the days preceding a DR event.

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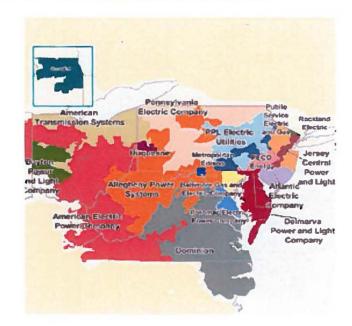
<sup>&</sup>lt;sup>1</sup> U.S. EPA Memo Response to Public Comments on Proposed Amendments to National Emission Standards for Hazardous Air Pollutants for Existing Stationary Reciprocating Internal Combustion Engines and New Source Performance Standards for Stationary Internal Combustion Engines from Melanie King to EPA Docket EPA-HQ-OAR-2008-0808, January 14, 2013. Pages 80 and 133.

<sup>&</sup>lt;sup>2</sup> Ibid, Page 82.

### **ELRP Events in Pennsylvania since 2003**

| Year | Date | Hours   | Zone   |
|------|------|---------|--|
| 2003 |      | 0       |  |
| 2004 |      | 0       |  |
| 2005 | 7/27 | 5.2     | METED, PECO, PENLC, PPL  |
| 2005 | 8/4  | 2.75    | METED, PECO, PENLC, PPL  |
| 2006 | 8/2  | 6.5     | METED, PECO, PENLC, PPL  |
| 2006 | 8/3  | 5       | METED, PECO, PENLC, PPL  |
| 2007 | 8/8  | 3.7     | METED, PECO, PENLC, PPL  |
| 2008 |      | - 0     |  |
| 2009 |      | 0       |  |
| 2010 | 7/7  | 4       | PECO   |
| 2011 | 5/31 | 2       | METED, PENLC, PPL, PECO  |
| 2011 | 7/22 | 5 - 5.5 | METED (5), PECO ( 5.5)   |
| 2012 | 7/18 |         | PECO, PENLC, METED, PPL  |
|      | 7/15 | 2.5     | ATSI   |
|      | 7/16 | 3       | ATSI   |
| 2013 | 7/18 | 2.3-3.3 | PECO (2.3), PPL (2.3), ATSI (3.3)                                    |
|      | 9/10 |         | ATSI   |
|      | 9/11 | 3.3-6   | DQE (3.5), PPL (3.3), PENLC (3.3), METED (3.3), PECO (3.3), ATSI (6) |

Source: https://www.pim.com/~/media/planning/res-adeq/load-forecast/alm-history.ashx



## ELRP Events in Pennsylvania since 2003 by PJM Zone

| Year | Date | Hours   | All Zones  | METED | PECO | PENLC | PPL  | ATSI | DQE | APS |
|------|------|---------|--|-------|------|-------|------|------|-----|-----|
| 2003 |      | 0       |  | 0     | 0    | 0     | 0    | 0    | 0   | 0   |
| 2004 |      | 0       |  | 0     | 0    | 0     | 0    | 0    | 0   | 0   |
| 2005 | 7/27 | 5.2     | METED, PECO, PENLC, PPL  | 5.2   | 5.2  | 5.2   | 5.2  | 0    | 0   | 0   |
| 2003 | 8/4  | 2.75    | METED, PECO, PENLC, PPL  | 2.75  | 2.75 | 2.75  | 2.75 | 0    | 0   | 0   |
| 2006 | 8/2  | 6.5     | METED, PECO, PENLC, PPL  | 6.5   | 6.5  | 6.5   | 6.5  | 0    | 0   | 0   |
| 2008 | 8/3  | 5       | METED, PECO, PENLC, PPL  | 5     | 5    | 5     | 5    | 0    | 0   | 0   |
| 2007 | 8/8  | 3.7     | METED, PECO, PENLC, PPL  | 3.7   | 3.7  | 3.7   | 3.7  | 0    | 0   | 0   |
| 2008 |      | 0       |  | 0     | 0    | 0     | 0    | 0    | 0   | 0   |
| 2009 |      | 0       |  | 0     | 0    | 0     | 0    | 0    | 0   | 0   |
| 2010 | 7/7  | 4       | PECO   | 0     | 4    | 0     | 0    | 0    | 0   | 0   |
| 2011 | 5/31 | 2       | METED, PENLC, PPL, PECO  | 2     | 2    | 2     | 2    | 0    | 0   | 0   |
| 2011 | 7/22 | 5 - 5.5 | METED (5), PECO ( 5.5)   | 5     | 5.5  | 0     | 0    | 0    | 0   | 0   |
| 2012 | 7/18 | 2       | PECO, PENLC, METED, PPL  | 0     | 0    | 0     | 0    | 2.5  | 0   | 0   |
|      | 7/15 | 2.5     | ATSI   | 0     | 0    | 0     | 0    | 3    | 0   | 0   |
|      | 7/16 | 3       | ATSI   | 0     | 0    | 0     | 0    | 3    | 0   | 0   |
| 2013 | 7/18 | 2.3-3.3 | PECO (2.3), PPL (2.3), ATSI (3.3)                                | 0     | 2.3  | 0     | 2.3  | 3.3  | 0   | 0   |
|      | 9/10 | 5.7     | ATSI   | 0     | 0    | 0     | 0    | 5.7  | 0   | 0   |
|      | 9/11 | 3.3-6   | DQE (3.5),PPL (3.3),PENLC (3.3), METED (3.3),PECO (3.3),ATSI (6) | 3.3   | 3.3  | 3.3   | 3.3  | 6    | 3.5 | 0   |

| TOTAL HOURS            | 33.45 | 40.25 | 28.45 | 30.75 | 23.5 | 3.5 | 0 |
|------------------------|-------|-------|-------|-------|------|-----|---|
| AVERAGE HOURS PER YEAR | 3.0   | 3.7   | 2.6   | 2.8   | 2.1  | 0.3 | 0 |

2005 Daily Max 8-hour Ozone Concentration (ppm) (Source: http://www.epa.gov/airquality/airdata/ad\_data\_daily.html) ELRP Event: 7/27/05, 5.2 Hours: PECO, PENLC, METED, PPL

|                              |              | 7/26/2005 | 7/27/2005 |
|------------------------------|--------------|-----------|-----------|
| ELRP Event?                  |              | No        | Yes       |
| AQS_SITE_ID                  | COUNTY       |           |           |
| 42-003-0008                  | Allegheny    | 0.061     | 0.039     |
| 42-003-0067                  | Allegheny    | 0.066     | 0.042     |
| 42-003-1005                  | Allegheny    | 0.067     | 0.040     |
| 42-005-0001                  | Armstrong    | 0.061     | 0.035     |
| 42-007-0002                  | Beaver       | 0.057     | 0.036     |
| 42-095-8000                  | Northampton  | 0.073     | 0.060     |
| 42-099-0301                  | Perry        | 0.065     | 0.052     |
| 42-125-0200                  | Washington   | 0.066     | 0.043     |
| 42-125-5001                  | Washington   | 0.056     | 0.036     |
| 42-027-0100                  | Centre       | 0.069     | 0.050     |
| 42-029-0100                  | Chester      | 0.079     | 0.065     |
|                              | Luzerne      |           |           |
| 42-079-1100                  |              | 0.065     | 0.048     |
| 42-079-1101                  | Luzerne      | 0.069     | 0.050     |
| 42-129-0006                  | Westmoreland | 0.057     | 0.038     |
| 42-129-0008                  | Westmoreland | 0.046     | 0.039     |
| 42-133-0008                  | York         | 0.070     | 0.062     |
| 42-007-0005                  | Beaver       |           | 0.032     |
| 42-007-0014                  | Beaver       | 0.054     | 0.027     |
| 42-033-4000                  | Clearfield   | 0.069     | 0.043     |
| 42-011-0009                  | Berks        | 0.078     | 0.065     |
| 42-043-0401                  | Dauphin      | 0.067     | 0.053     |
| 42-085-0100                  | Mercer       | 0.066     | 0.033     |
| 42-013-0801                  | Blair        | 0.057     | 0.043     |
| 42-043-1100                  | Dauphin      | 0,069     | 0.056     |
| 42-101-0004                  | Philadelphia | 0.050     | 0.041     |
| 42-055-0001                  | Franklin     | 0.054     | 0.049     |
| 42-049-0003                  | Erie         |           | 0.048     |
| 42-059-0002                  | Greene       | 0.059     | 0.047     |
| 42-069-0101                  | Lackawanna   | 0.075     | 0.056     |
| 42-069-2006                  | Lackawanna   | 0.069     | 0.050     |
| 42-091-0013                  |              |           |           |
|                              | Montgomery   | 0.079     | 0.071     |
| 42-101-0014                  | Philadelphia | 0.064     | 0.060     |
| 42-101-0024                  | Philadelphia | 0.082     | 0.071     |
| 42-071-0007                  | Lancaster    | 0.074     | 0.067     |
| 42-01 <b>7</b> -00 <b>12</b> | Bucks        | 0.088     | 0.071     |
| 42-073-0015                  | Lawrence     | 0.050     | 0.025     |
| 42-101-0136                  | Philadelphia | 0.063     | 0.059     |
| 42-077-0004                  | Lehigh       | 0.080     | 0.070     |
| 42-095-0025                  | Northampton  | 0.075     | 0.063     |
| 42-117-4000                  | Tioga        | 0.069     | 0.044     |
| 42-125-0005                  | Washington   | 0.055     | 0.041     |
| 42-021-0011                  | Cambria      | 0.059     | 0.047     |
| 42-003-0010                  | Allegheny    | 0.068     | 0.036     |
| 42-081-0100                  | Lycoming     | 0.066     | 0.050     |
| 42-001-0002                  | Adams        | 0.065     | 0.052     |
| 42-063-0004                  | Indiana      | 0.064     | 0.045     |
| may receive encircles        |              | -1001     | angaine.  |
| Maximum                      |              | 0.088     | 0.071     |
|                              |              |           |           |

2005
Daily Max 8-hour Ozone Concentration (ppm) (Source: http://www.epa.gov/airquality/airdata/ad\_data\_daily.html)
ELRP Event: 8/4/05, 2.75 Hours: PECO, PENLC, METED, PPL

|             |              | 8/3/2005 | 8/4/2005 |
|-------------|--------------|----------|----------|
| ELRP Event? |              | No       | Yes      |
| AQS_SITE_ID | COUNTY       |          |          |
| 42-003-0008 | Allegheny    | 0.081    | 0.074    |
| 42-003-0067 | Allegheny    | 0.079    | 0.083    |
| 42-003-1005 | Allegheny    | 0.087    | 0.085    |
| 42-005-0001 | Armstrong    | 0.076    | 0.088    |
| 42-007-0002 | Beaver       | 0.085    | 0.082    |
| 42-095-8000 | Northampton  | 0.054    | 0.069    |
| 42-099-0301 | Perry        | 0.064    | 0.066    |
| 42-125-0200 | Washington   | 0.085    | 0.088    |
| 42-125-5001 | Washington   | 0.078    | 0.076    |
| 42-027-0100 | Centre       | 0.066    | 0.083    |
| 42-029-0100 | Chester      | 0.073    | 0.087    |
| 42-079-1100 | Luzerne      | 0.055    | 0.067    |
| 42-079-1101 | Luzerne      | 0.056    | 0.071    |
| 42-129-0006 | Westmoreland | 0.090    | 0.078    |
| 42-129-0008 | Westmoreland | 0.084    | 0.073    |
| 42-133-0008 | York         | 0.073    | 0.079    |
| 42-007-0005 | Beaver       | 0.079    | 0.081    |
| 42-007-0014 | Beaver       | 0.075    | 0.072    |
| 42-033-4000 | Clearfield   | 0.072    | 0.086    |
| 42-011-0009 | Berks        | 0.061    | 0.078    |
| 42-043-0401 | Dauphin      | 0.066    | 0.078    |
| 42-085-0100 | Mercer       | 0.077    | 0.081    |
| 42-013-0801 | Blair        | 0.069    | 0.080    |
| 42-043-1100 | Dauphin      | 0.056    | 0.073    |
| 42-045-0002 | Delaware     | 0.075    | 0.073    |
| 42-101-0004 | Philadelphia | 0.056    | 0.051    |
| 42-049-0003 | Erie         | 0.077    | 0.079    |
| 42-055-0001 | Franklin     | 0.063    | 0.074    |
| 42-059-0002 | Greene       | 0.085    | 0.075    |
| 42-069-0101 | Lackawanna   | 0.058    | 0.074    |
| 42-069-2006 | Lackawanna   | 0.056    | 0.071    |
| 42-091-0013 | Montgomery   | 0.074    | 0.078    |
| 42-101-0014 | Philadelphia | 0.077    | 0.073    |
| 42-101-0024 | Philadelphia | 0.077    | 0.082    |
| 42-071-0007 | Lancaster    | 0.069    | 0.090    |
| 42-017-0012 | Bucks        | 0.067    | 0.076    |
| 42-073-0015 | Lawrence     | 0.082    | 0.067    |
| 42-077-0004 | Lehigh       | 0.063    | 0.074    |
| 42-095-0025 | Northampton  | 0.061    | 0.073    |
| 42-117-4000 | Tioga        | 0.067    | 0.080    |
| 42-125-0005 | Washington   |          | 0.083    |
| 42-021-0011 | Cambria      | 0.079    | 0.081    |
| 42-003-0010 | Allegheny    | 0.084    | 0.083    |
| 42-081-0100 | Lycoming     | 0.070    | 0.087    |
| 42-001-0002 | Adams        | 0.063    | 0.077    |
| 42-063-0004 | Indiana      | 0.084    | 0.091    |
|             |              |          |          |
|             |              |          |          |

0.090

0.091 DR Day and Non DR Day statistically the same

Maximum

2006
Daily Max 8-hour Ozone Concentration (ppm) (Source: http://www.epa.gov/airquality/airdata/ad\_data\_daily.html)
ELRP Event: 8/2/06, 6.5 Hours: PECO, PENLC, METED, PPL; 5 Hours: PECO, PENLC, METED, PPL

|                     |              | 8/1/2006 | 8/2/2006          | 8/3/2006 |  |
|---------------------|--------------|----------|-------------------|----------|--|
| ELRP Event?         |              | No       | Yes               | Yes      |  |
| AQS_SITE_ID         | COUNTY       |          |                   |          |  |
| 42-003-0008         | Allegheny    | 0.060    | 0.058             | 0.050    |  |
| 42-003-0067         | Allegheny    | 0.053    | 0.054             | 0.046    |  |
| 42-003-1005         | Allegheny    | 0.069    | 0.063             | 0.058    |  |
| 42-005-0001         | Armstrong    | 0.064    | 0.060             | 0.050    |  |
| 42-007-0002         | Beaver       | 0.049    | 0.061             | 0.050    |  |
| 42-095-8000         | Northampton  | 0.057    | 0.055             | 0.056    |  |
| 42-099-0301         | Perry        | 0.059    | 0.060             | 0.062    |  |
| 42-125-0200         | Washington   | 0.059    | 0.049             | 0.044    |  |
| 42-125-5001         | Washington   | 0.050    | 0.055             | 0.044    |  |
| 42-027-0100         | Centre       | 0.056    | 0.058             |          |  |
| 42-029-0100         |              |          |                   | 0.055    |  |
|                     | Chester      | 0.072    | 0.071             | 0.065    |  |
| 42-079-1100         | Luzerne      | 0.046    | 0.049             | 0.053    |  |
| 42-079-1101         | Luzerne      | 0.047    | 0.012             | 0.051    |  |
| 42-129-0006         | Westmoreland | 0.046    | 0.043             | 0.041    |  |
| 42-129-0008         | Westmoreland | 0.054    | 0.052             | 0.048    |  |
| 42-133-0008         | York         | 0.064    | 0.063             | 0.054    |  |
| 42-007-0005         | Beaver       | 0.052    | 0.060             | 0.050    |  |
| 42-007-0014         | Beaver       | 0.047    | 0.053             | 0.042    |  |
| 42-033-4000         | Clearfield   | 0.059    | 0.055             | 0.051    |  |
| 42-043-0401         | Dauphin      | 0.060    | 0.062             | 0.053    |  |
| 42-085-0100         | Mercer       | 0.062    |                   | 0.050    |  |
| 42-013-0801         | Blair        | 0.062    |                   |          |  |
| 42-043-1100         | Dauphin      | 0.062    | 0.056             | 0.054    |  |
| 42-045-0002         | Delaware     | 0.077    | 0.079             | 0.073    |  |
| 42-101-0004         | Philadelphia | 0.064    | 0.062             | 0.059    |  |
| 42-049-0003         | Erie         | 0.064    | 0.061             | 0.050    |  |
| 42-055-0001         | Franklin     | 0.057    | 0.054             | 0.049    |  |
| 42-059-0002         | Greene       | 0.049    | 0.056             | 0.046    |  |
| 42-069-0101         | Lackawanna   | 0.051    | 0.054             | 0.054    |  |
| 42-069-2006         | Lackawanna   | 0.045    | 0.050             | 0.051    |  |
| 42-091-0013         | Montgomery   | 0.080    | 0.073             | 0.076    |  |
| 42-101-0014         | Philadelphia | 0.070    | 0.067             | 0.067    |  |
| 42-101-0024         | Philadelphia | 0.080    | 0.077             | 0.077    |  |
| 42-071-0007         | Lancaster    | 0.077    | 0.076             | 0.069    |  |
| 42-017-0012         | Bucks        | 0.075    | 0.077             | 0.075    |  |
| 42-073-0015         | Lawrence     | 0.073    | 0.050             | 0.073    |  |
| 42-101-0136         | Philadelphia | 0.032    | The second second |          |  |
| 42-077-0004         | Lehigh       | 0.078    | 0.080             | 0.074    |  |
| 42-077-0004         |              |          | 0.060             | 0.060    |  |
|                     | Northampton  | 0.054    | 0.057             | 0.058    |  |
| 42-117-4000         | Tioga        | 0.052    | 0.058             | 0.053    |  |
| 42-125-0005         | Washington   | 0.061    | 0.057             | 0.056    |  |
| 42-021-0011         | Cambria      | 0.059    | 0.064             | 0.057    |  |
| 42-003-0010         | Allegheny    | 0.062    | 0.061             | 0.052    |  |
| 42-081-0100         | Lycoming     | 0.051    | 0.052             | 0.053    |  |
| 42-001-000 <b>2</b> | Adams        | 0,066    | 0.063             | 0.059    |  |
| 42-063-0004         | Indiana      | 0.064    | 0.060             | 0.057    |  |
| 42-089-000 <b>2</b> | Monroe       | 0.050    | 0.057             | 0.056    |  |
| 42-011-0010         | Berks        | 0.053    | 0.057             | 0.059    |  |
|                     |              |          |                   |          |  |
| Maximum             |              | 0.080    | 0.080             | 0.077    | DR days as high or lower than non-DR d |
|                     |              |          |                   |          |  |

2007
Daily Max 8-hour Ozone Concentration (ppm) (Source: http://www.epa.gov/airquality/airdata/ad\_data\_daily.html)
ELRP Event: 8/8/07, 3.7 Hours: PECO, PENLC, METED, PPL

|                     |              | 8/7/2007 | 8/8/2007   |            |
|---------------------|--------------|----------|------------|------------|
| ELRP Event?         |              | No       | Yes        |            |
| AQS_SITE_ID         | COUNTY       |          |            |            |
| 42-003-0008         | Allegheny    | 0.048    | 0.060      |            |
| 42-003-1005         | Allegheny    |          | 0.055      |            |
| 42-003-0067         | Allegheny    | 0.054    |            |            |
| 42-005-0001         | Armstrong    | 0.028    | 0.049      |            |
| 42-007-0002         | Beaver       | 0.051    | 0.052      |            |
| 42-095-8000         | Northampton  | 0.060    | 0.054      |            |
| 42-099-0301         | Perry        | 0.049    | 0.055      |            |
| 42-125-0200         | Washington   | 0.044    | 0.041      |            |
| 42-125-5001         | Washington   | 0.044    | 0.048      |            |
| 42-027-0100         | Centre       | 0.043    | 0.057      |            |
| 42-029-0100         | Chester      | 0.056    | 0.064      |            |
| 42-079-1100         | Luzerne      | 0.042    | 0.043      |            |
| 42-079-1101         | Luzerne      | 0.055    | 0.050      |            |
| 42-129-0006         | Westmoreland | 0.033    | 0.049      |            |
| 42-129-0008         | Westmoreland | 0.034    | 0.045      |            |
| 42-129-0008         | York         | 0.039    | 0.045      |            |
| 42-007-0005         | Beaver       | 0.070    | 0.047      |            |
| 42-007-0014         | Beaver       | 0.034    | 0.047      |            |
| 42-033-4000         | Clearfield   | 0.024    | 0.051      |            |
| 42-043-0401         | Dauphin      |          |            |            |
| 42-045-0401         | Mercer       | 0.056    | 0.064      |            |
| 42-013-0801         | Blair        |          | 0.050      |            |
| 42-043-1100         | Dauphin      | 0.036    | 0.059      |            |
|                     |              | 0.060    | 0.059      |            |
| 42-045-0002         | Delaware     | 0.059    | 0.070      |            |
| 42-101-0004         | Philadelphia | 0.056    | 0.055      |            |
| 42-049-0003         | Erie         | 0.035    | 0.052      |            |
| 42-055-0001         | Franklin     | 0.057    | 0.061      |            |
| 42-059-0002         | Greene       | 0.046    | 0.051      |            |
| 42-069-0101         | Lackawanna   | 0.053    | 0.053      |            |
| 42-069-2006         | Lackawanna   | 0.053    | 0.055      |            |
| 42-091-0013         | Montgomery   | 0.070    | 0.065      |            |
| 42-101-0014         | Philadelphia | 0.057    | 0.057      |            |
| 42-101-0024         | Philadelphia | 0.074    | 0.070      |            |
| 42-071-0007         | Lancaster    | 0.069    | 0.074      |            |
| 42-073-00 <b>15</b> | Lawrence     | 0.029    | 0.054      |            |
| 42-101-0136         | Philadelphia | 0.069    | 0.074      |            |
| 42-077-0004         | Lehigh       | 0.065    | 0.060      |            |
| 42-095-0025         | Northampton  | 0.067    | 0.063      |            |
| 42-125-0005         | Washington   | 0.043    | 0.048      |            |
| 42-021-0011         | Cambria      | 0.036    | 0.054      |            |
| 42-003-0010         | Allegheny    | 0.042    | 0.056      |            |
| 42-081-0100         | Lycoming     | 0.046    | 0.047      |            |
| 42-001-0002         | Adams        | 0.072    | 0.069      |            |
| 42-063-0004         | Indiana      | 0.039    | 0.059      |            |
| 42-089-0002         | Monroe       | 0.047    | 0.044      |            |
| 42-011-0011         | Berks        | 0.069    | 0.063      |            |
|                     |              |          |            |            |
| Maximum             |              | 0.074    | 0.074 No E | xceedances |
|                     |              |          |            |            |

2010
Daily Max 8-hour Ozone Concentration (ppm) (Source: http://www.epa.gov/airquality/airdata/ad\_data\_daily.html)
ELRP Event: 7/7/10, 4 Hours, PECO

|  |              | 7/4/2010 | 7/5/2010 | 7/6/2010 | 7/7/2010 | 7/8/2010 |                                    |
|--|--------------|----------|----------|----------|----------|----------|------------------------------------|
| <b>ELRP Event?</b>                         |              | No       | No       | No       | Yes      | No       |                                    |
| AQS_SITE_ID                                | COUNTY       |          |          |          |          |          |                                    |
| 42-003-0008                                | Allegheny    | 0.071    | 0.066    | 0.080    | 0.084    | 0.083    |                                    |
| 42-003-1005                                | Allegheny    | 0.074    | 0.072    | 0.083    | 0.077    | 0.105    |                                    |
| 42-005-0001                                | Armstrong    | 0.079    | 0.065    | 0.075    | 0.070    | 0.088    |                                    |
| 42-007-0002                                | Beaver       | 0.057    | 0.053    | 0.076    | 0.074    | 0.066    |                                    |
| 42-095-8000                                | Northampton  | 0.071    | 0.062    | 0.066    | 0.060    | 0.055    |                                    |
| 42-099-0301                                | Perry        | 0.072    | 0.066    | 0.073    | 0.067    | 0.080    |                                    |
| 42-125-0200                                | Washington   | 0.064    | 0.065    | 0.064    | 0.084    | 0.074    |                                    |
| 42-125-5001                                | Washington   | 0.058    | 0.057    | 0.060    | 0.068    | 0.066    |                                    |
| 42-027-0100                                | Centre       | 0.075    | 0.061    | 0.000    | 0.000    | 0.000    |                                    |
| 42-029-0100                                | Chester      | 0.070    | 0.061    | 0.073    | 0.073    | 0.047    | PECO                               |
| 42-079-1100                                | Luzerne      | 0.071    | 0.057    | 0.055    | 0.070    | 0.080    | 1200                               |
| 42-079-1101                                | Luzerne      | 0.062    | 0.054    | 0.049    | 0.066    | 0.066    |                                    |
| 42-129-0006                                | Westmoreland | 0.068    | 0.059    | 0.074    | 0.070    | 0.000    |                                    |
| 42-129-0008                                | Westmoreland | 0.076    | 0.066    | 0.079    | 0.073    | 0.095    |                                    |
| 42-133-0008                                | York         | 0.073    | 0.072    | 0.073    | 0.073    | 0.069    |                                    |
| 42-007-0005                                | Beaver       | 0.062    | 0.057    | 0.064    | 0.072    | 0.074    |                                    |
| 42-007-0014                                | Beaver       | 0.063    | 0.056    | 0.062    | 0.079    | 0.073    |                                    |
| 42-033-4000                                | Clearfield   | 0.077    | 0.060    | 0.002    | 0.079    | 0.073    |                                    |
| 42-043-0401                                | Dauphin      | 0.073    | 0.065    | 0.071    | 0.066    | 0.080    |                                    |
| 42-045-0100                                | Mercer       | 0.070    |          |          |          |          |                                    |
| 42-013-0801                                | Blair        | 0.084    | 0.060    | 0.071    | 0.081    | 0.077    |                                    |
| <b>42</b> -013-0801<br><b>42</b> -043-1100 | Dauphin      |          | 0.065    | 0.068    | 0.071    | 0.066    |                                    |
|  | 70.00        | 0.073    | 0.067    | 0.070    | 0.068    | 0.077    |                                    |
| 42-045-0002                                | Delaware     | 0.067    | 0.074    | 0.074    | 0.070    | 0.044    | PECO                               |
| 42-101-0004                                | Philadelphia | 0.048    | 0.058    | 0.059    | 0.049    | 0.025    | PECO                               |
| 42-049-0003                                | Erie         | 0.075    | 0.057    | 0.072    | 0.074    | 0.083    |                                    |
| 42-055-0001                                | Franklin     | 0.066    | 0.070    | 0.070    | 0.061    | 0.075    |                                    |
| 42-059-0002                                | Greene       | 0.061    | 0.055    | 0.066    | 0.078    | 0.078    |                                    |
| 42-069-0101                                | Lackawanna   | 0.074    | 0.062    | 0.053    | 0.075    | 0.067    |                                    |
| 42-069-2006                                | Lackawanna   | 0.071    | 0.061    | 0.051    | 0.072    | 0.066    |                                    |
| 42-091-0013                                | Montgomery   | 0.075    | 0.077    | 0.078    | 0.067    | 0.048    | PECO                               |
| 42-101-0024                                | Philadelphia | 0.072    | 0.082    | 0.084    | 0.077    | 0.046    | PECO                               |
| 42-071-0007                                | Lancaster    | 0.082    | 0.082    | 0.085    | 0.074    | 0.070    |                                    |
| 42-017-0012                                | Bucks        | 0.073    | 0.079    | 0.079    | 0.080    | 0.042    |                                    |
| 42-073-0015                                | Lawrence     | 0,062    | 0.050    | 0.056    | 0.088    | 0.063    |                                    |
| 42-077-0004                                | Lehigh       | 0.083    | 0.074    | 0.079    | 0.074    | 0.066    |                                    |
| 42-095-0025                                | Northampton  | 0.082    | 0.073    | 0.079    | 0.072    | 0.065    |                                    |
| 42-117-4000                                | Tioga        | 0.071    | 0.064    | 0.059    | 0.077    | 0.072    |                                    |
| 42-125-0005                                | Washington   | 0.070    | 0.060    | 0.068    | 0.087    | 0.080    |                                    |
| 42-021-0011                                | Cambria      | 0.072    | 0.064    | 0.065    | 0.079    | 0.085    |                                    |
| 42-003-0010                                | Allegheny    | 0.068    | 0.062    | 0.060    | 0.082    |          |                                    |
| 42-081-0100                                | Lycoming     | 0.075    | 0.059    | 0.059    | 0.073    | 0.076    |                                    |
| 42-001-0002                                | Adams        | 0.070    | 0.068    | 0.073    | 0.072    | 0.092    |                                    |
| 42-063-0004                                | Indiana      | 0.082    | 0.075    | 0.077    | 0.072    | 0.089    |                                    |
| 42-089-0002                                | Monroe       | 0.077    | 0.070    | 0.059    | 0.075    | 0.079    |                                    |
| 42-011-0011                                | Berks        | 0.077    | 0.072    | 0.073    | 0.069    | 0.087    |                                    |
| 42-071-0012                                | Lancaster    | 0.082    | 0.078    | 0.080    | 0.077    | 0.069    |                                    |
| 42-133-0011                                | York         | 0.071    | 0.074    | 0.076    | 0.072    | 0.061    |                                    |
| 42-011-0006                                | Berks        | 0,078    | 0.070    | 0.072    | 0.071    | 0.082    |                                    |
| Maximum                                    |              | 0.084    | 0.082    | 0.085    | 0.088    | 0.105 N  | on-DR day after DR day much higher |

2011
Daily Max 8-hour Ozone Concentration (ppm) (Source: http://www.epa.gov/airquality/airdata/ad\_data\_daily.html)
ELRP Event: 5/31/11, 2 Hours, METED, PENLC, PPL, PECO

|             |                    | r /20/2011 | e (22 /2011    | C /2 /2011     |                                |
|-------------|--------------------|------------|----------------|----------------|--------------------------------|
| ELBD Event? |                    |            | 5/31/2011      | 6/1/2011<br>No |                                |
| ELRP Event? | COUNTY             | No         | Yes            | 140            |                                |
| AQS_SITE_ID | COUNTY             | 0.000      | 0.003          | 0.058          |                                |
| 42-003-0008 | Allegheny          | 0.058      | 0.063          |                |                                |
| 42-003-0067 | Allegheny          | 0.061      | 0.063          | 0.063          |                                |
| 42-003-1005 | Allegheny          | 0.068      | 0.074          | 0.065          |                                |
| 42-005-0001 | Armstrong          | 0.059      | 0.060          | 0.057          |                                |
| 42-007-0002 | Beaver             | 0.050      | 0.046          | 0.057          |                                |
| 42-095-8000 | Northampton        | 0.043      | 0.061          | 0.060          |                                |
| 42-099-0301 | Perry              | 0.056      | 0.059          | 0.060          |                                |
| 42-125-0200 | Washington         | 0.051      | 0.054          | 0.055          |                                |
| 42-125-5001 | Washington         | 0.053      | 0.050          | 0.061          |                                |
| 42-029-0100 | Chester            | 0.061      |                | 0.078          |                                |
| 42-079-1100 | Luzerne            | 0.038      | 0.050          | 0.053          |                                |
| 42-079-1101 | Luzerne            | 0.042      | 0.050          | 0.058          |                                |
| 42-129-0006 | Westmoreland       | 0.059      | 0.062          | 0.056          |                                |
| 42-129-0008 | Westmoreland       | 0.062      | 0.066          | 0.040          |                                |
| 42-133-0008 | York               |            |                | 0.059          |                                |
| 42-007-0005 | Beaver             | 0.056      | 0.052          | 0.060          |                                |
| 42-007-0014 | Beaver             | 0.054      | 0.055          | 0.059          |                                |
| 42-033-4000 | Clearfield         | 0.062      | 0.065          | 0.067          |                                |
| 42-043-0401 | Dauphin            | 0.057      | 0.063          | 0.056          |                                |
| 42-085-0100 | Mercer             | 0.055      | 0.061          | 0.058          |                                |
| 42-013-0801 | Blair              | 0.072      | 0.067          | 0.061          |                                |
| 42-043-1100 | Dauphin            | 0.058      | 0.068          | 0.059          |                                |
|             | 1700000 W 70000000 |            |                |                |                                |
| 42-045-0002 | Delaware           | 0.062      | 0.068          | 0.072          |                                |
| 42-101-0004 | Philadelphia       | 0.041      | 0.054          | 0.067          |                                |
| 42-049-0003 | Erie               | 0.057      | 0.057          | 0.059          |                                |
| 42-055-0001 | Franklin           | 0.058      | 0.067          | 0.055          |                                |
| 42-059-0002 | Greene             | 0.056      | 0.052          | 0.063          |                                |
| 42-069-0101 | Lackawanna         | 0.045      | 0.058          | 0.065          |                                |
| 42-069-2006 | Lackawanna         | 0.042      | 0.053          | 0.062          |                                |
| 42-091-0013 | Montgomery         | 0.053      | 0.064          | 0.072          |                                |
| 42-101-0024 | Philadelphia       | 0.055      | 0.070          | 0.094          |                                |
| 42-071-0007 | Lancaster          | 0.062      | 0.078          | 0.062          |                                |
| 42-017-0012 | Bucks              | 0.050      | 0.068          | 0.085          |                                |
| 42-073-0015 | Lawrence           | 0.056      | 0.057          | 0.057          |                                |
| 42-077-0004 | Lehigh             |            | 0.071          | 0.064          |                                |
| 42-095-0025 | Northampton        | 0.046      | 0.067          | 0.062          |                                |
| 42-117-4000 | Tioga              | 0.051      | 0.055          | 0.068          |                                |
| 42-125-0005 | Washington         | 0.054      | 0.060          | 0.059          |                                |
| 42-021-0011 | Cambria            | 0.063      | 0.066          | 0.059          |                                |
| 42-003-0010 | Allegheny          | 0.061      | Vychaji (Kumi) | 0.060          |                                |
| 42-081-0100 | Lycoming           | 0.044      | 0.053          | 0.060          |                                |
| 42-001-0002 | Adams              | 0.064      | 0.068          | 0.063          |                                |
| 42-063-0004 | Indiana            | 0.069      | 0.072          | 0.064          |                                |
| 42-089-0002 | Monroe             | 0.044      | 0.049          | 0.056          |                                |
| 42-011-0011 | Berks              | 0.054      | 0.063          | 0.056          |                                |
| 42-071-0011 | Lancaster          | 0.034      | 0.003          | 0.063          |                                |
| 42-133-0011 | York               | 0.070      | 0.074          |                |                                |
| 42-011-0006 | Berks              |            | 0.074          | 0.058          |                                |
|             |                    | 0.049      | 0.064          | 0.064          |                                |
| 42-101-1002 | Philadelphia       | 0.054      | 0.071          | 0.088          |                                |
| 42-075-0100 | Lebanon            | 0.062      | 0,070          | 0.044          |                                |
| 42-027-9991 | Centre             | 0.061      | 0.062          | 0.066          |                                |
| 42-111-9991 | Somerset           | 0.061      | 0.063          | 0.062          |                                |
| 42-047-9991 | Elk                |            |                | 0.064          |                                |
|             |                    |            |                |                |                                |
| Maximum     |                    | 0.072      | 0.078          | 0.094          | Non DR day after is higher tha |
|             |                    |            |                |                |                                |

2011
Daily Max 8-hour Ozone Concentration (ppm) (Source: http://www.epa.gov/airquality/airdata/ad\_data\_daily.html)
ELRP Event: 7/22/11, 5 Hours, METED; 5.5 Hours PECO

|             |              | 7/20/2011 | 7/21/2011 | 7/22/2011 |
|-------------|--------------|-----------|-----------|-----------|
| ELRP Event? |              | No        | No        | Yes       |
| AQS_SITE_ID | COUNTY       |           |           |           |
| 42-003-0008 | Allegheny    | 0.064     | 0.058     | 0.074     |
| 42-003-0067 | Allegheny    | 0.066     | 0.062     | 0.077     |
| 42-003-1005 | Allegheny    |           | 0.064     | 0.080     |
| 42-005-0001 | Armstrong    | 0.072     | 0.057     | 0.069     |
| 42-007-0002 | Beaver       | 0.054     | 0.053     | 0.053     |
| 42-095-8000 | Northampton  | 0.074     | 0.071     | 0.061     |
| 42-099-0301 | Perry        | 0.067     | 0.060     | 0.047     |
| 42-125-0200 | Washington   | 0.051     | 0.052     | 0.053     |
| 42-125-5001 | Washington   | 0.058     | 0.053     | 0.060     |
| 42-027-0100 | Centre       | 1000000   | 0.080     | 0.073     |
| 42-029-0100 | Chester      | 0.070     | 0.064     | 0.077     |
| 42-079-1100 | Luzerne      | 0.057     | 0.064     | 0.055     |
| 42-079-1101 | Luzerne      | 0.064     | 0.065     | 0.058     |
| 42-129-0006 | Westmoreland | 0.061     | 0.053     | 0.050     |
| 42-129-0008 | Westmoreland | 0.061     | 0.046     | 0.050     |
| 42-133-0008 | York         | 0.067     | 0.075     | 0.065     |
| 42-007-0005 | Beaver       | 0.066     | 0.051     | 0.060     |
| 42-007-0014 | Beaver       | 0.064     | 0.050     | 0.059     |
| 42-033-4000 | Clearfield   | 0.073     |           |           |
| 42-043-0401 | Dauphin      | 0.076     | 0.078     | 0.062     |
| 42-085-0100 | Mercer       | 0.072     | 0.061     | 0.075     |
| 42-013-0801 | Blair        | 0.074     | 0.071     | 0.089     |
| 42-043-1100 | Dauphin      | 0.081     | 0.080     | 0.071     |
| 42-045-0002 | Delaware     | 0.059     | 0.065     | 0.073     |
| 42-101-0004 | Philadelphia | 0.055     | 0.061     | 0.070     |
| 42-049-0003 | Erie         | 0.058     | 0.068     | 0.059     |
| 42-055-0001 | Franklin     | 0.064     | 0.066     | 0.063     |
| 42-059-0002 | Greene       | 0.050     | 0.052     | 0.047     |
| 42-069-0101 | Lackawanna   | 0.073     | 0.073     | 0.062     |
| 42-069-2006 | Lackawanna   | 0.069     | 0.069     | 0.057     |
| 42-091-0013 | Montgomery   | 0.074     | 0.080     | 0.085     |
| 42-101-0024 | Philadelphia | 0.067     | 0.085     | 0.086     |
| 42-071-0007 | Lancaster    | 0.069     | 0.070     | 0.083     |
| 42-017-0012 | Bucks        | 0.059     | 0.069     | 0.069     |
| 42-073-0015 | Lawrence     | 0.059     | 0.053     | 0.071     |
| 42-077-0004 | Lehigh       | 0.084     | 0.082     | 0.074     |
| 42-095-0025 | Northampton  | 0.076     | 0.076     | 0.070     |
| 42-117-4000 | Tioga        | 0.067     | 0.070     | 0.063     |
| 42-125-0005 | Washington   | 0.058     | 0.057     | 0.047     |
| 42-021-0011 | Cambria      | 0.064     | 0.063     | 0.077     |
| 42-003-0010 | Allegheny    | 0.045     | 0.042     | 0.052     |
| 42-081-0100 | Lycoming     | 0.060     | 0.071     | 0.063     |
| 42-063-0004 | Indiana      | 0.071     | 0.070     | 0.081     |
| 42-089-0002 | Monroe       | 0.062     | 0.0.0     | 0.061     |
| 42-011-0011 | Berks        | 0.080     | 0.083     | 0.074     |
| 42-071-0012 | Lancaster    | 0.078     | 0.072     | 0.081     |
| 42-133-0011 | York         | 0.071     | 0.065     | 0.064     |
| 42-011-0006 | Berks        | 0.075     | 0.077     | 0.067     |
| 42-101-1002 | Philadelphia | 0.063     | 0.073     | 0.084     |
| 42-075-0100 | Lebanon      | 0.080     | 0.085     | 0.079     |
| 42-001-9991 | Adams        | 0.072     | 0.078     | 0.073     |
| 42-027-9991 | Centre       | 0.072     | 0.081     | 0.079     |
| 42-111-9991 | Somerset     | 0.063     | 0.061     | 0.060     |
| 42-085-9991 | Mercer       | 0.067     | 0.065     | 0.066     |
| 42-047-9991 | Elk          | 0.057     | 0.066     | 0.000     |
|             | 240          | 0.037     | 5.000     |           |
| Maximum     |              | 0.084     | 0.085     | 0.089     |

2012
Daily Max 8-hour Ozone Concentration (ppm) (Source: http://www.epa.gov/airquality/airdata/ad\_data\_daily.html)
ELRP Event: 7/18/12, 2 Hours: PECO, PENLC, METED, PPL

|             |              | 7/17/2012 | 7/18/2012 |
|-------------|--------------|-----------|-----------|
| ELRP Event? |              | No        | Yes       |
| AQS_SITE_ID | COUNTY       |           |           |
| 42-003-0008 | Allegheny    | 0.070     | 0.056     |
| 42-003-0067 | Allegheny    | 0.067     | 0.061     |
| 42-003-1005 | Allegheny    | 0.080     | 0.051     |
| 42-005-0001 | Armstrong    | 0.069     | 0.046     |
| 42-007-0002 | Beaver       | 0.060     | 0.052     |
| 42-095-8000 | Northampton  | 0.086     | 0.067     |
| 42-099-0301 | Perry        | 0.077     | 0.056     |
| 42-125-0200 | Washington   | 0.066     | 0.062     |
| 42-125-5001 | Washington   | 0.062     | 0.047     |
| 42-027-0100 | Centre       | 0.082     | 0.056     |
| 42-029-0100 | Chester      | 0.086     | 0.073     |
| 42-079-1100 | Luzerne      | 0.079     | 0.056     |
| 42-079-1101 | Luzerne      | 0.079     | 0.053     |
| 42-129-0006 | Westmoreland | 0.066     | 0.050     |
| 42-129-0008 | Westmoreland | 0.063     | 0.048     |
| 42-133-0008 | York         | 0.074     | 0.054     |
| 42-007-0005 | Beaver       | 0.062     | 0.047     |
| 42-007-0014 | Beaver       | 0.059     | 0.047     |
| 42-033-4000 | Clearfield   | 0.065     | 0.044     |
| 42-085-0100 | Mercer       | 0.066     | 0.060     |
| 42-013-0801 | Blair        | 0.080     | 0.057     |
| 42-043-1100 | Dauphin      | 0.077     | 0.055     |
| 42-045-0002 | Delaware     | 0.078     | 0.074     |
| 42-101-0004 | Philadelphia | 0.057     | 0.051     |
| 42-049-0003 | Erie         | 0.057     | 0.046     |
| 42-055-0001 | Franklin     | 0.062     | 0.057     |
| 42-069-0101 | Lackawanna   | 0.072     |           |
| 42-069-2006 | Lackawanna   |           |           |
| 42-059-0002 | Greene       |           | 0.058     |
| 42-069-0101 | Lackawanna   |           | 0.054     |
| 42-069-2006 | Lackawanna   | 0.074     | 0.054     |
| 42-091-0013 | Montgomery   | 0.073     | 0.064     |
| 42-101-0024 | Philadelphia | 0.080     | 0.078     |
| 42-071-0007 | Lancaster    | 0.080     | 0.062     |
| 42-017-0012 | Bucks        | 0.080     | 0.080     |
| 42-073-0015 | Lawrence     | 0.060     | 0.055     |
| 42-077-0004 | Lehigh       | 0.086     | 0.067     |
| 42-095-0025 | Northampton  | 0.082     | 0.063     |
| 42-117-4000 | Tioga        | 0.060     | 0.052     |
| 42-125-0005 | Washington   | 0.068     | 0.055     |
| 42-021-0011 | Cambria      | 0.073     | 0.049     |
| 42-003-0010 | Allegheny    | 0.067     | 0.051     |
| 42-081-0100 | Lycoming     | 0.073     | 0.055     |
| 42-063-0004 | Indiana      | 0.082     | 0.052     |
| 42-089-0002 | Monroe       | 0.073     | 0.058     |
| 42-011-0011 | Berks        | 0.084     | 0.067     |
| 42-071-0012 | Lancaster    | 0.071     | 0.056     |
| 42-133-0011 | York         | 0.072     | 0.056     |
| 42-011-0006 | Berks        | 0.081     | 0.061     |
| 42-101-1002 | Philadelphia | 0.077     | 0.083     |
| 42-075-0100 | Lebanon      | 0.079     | 0.061     |
| 42-001-9991 | Adams        | 0.071     | 0.059     |
| 42-027-9991 | Centre       | 0.085     | 0.059     |
| 42-111-9991 | Somerset     | 0.063     | 0.052     |
| 42-085-9991 | Mercer       | 0.062     | 0.057     |
| 42-047-9991 | Elk          | 0.064     | 0.055     |
|             |              |           |           |

Maximum

0.061 0.083 0.061 0.059 0.059 0.052 0.057 0.055 0.083 DR Day is lower than previous non DR Day

0.086

2013 Daily Max 8-hour Ozone Concentration (ppm) (Source: http://www.epa.gov/airquality/airdata/ad\_data\_daily.html) Note: Not all counties reporting (e.g., Philadelphia) as of 10/29/13

ELRP Events: 7/15 2.5 Hours, ATSI; 7/16 3 Hours, ATSI; 7/18 2.3 Hours, PECO and PPL, 3.3 Hours ATSI

|             |              | 7/14/2013 | 7/15/2013 | 7/16/2013 | 7/17/2013 | 7/18/2013 |
|-------------|--------------|-----------|-----------|-----------|-----------|-----------|
| ELRP Event? |              | No        | Yes       | Yes       | No        | Yes       |
| AQS SITE ID | COUNTY       |           |           |           |           |           |
| 42-003-0008 | Allegheny    | 0.036     | 0.046     | 0.051     |           |           |
| 42-003-0067 | Allegheny    | 0.029     | 0.04      | 0.046     | 0.047     | 0.049     |
| 42-003-1005 | Allegheny    | 0.033     | 0.055     | 0.04      | 0.046     | 0.066     |
| 42-005-0001 | Armstrong    | 0.033     | 0.047     | 0.036     | 0.040     | 0.063     |
| 42-007-0002 | Beaver       | 0.032     | 0.037     | 0.034     | 0.034     | 0.045     |
| 42-095-8000 | Northampton  | 0.026     | 0.039     | 0.046     | 0.061     | 0.050     |
| 42-099-0301 | Perry        | 0.025     |           | 0.048     | 0.056     | 0.050     |
| 42-125-0200 | Washington   | 0.026     | 0.038     | 0.037     | 0.039     | 0.050     |
| 42-125-5001 | Washington   | 0.034     | 0.040     | 0.028     | 0.032     | 0.045     |
| 42-027-0100 | Centre       | 0.022     | 0.041     | 0.044     | 0.053     | 0.043     |
| 42-029-0100 | Chester      | 0.022     | 0.049     | 0.051     | 0.064     | 0.058     |
| 42-079-1100 | Luzeme       | 0.024     | 0.030     | 0.046     | 0.049     | 0.039     |
| 42-079-1101 | Luzerne      | 0.026     | 0.039     | 0.050     | 0.055     | 0.050     |
| 42-129-0006 | Westmoreland | 0.027     | 0.052     | 0.038     | 0.041     | 0.049     |
| 42-129-0008 | Westmoreland | 0.027     | 0.046     | 0.040     | 0.049     | 0.056     |
| 42-133-0008 | York         | 0.027     | 0.053     | 0.059     | 0.070     | cinc.     |
| 42-007-0005 | Beaver       | 0.030     | 0.039     | 0.036     | 0.039     |           |
| 42-007-0014 | Beaver       | 0.033     | 0.037     | 0.038     | 0.044     | 0.049     |
| 42-033-4000 | Clearfield   | 0.030     | 0.035     | 0.051     | 0.050     | 0.049     |
| 42-043-0401 | Dauphin      | 0.032     | 0.052     | 0.057     | 0.060     | 0.059     |
| 42-085-0100 | Mercer       | 0.040     | 0.048     | 0.037     | 5,500     | 0.066     |
| 42-013-0801 | Blair        | 0.022     | 0.038     | 0.051     | 0.050     | 0.056     |
| 42-045-0002 | Delaware     | 0.025     | 0.046     | 0.055     | 0.063     | 0.067     |
| 42-049-0003 | Erie         | 0.049     | 0.060     | 0.039     | 0.059     | 0.049     |
| 42-055-0001 | Franklin     | 0.024     | 0.054     | 0.054     | 0.058     | 0.054     |
| 42-059-0002 | Greene       | 0.028     | 0.033     | 0.038     | 0.048     | 0.046     |
| 42-069-0101 | Lackawanna   | 0.030     | 0.041     | 0.049     | 0.058     | 0.051     |
| 42-069-2006 | Lackawanna   | 0.030     | 0.041     | 0.049     | 0.059     | 0.051     |
| 42-091-0013 | Montgomery   | 0.029     | 0.054     | 0.056     | 0.068     | 0.055     |
| 42-071-0007 | Lancaster    | 0.030     | 0.051     | 0.056     | 0.069     | 0.058     |
| 42-017-0012 | Bucks        | 0.036     | 0.031     | 0.038     | 0.059     | 0.057     |
| 42-073-0015 | Lawrence     | 0.040     | 0.047     | 0.048     | 0.039     | 0.050     |
| 42-073-0013 | Lehigh       | 0.031     | 0.043     | 0.053     | 0.070     | 0.062     |
| 42-095-0025 | Northampton  | 0.031     | 0.043     | 0.051     | 0.069     | 0.062     |
| 42-117-4000 | Tioga        | 0.032     | 0.037     | 0.051     | 0.055     | 0.060     |
| 42-117-4000 | Washington   | 0.032     | 0.040     | 0.060     | 0.055     | 0.049     |
| 42-021-0011 | Cambria      |           |           | 0.043     |           | 0.050     |
| 42-021-0011 |              | 0.021     | 0.038     | 0.000     | 0.051     | 0.050     |
| 42-003-0010 | Allegheny    | 0.036     | 0.046     | 0.050     | 0.057     | 0.062     |
|             | Lycoming     | 0.024     | 0.039     | 0.056     | 0.059     | 0.047     |
| 42-063-0004 | Indiana      | 0.033     | 0.052     | 0.054     | 0.054     | 0.060     |
| 42-089-0002 | Monroe       | 0.025     | 0.037     | 0.044     | 0.053     | 0.048     |
| 42-011-0011 | Berks        | 0.028     | 0.048     | 0.053     | 0.071     | 0.059     |
| 42-071-0012 | Lancaster    | 0.026     | 0.046     | 0.053     | 0.068     | 0.061     |
| 42-133-0011 | York         | 0.031     | 0.055     | 0.058     | 0.072     | 0.064     |
| 42-011-0006 | Berks        | 0.020     | 0.036     | 0.043     | 0.055     | 0.048     |
| 42-075-0100 | Lebanon      | 0.034     | 0.049     | 0.064     | 0.079     | 0.059     |
| 42-001-9991 | Adams        | 0.025     | 0.051     | 0.053     | 0.059     | 0.052     |
| 42-027-9991 | Centre       | 0.032     | 0.040     | 0.049     | 0.056     | 0.051     |
| 42-111-9991 | Somerset     | 0.021     | 0.036     | 0.044     | 0.048     | 0.055     |
| 42-085-9991 | Mercer       | 0.033     | 0.034     | 0.032     | 0.037     |           |
| 42-047-9991 | Elk          | 0.031     | 0.033     | 0.054     | 0.040     | 0.045     |
| 42-125-5200 | Washington   | 0.027     | 0.032     | 0.035     | 0.034     |           |
| 42-015-0011 | Bradford     | 0.022     | 0.033     | 0.047     | 0.045     | 0.037     |
|             |              |           |           |           |           |           |
| Maximum     |              | 0.049     | 0.060     | 0.064     | 0.079     | 0.067     |

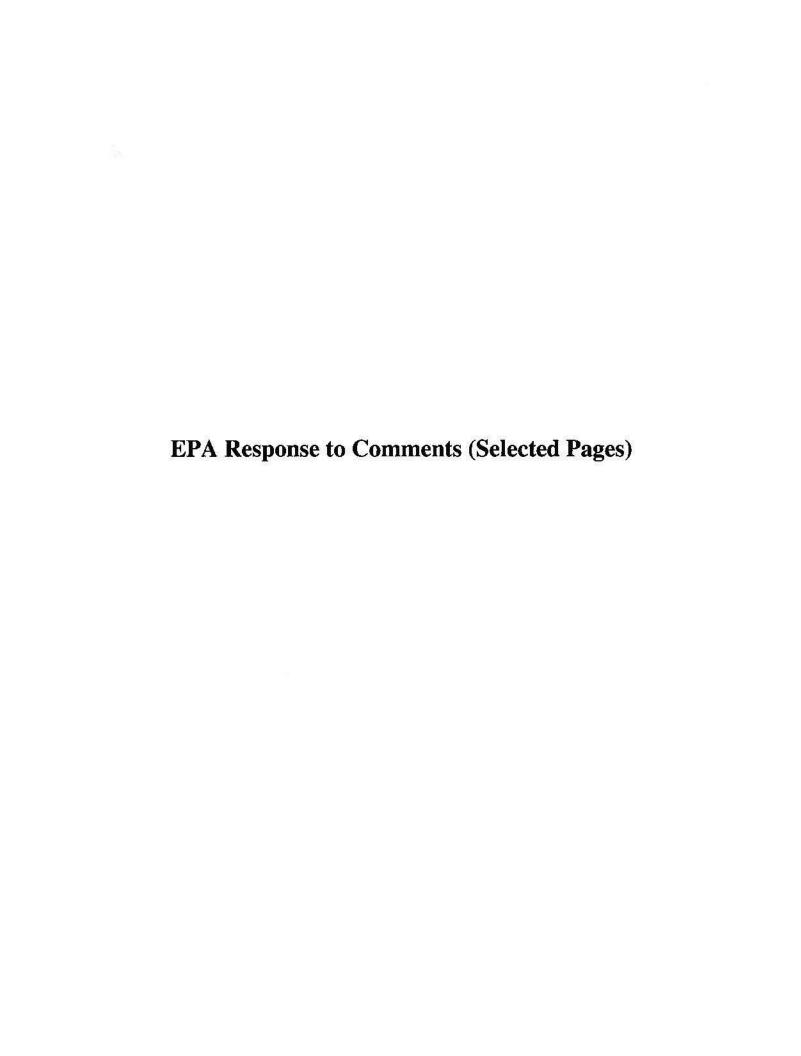
2013

Daily Max 8-hour Ozone Concentration (ppm) (Source: http://www.epa.gov/airquality/airdata/ad\_data\_daily.html)

Note: Not all counties reporting (e.g., Philadelphia) as of 11/15/13

ELRP Events: 9/10 5.7 Hours, ATSI; 9/11 3.5 Hours DQE, 3.3 Hours PPL, PENLC, METED, PECO, 6 Hours ATSI

|             |              | 9/10/2013 | 9/11/2013 |                        |
|-------------|--------------|-----------|-----------|------------------------|
| ELRP Event? |              | Yes       | Yes       |                        |
| AQS_SITE_ID | COUNTY       |           |           |                        |
| 42-003-0008 | Allegheny    | 0.054     | 0.040     |                        |
| 42-003-0067 | Allegheny    | 0.062     | 0.046     |                        |
| 42-003-0007 | Allegheny    | 0.058     | 0.047     |                        |
| 42-005-0001 | Armstrong    | 0.038     | 0.057     |                        |
| 42-003-0001 | Beaver       | 0.065     | 0.052     |                        |
| 42-095-8000 | Northampton  | 0.054     | 0.059     |                        |
| 42-099-0301 | Perry        | 0.059     | 0.065     |                        |
| 42-125-0200 | Washington   | 0.048     | 0.047     |                        |
| 42-125-5001 | Washington   | 0.068     | 0.053     |                        |
| 42-027-0100 | Centre       | 0.062     | 0.046     |                        |
| 42-029-0100 | Chester      | 0.063     | 0.050     |                        |
| 42-079-1100 | Luzerne      | 0.050     | 0.050     |                        |
| 42-129-0006 | Westmoreland | 0.042     | 0.035     |                        |
| 42-129-0008 | Westmoreland | 0.050     | 0.068     |                        |
| 42-133-0008 | York         | 0.058     | 0.000     |                        |
| 42-007-0005 | Beaver       | 0.063     | 0.049     |                        |
| 42-007-0014 | Beaver       | 0.061     | 0.044     |                        |
| 42-033-4000 | Clearfield   | 0.069     | 0.061     |                        |
| 42-043-0401 | Dauphin      | 0.055     | 0.064     |                        |
| 42-085-0100 | Mercer       | 0.069     | 0.061     |                        |
| 42-013-0801 | Blair        | 0.059     | 0.056     |                        |
| 42-043-1100 | Dauphin      | 0.060     | 0.069     |                        |
| 42-045-0002 | Delaware     | 0.047     | 0.049     |                        |
| 42-049-0003 | Erie         | 0.070     | 0.047     |                        |
| 42-055-0001 | Franklin     | 0.060     | 0.068     |                        |
| 42-059-0002 | Greene       | 0.049     | 0.045     |                        |
| 42-069-0101 | Lackawanna   | 0.053     |           |                        |
| 42-069-2006 | Lackawanna   | 0.061     | 0.066     |                        |
| 42-091-0013 | Montgomery   | 0.060     | 0.062     |                        |
| 42-071-0007 | Lancaster    | 0.058     | 0.061     |                        |
| 42-017-0012 | Bucks        | 0.052     | 0.061     |                        |
| 42-073-0015 | Lawrence     | 0.054     | 0.051     |                        |
| 42-077-0004 | Lehigh       | 0.061     | 0.064     |                        |
| 42-117-4000 | Tioga        | 0.074     | 0.055     |                        |
| 42-125-0005 | Washington   | 0.054     | 0.044     |                        |
| 42-021-0011 | Cambria      | 0.055     | 0.049     |                        |
| 42-003-0010 | Allegheny    | 0.072     | 0.052     |                        |
| 42-081-0100 | Lycoming     | 0.057     | 0.052     |                        |
| 42-063-0004 | Indiana      | 0.066     | 0.050     |                        |
| 42-089-0002 | Monroe       | 0.046     | 0.057     |                        |
| 42-011-0011 | Berks        | 0.065     | 0.068     |                        |
| 42-071-0012 | Lancaster    | 0.058     | 0.058     |                        |
| 42-133-0011 | York         | 0.061     | 0.068     |                        |
| 42-011-0006 | Berks        | 0.058     | 0.060     |                        |
| 42-075-0100 | Lebanon      | 0.065     | 0.072     |                        |
| 42-125-5200 | Washington   | 0.056     | 0.043     |                        |
| 42-015-0011 | Bradford     | 0.051     | 0.049     |                        |
| Maximum     |              | 0.074     | 0.072 No  | Exceedances on DR days |



### **MEMORANDUM**

**Subject:** Response to Public Comments on Proposed Amendments to National Emission

Standards for Hazardous Air Pollutants for Existing Stationary Reciprocating Internal Combustion Engines and New Source Performance Standards for

**Stationary Internal Combustion Engines** 

From: Melanie King, Energy Strategies Group

To: EPA Docket EPA-HQ-OAR-2008-0708

**Date:** January 14, 2013

On June 7, 2012, the Environmental Protection Agency (EPA) proposed amendments to the national emission standards for hazardous air pollutants (NESHAP) for stationary reciprocating internal combustion engines (RICE) in 40 CFR part 63, subpart ZZZZ (77 FR 33812). The EPA also proposed amendments to the New Source Performance Standards (NSPS) for Stationary Internal Combustion Engines in 40 CFR part 60, subparts IIII and JJJJ on that same date. In addition, the EPA reopened the comment period on October 3, 2012 to solicit comments on one specific issue regarding existing engines on offshore vessels (77 FR 60341). The purpose of this document is to present a summary of the public comments that EPA received on the proposed rule and the responses developed. This summary of comments and responses serves as the basis for revisions made to the standards between proposal and promulgation.

EPA received 584 public comments on the proposed rule. Of these, 305 comments were from private citizens. A listing of all organizations submitting comments, their affiliation, and the Document ID for their comments is presented in Table 1. All comments can be obtained online from the Federal Docket Management System at <a href="http://www.regulations.gov">http://www.regulations.gov</a>. The docket number for this rulemaking is EPA-HQ-OAR-2008-0708. In this document, commenters are identified by the last three or four digits of the Document ID of their comments.

Of the private citizens who submitted public comments, the vast majority (more than 75 percent) were from two states: Pennsylvania and New York. The rest of the private citizen commenters were scattered from other regions of the country. Most of the private citizen commenters opposed the proposal to allow spark ignition (SI) RICE to avoid installation of pollution controls because of past and future health and economic impacts on their rural neighbors. In contrast, some private citizens supported the remote area

claims that DR will grow, there appears to be nothing in the record to indicate emergency DR, which is restricted to specific circumstances, will have the same change in the market as economic DR.

Another commenter (1142) in its comments on the proposed rule referred to the EPA's Synapse study, which indicated that there would be a net benefit in air quality in having quick start resources such as emergency generators for emergency DR available, reducing reliance on spinning reserves. Information from commenter 1142 also indicates that increased use of emergency engines in emergency DR could reduce emissions. In terms of the NESCAUM report that commenter 994 refers to that talks about the effects of backup generators on HEDD events, again, the EPA finds that analysis to be limited based on a very brief analysis period (2 days) and may not be representative and justified in supporting a conclusion that emergency generators clearly contribute to HEDD events and the EPA does not know what those estimates are based on from that study. The EPA does not believe NESCAUM can conclude without a doubt that emergency DR correlates with high ozone days. Again, the analysis was only over 2 days. Also, in the alternative, the EPA does not know what those backup engines would have been replaced with. The results of the analysis conducted for the report are only applicable for areas with capacity market and may be dependent upon fuel price assumptions. Further, other studies spanning for a longer time looking at many events over many years in different areas of the United States shows a different result (see attachment to EPA-HQ-OAR-2008-0708-1142.) This more robust and comprehensive study, concluded that there is no correlation between emergency DR and high ozone concentration.

Commenters were concerned that these engines would be called to operate for DR on high ozone days, further contributing to non-attainment with ozone standards. However, other commenters noted that emergency DR events do not predominantly occur on ozone exceedance days, as discussed in comment 1.1.1. For example, commenter 1142 provided an analysis that showed that the data do not show that the use of emergency engines during the DR events causes high ozone, particularly since in many instances the ozone concentrations are as high or higher on the days preceding a DR event. The commenters who expressed concern about the impact of the emissions from these engines did not provide any information linking the emissions to exceedances of the ozone standard. Emergency conditions leading to blackouts or near-blackout instability can be caused more by extreme weather events or malfunctions, and emergency DR is different from economic DR in that there is less likelihood of a connection between peak load conditions and the need for emergency DR. Commenters who supported EPA's proposal also noted that some of the commenters opposing use of emergency engines during emergency DR would benefit by such a limitation because other emission sources may be used

was residual fuel oil was 20 percent. The fuel requirement begins on January 1, 2015, in order to give affected sources appropriate lead time to institute these new requirements and make any physical adjustments to engines and other facilities like tanks or containment structures, as well as any needed adjustments to contracts and other business activities, that may be necessitated by these new requirements.

The EPA does not agree that emissions of diesel exhaust are likely to go up significantly compared to the estimates used in the original rule, given the very limited usage of such engines in emergency DR. It is also worth noting that the circumstances during which these engines will be permitted to run under the rule are in circumstances that would prevent blackouts, which, if not prevented, would mean the use of all emergency engines in the affected area, which would create substantially greater emissions from diesel emergency engines than if these limited emergency DR engines are used for a short period of time. Further, in the event of blackouts, people's health and safety are jeopardized. During a blackout, there are human health effects that can result from extreme weather temperatures, hot or cold, that become uncontrollable during the loss of electricity. Commenter 1082 provided in their comments an analysis conducted by Blue Sky Environmental that looked at the health effects resulting from a blackout in 2012. The study indicated heat-related deaths were not above average because of the availability of emergency backup generators. However, the commenter noted that there were several heat-related deaths during the extreme heat. Also, commenter 1143 referred to the incident where during the 2003 blackout in New York City, where millions of gallons of untreated sewage ended up in the rivers of the city. Various states have acknowledged the health and safety damage that can be the result of losing the electric grid and have in their regulations permitted the use of emergency engines in emergency DR programs. Further, in a study published by NIH<sup>31</sup>, it was found that during the blackout of 2003 in New York City put people in greater health peril. Specifically, the results and conclusion of the study were the following:

"We found that mortality and respiratory hospital admissions in NYC increased significantly (two- to eightfold) during the blackout, but cardiovascular and renal hospitalizations did not. The most striking increases occurred among elderly, female, and chronic bronchitis admissions. We identified stronger effects during the blackout than on comparably hot days. In contrast to the pattern observed for comparably hot days, higher socioeconomic status groups were more likely to be hospitalized during the blackout.

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<sup>&</sup>lt;sup>31</sup> "Health Impact in New York City During the Northeastern Blackout of 2003", Public Health Rep. 2011 May-Jun; 126(3): 384–393; http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3072860/

ozone days did not differentiate between emergency and non-emergency DR. The commenter (1142) asserted that the referenced paper analyzes the use of generators for non-emergency (e.g., priceresponsive) DR.

Response: As indicated in the summary of comments, there are different beliefs regarding the correlation between emergency DR and high ozone. The EPA disagrees with commenters who asserted that there is a correlation between high ozone days and emergency DR use because of lacking or incomplete evidence that this is the case. For instance, as indicated by commenter 1142, the technical paper entitled "Using Backup Generators for Meeting Peak Electricity Demand: A Sensitivity Analysis for Emission Controls, Location and Health Endpoints" (Gilmore, Adams & Lave, 2010) (which is cited as support for a correlation between high ozone days and emergency DR) did not differentiate between emergency and non-emergency DR. The 100 hrs/yr provision in the final rule at §63.6640(f)(2) is strictly for the purposes specified in (i) through (iii) of that section, which is limited to maintenance checks and readiness testing, emergency DR operation under declared EEA Level 2 alerts, and periods of voltage and frequency deviations of more than 5 percent below standard conditions.

Also, as noted by commenters 1043 and 1142, the NESCAUM report was limited and consisted only of a 2-day analysis, and the EPA agrees that the NESCAUM report did not provide enough data to establish a firm conclusion about emergency DR operation and ozone exceedances. In general, the commenters who expressed concern about the impact of the emissions from these engines did not provide any information linking the emissions to exceedances of the ozone standard. The Agency agrees with the commenters that state that there is insufficient information to suggest a correlation between high ozone days and emergency DR (see comments provided by 1043 and 1142) and believes sufficient evidence exists supporting the conclusion that emergency DR and high ozone days are not well correlated. For example, in the eastern PJM region between 2006 and 2010 there were nine emergency DR events lasting from 3 to 6 hours in duration. <sup>39</sup> Only during six of the events was ozone recorded as being high and only in some states of PJM; therefore, there is not a clear correlation between high ozone and these limited emergency DR events. While the EPA acknowledges that emergency DR may be called during HEDD in the summer when days are especially warm and ozone is problematic, the use of emergency DR at such times cannot be directly correlated as causing or contributing to the ozone exceedances. Also, the fact is that many DR events occur on days when ozone standards were not



### **Upper Merion Area School District**

### Operations Department 435 Crossfield Road King of Prussia, PA 19406 Phone 610-205-6411, Fax 610-205-6433

The Honorable Ron Miller
House Environmental Resources & Energy Committee
Commonwealth of Pennsylvania
115 Ryan Office Bldg.
Harrisburg, PA 17120-2093

The Honorable Greg Vitali
House Environmental Resources & Energy Committee
Commonwealth of Pennsylvania
38B East Wing
Harrisburg, PA 17120-2166

November 12, 2013

Subject: Emergency generators for demand response

Dear Chairman Miller & Chairman Vitali,

The Upper Merion Area School District is currently participating in an emergency demand response program and last year the District received \$29,331.37 as a result of its efforts. Participation by school districts in emergency demand response directly benefits local taxpayers and citizens by providing a source of alternative revenue which is desperately needed by school districts and by helping to prevent blackouts and brownouts in the local community during periods of very high electricity demand.

Fro the reasons noted above, I am very respectfully requesting you consider opposing HB 1699 which is currently before the House Environmental Resources and Energy Committee. This legislation would place an unnecessary burden on and or restrict school districts that use their emergency generators to participate in the demand response program. Demand response events have been called an average of only 3.7 hours per year and it is actually good for emergency generators to run under full load a couple times per year to keep them in good operating condition so they work properly when there is an emergency. If HB 1699 is enacted, it would require school districts that use their emergency generators for emergency demand response to make significant costly upgrades using capital funds which would be much better spent maintaining their school buildings. Alternatively, if school districts are forced by HB 1699 to suspend their use of emergency generators for demand response because of the high capital costs, the school district, taxpayers and the local community would loose the revenue generating and electrical grid reliability benefits from participating in demand response.

Thank you for your attention to this matter. Please feel free to contact me if you have any questions about how emergency demand response works in school districts for the benefit of the districts and local communities.

Very respectfully,

Frederick P. Remelius Director of Operations Upper Merion Area School District 435 Crossfield Road King of Prussia, PA 19406 Office: 610-205-6411

### Swatara Township Authority

### **ADMINISTRATIVE OFFICE**

599 EISENHOWER BOULEVARD HARRISBURG, PA 17111

Administrative Office Phone: **717-564-1650** Fax: **717-564-6361** 



### WATER POLLUTION CONTROL PLANT

8675 PAXTON STREET HUMMELSTOWN, PA 17036-8601

Operations & Maintenance Phone: **717-566-3361** Fax: **717-566-2355** 

November 15, 2013

The Honorable Ron Miller, Chairman House Environmental Resources & Energy Committee Commonwealth of Pennsylvania 115 Ryan Office Bldg. Harrisburg, PA 17120-2093

The Honorable Greg Vitali, Chairman
House Environmental Resources & Energy Committee
Commonwealth of Pennsylvania
38B East Wing
Harrisburg, PA 17120-2166

Dear Chairman Miller & Chairman Vitali,

As a Pennsylvania Municipality currently participating in emergency demand response programs, I write to you today asking you to oppose HB 1699 sponsored by Rep. Chris Ross which is currently before the House Environmental Resources and Energy Committee. This legislation would negatively impact hundreds of Pennsylvania businesses, hospitals, school districts and local governments which currently participate in PJM's emergency load response program (ELRP).

The use of backup generators in Emergency Demand Response programs not only helps to prevent brownouts and blackouts, it also helps keep the cost of electricity down for all consumers without even disrupting our business' normal day-to-day operations. Demand response events have only been called an average of 3.7 hours a year since 2003. If HB 1699 is enacted, it would require expensive capital upgrades which would require my municipality to suspend our participation in demand response programs altogether, resulting in a loss of revenue to our rate payers and a less stable electric grid.

Our participation in emergency demand response programs not only helps our Municipality by providing small annual payments, it also helps keep our emergency generator in top shape because we can perform the regular testing and maintenance that is required for these engines during demand response events.

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Finally, it is important to note that current Pennsylvania regulations are consistent with a recent Environmental Protection Agency (EPA) ruling that properly made the distinction between emergency and economic demand response. The EPA conducted an exhaustive three year process which resulted in federal regulations that are very similar to Pennsylvania's existing regulations. These rules maintain the delicate balance between a secure, reliable and affordable electric grid with responsible environmental protections and should not be changed.

Thank you for your attention to this matter. Please feel free to contact me directly if you have any questions or need any additional information.

Sincerely

Gene A. Lank II

**O&M Superintendent** 

Swatara Township Authority

8675 Paxton Street

Hummelstown, PA 17036

717-566-3361 X 103

717-836-6200 cell

gene.lank@swatarasewer.com

cc: The Honorable Sam Smith, Speaker House of Representatives Commonwealth of Pennsylvania 139 Main Capitol Building Harrisburg, PA 17120

> The Honorable Frank Dermody, Minority Leader House of Representatives Commonwealth of Pennsylvania 423 Main Capitol Building Harrisburg, PA 17120



Robert Gurdikian, PG, CHMM Environmental Project Manager III Level 3 Communications, LLC 1025 Eldorado Blvd, 43C-325 Broomfield, Colorado 80021

October 22, 2013

The Honorable Ron Miller House Environmental Resources & Energy Committee Commonwealth of Pennsylvania 115 Ryan Office Bldg. Harrisburg, PA 17120-2093

The Honorable Greg Vitali
House Environmental Resources & Energy Committee
Commonwealth of Pennsylvania
38B East Wing
Harrisburg, PA 17120-2166

Dear Chairman Miller & Chairman Vitali:

As a Pennsylvania business currently participating in emergency demand response programs, I write to you today asking you to oppose HB 1699 sponsored by Rep. Chris Ross which is currently before the House Environmental Resources and Energy Committee. This legislation would negatively impact hundreds of Pennsylvania businesses, hospitals, school districts and local governments which currently participate in PJM's emergency load response program (ELRP).

At this time, Level 3 has six sites throughout the Commonwealth participating in the emergency demand response program. The use of backup generators in Emergency Demand Response programs not only helps to prevent brownouts and blackouts, it also helps keep the cost of electricity down for all consumers without disrupting our businesses' day-to-day operations. Demand response events in Pennsylvania have only been called an average of 3.7 hours a year since 2003. If HB 1699 is enacted, it would require expensive capital upgrades of over \$200,000 per engine which would require Level 3 to suspend our participation in demand response programs altogether, resulting in a loss of revenue to our business and more importantly to the Commonwealth a less stable electric grid. HB 1699 requires very rigid emission limits to be met for engines participating in emergency demand response program. In order to meet these rigid emission limits, very expensive emission controls are required.

Our participation in emergency demand response programs not only helps our business by providing small annual payments, our emergency generators remain in top shape because

## Page 2

we can perform the regular testing and maintenance that is required for these engines during demand response events.

Finally, it is important to note that current Pennsylvania regulations are consistent with a recent Environmental Protection Agency (EPA) ruling (40 CFR 63 Subpart ZZZZ for older engines and 40 CFR 60 Subparts IIII and JJJJ for newer engines) that properly made the distinction between emergency and economic demand response. The EPA conducted an exhaustive three year rulemaking process which resulted in federal regulations that are very similar to Pennsylvania's existing regulations. These rules maintain the delicate balance between a secure, reliable and affordable electric grid with responsible environmental protections and should not be changed.

Thank you for your attention to this matter. Please feel free to contact me directly if you have any questions or need any additional information.

Sincerely,

Robert Gurdikian, PG, CHMM Environmental Project Manager III Level 3 Communications, LLC

Cc: The Honorable Sam Smith
Speaker
House of Representatives
Commonwealth of Pennsylvania
139 Main Capitol Building
Harrisburg, PA 17120

The Honorable Frank Dermody Minority Leader House of Representatives Commonwealth of Pennsylvania 423 Main Capitol Building Harrisburg, PA 17120

# **DOWNINGTOWN AREA REGIONAL AUTHORITY**

6 West Lancaster Avenue Downingtown, Pennsylvania 19335 Phone (610) 269-4084 Fax (610) 269-1580

October 15, 2013

The Honorable Becky Corbin House Environmental Resources & Energy Committee Commonwealth of Pennsylvania 52A East Wing Harrisburg, PA 17120-2155

RE: House Bill 1699

Dear Rep. Corbin,

As a Pennsylvania business currently participating in emergency demand response programs and within your district, I write to you today asking you to oppose HB 1699 sponsored by Rep. Chris Ross which is currently before the House Environmental Resources and Energy Committee. This legislation would negatively impact hundreds of Pennsylvania businesses, hospitals, school districts and local governments which currently participate in PJM's emergency load response program (ELRP).

The use of backup generators in Emergency Demand Response programs not only helps to prevent brownouts and blackouts, it also helps keep the cost of electricity down for all consumers without even disrupting our business' normal day-to-day operations. Demand response events have only been called an average of 3.7 hours a year since 2003. If HB 1699 is enacted, it would require expensive capital upgrades which would require my business to suspend our participation in demand response programs altogether, resulting in a loss of revenue to our business and a less stable electric grid.

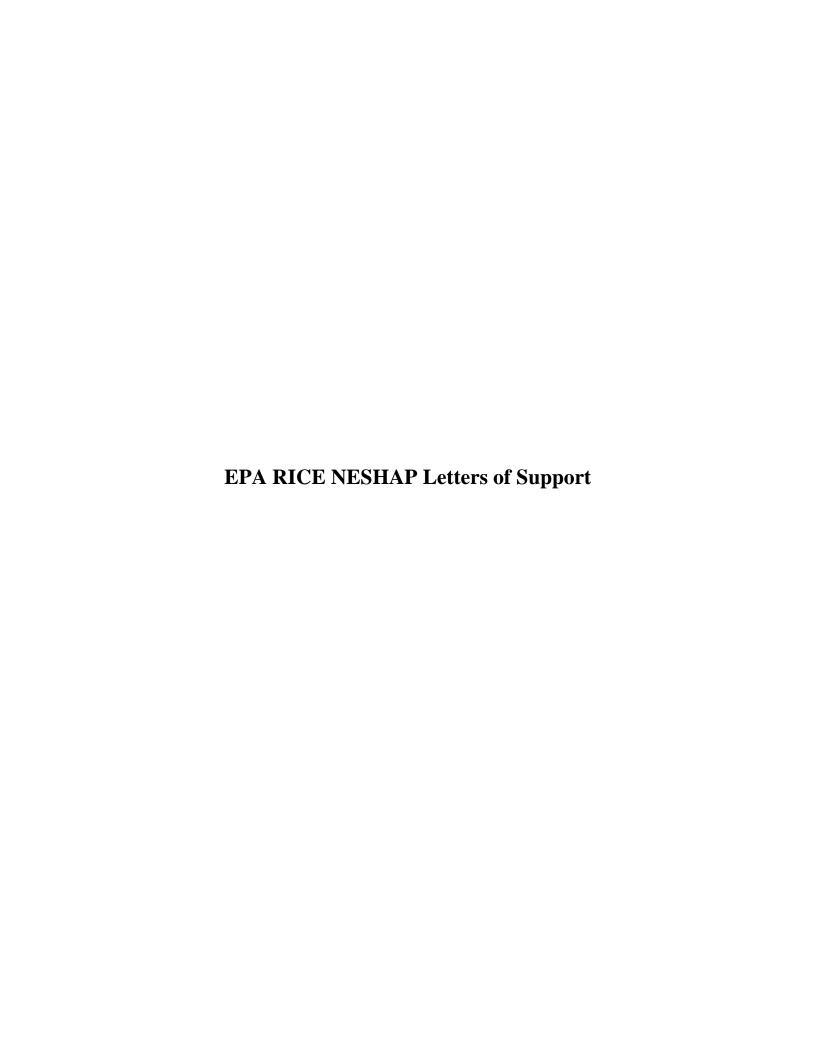
Our participation in emergency demand response programs not only helps our business by providing small annual payments, it also helps keep our emergency generator in top shape because we can perform the regular testing and maintenance that is required for these engines during demand response events. Finally, it is important to note that current Pennsylvania regulations are consistent with a recent Environmental Protection Agency (EPA) ruling that properly made the distinction between emergency and economic demand response. The EPA conducted an exhaustive three year process which resulted in federal regulations that are very similar to Pennsylvania's existing regulations. These rules maintain the delicate balance between a secure, reliable and affordable electric grid with responsible environmental protections and should not be changed.

Thank you for your attention to this matter. Please feel free to contact me directly if you have any questions or need any additional information.

Very truly yours,

Herbert J. Mays, P.E.

Executive Director





July 19, 2012

Mr. Kevin Downey Whirley-DrinkWorks 618 4th Ave Warren, PA 16365

RE: Docket ID No. EPA-HQ-OAR-2008-0708

To Ms. Melanie King:

I understand that the EPA has proposed a 100 hour limit on the use of backup generators, but that opponents are advocating for even further restrictions that would, in effect, prevent companies from using their generators to provide demand response capacity during a grid emergency. Whirley-DrinkWorks facility in Warren, PA is a proud participant in PJM's demand response program, but if generators were not allowed in the program, we would no longer be able to participate.

We signed up for demand response for many reasons. Obviously, the financial benefits are an important driver of our participation; in today's economic climate, any incremental revenue stream is highly valued. However, our reasons extend beyond the financial. We have an extensive suitability program, divided into four core areas of focus, including Workplace, Environment, Community, and Marketplace. Our commitment to Grid Management Programs, including PJM's Emergency Load Response Program, is an integral piece of our environmental commitment. You can read our full report at <a href="http://www.whirleydrinkworks.com/docs/Whirley-DrinkWorks-Corporate-Sustainability-Report.pdf">http://www.whirleydrinkworks.com/docs/Whirley-DrinkWorks-Corporate-Sustainability-Report.pdf</a>.

I am writing to strongly encourage the EPA to uphold its proposed rule as outlined in Docket ID No. EPA-HQ-OAR-2008-0708 and protect our demand response participation. As a family-owned business with strong ties to our community, we cannot overstate the benefits that demand response provides, both economically and environmentally.

Kind regards,

Kevin Downey Facility Engineer MessageID:

<32476\_1344538167\_50240637\_32476\_669\_2\_7940BB1BBF1D734DBC928D669DDF80AB2BEDC506@exds2010-2.umasd.org>

From: "Remelius, Frederick" <FRemelius@umasd.org>

Sent: 08/09/2012 02:49:26 PM

Subject: Docket ID No. EPA-HQ-OAR-2008-0708

Body: Good afternoon,

I would like to lend my support to the concept of allowing public schools the ability to run their emergency generators for up to 100 hours per year and maybe more in support of demand response and peak load contributions efforts. The UpperMerionAreaSchool Districtand many of our peers in the DelawareValleyregion of Pennsylvaniahave been participating in demand response programs for several years by just shedding loading. Allowing public schools to utilities their emergency generators for demand reduction and peak load contribution efforts would serve several purposes:

Increase the amount of electricity we could shed during emergencies on the regional electrical grid, thus helping to make it more stable. Using all available resources to prevent blackout during power emergencies should be a matter of national security as well as protection against the significant economic impact of blackouts.

Many of school district emergency generators are powered by natural gas which is less polluting that commercial diesel or gas turbine generators which would in turn strategically lessen the nation's dependence on foreign oil.

Emergency generators need to be exercised anyway to help them run more reliably and efficiently. Most emergency generators in public schools die from becoming obsolete and a lack of replacement parts, not from being over used and worn out.

Unlike generators designed for commercial power applications, most emergency generators in public schools have very few run time hours on them, which means their piston rings and other components have little wear on them so they likely to produce less pollution than commercial power generators.

In today's economy, public schools desperately need any additional sources of revenue they can get and the cost benefit ratio to a school district of operating an emergency generator for an additional 100 hours and maybe higher in support of the regional electrical grid would help provide additional revenue to schools.

Being permitted to run our emergency generators as a means to help lower a school district's peak load contribution in the PJM region would provide school districts cost savings on top of the revenue generated by participating in demand response programs.

In conclusion, I think allowing public schools to run their emergency in support of demand reduction and peak load contribution efforts has a lot of positive benefits in terms of national security, economic security, a stable regional electrical grid, less pollution, more reliable emergency generators, increased revenue, and decreased cost for public school.

Very respectfully,

Frederick P. Remelius

Director of Operations

Upper MerionAreaSchool District

435 Crossfield Road

King of Prussia, PA19406

Tel: 610-205-6411 Fax: 610-205-6433

# Swatara Township Authority

#### **ADMINISTRATIVE OFFICE**

599 EISENHOWER BOULEVARD HARRISBURG, PA 17111

> Administrative Office Phone: **717-564-1650** Fax: **717-564-6361**



#### WATER POLLUTION CONTROL PLANT

8675 PAXTON STREET HUMMELSTOWN, PA 17036-8601

Operations & Maintenance Phone: **717-566-3361** Fax: **717-566-2355** 

July 9, 2012

William J. Jones Swatara Township Authority 8675 Paxton Street Hummelstown, PA 17036

Ms. Melanie King Energy Strategies Group Sector Policies and Programs Division (D243-01)

Dear Ms. Melanie King,

Subject: Docket ID No. EPA-HQ-OAR-2008-0708

It has come to my attention that the EPA recently proposed a rule to allow emergency generators to participate in demand response for up to 100 hours, but that the rule is now being challenged and is open to comments. On behalf of the Swatara Township Authority, I support the EPA's ruling, and feel that it would be a mistake to further limit the number of hours backup generators can be used. I'm writing with an endorsement for the current proposed rule (Docket ID No. EPA-HQ-OAR-2008-0708).

Because blackouts pose a serious threat to the safe treatment of water, Swatara Township Authority keeps and maintains enough backup generation to make sure our operations continue, even in the face of a blackout. Other businesses and residences, however, do not have that same luxury, and blackouts can cause serious disruption. Swatara Township Authority is proud to help prevent grid emergencies from negatively impacting our community.

We have very little curtailable load at our facility, and as such, if backup generators were restricted to such a degree that we were no longer able to use them in demand response events, we would be forced to pull out of the program.

Thank you for considering my comments, and I look forward to hearing more about the outcome of this comment period.

Sincerely,

SWATARA TOWNSHIP AUTHORITY

William J. Jones

O & M Superintendent

nat

By Email

# NEW FREEDOM BOROUGH

49 E HIGH ST NEW FREEDOM PA 17349 (717)235-2337

July 25, 2012

John S. Smith New Freedom Borough WWTP 12 Main St. Railroad, Pa. 17355

Attn: Melanie King Energy Strategies Group Sector Policies and Programs Division (D243-01)

RE: Docket ID No. EPA-HQ-OAR-2008-0708

Dear Ms. King:

I wish to submit my comments **in support of** the EPA's proposed ruling allowing for up to 100 hours in backup generation, as stipulated in Docket ID No. EPA-HQ-OAR-2008-0708.

Our facilities manage all the wastewater generated by residents in the New Freedom, Railroad, and Shrewsbury Boroughs, and the Townships of Shrewsbury and Hopewell. Maintaining constant stability of our operations is absolutely critical, which means we rely on our backup generators in the case of an emergency. Backup generators are essential to our performance and act as insurance and protection against power outages, which can affect the safety of our wastewater treatment.

Our facilities' participation in PJM's demand response network provides stability to the grid and reduces the threat of a blackout. If the amount of hours of backup generation is further curtailed beyond the proposed 100 hours, our ability to participate in demand response would be jeopardized, as would many other participants' in the program. This would lead to the destabilization of a power grid that is already under stress – an unfavorable outcome from any perspective.

Thank you for accepting my comments for your review.

Respectfully,

John S. Smith

**Director of Wastewater Operations** 

New Freedom Borough Wastewater Treatment Plant

July 12, 2012

Mr. Steve Jones Manager, Country View Family Farms 6360 Flank Drive Suite 100 Harrisburg, PA 17112

RE: NESHAP - Docket ID No. EPA-HQ-OAR-2008-0708

To Melanie King:

Country View Family Farms strongly supports the EPA's ruling allowing 100 hours of stationary engine generation to be used in demand response. On behalf of CVFF, I request that the EPA maintain this ruling in the face of the current challenges against it.

Backup generation is extremely important to CVFF for a number of reasons. We operate in Pennsylvania, Ohio and Indiana, regions that experience extreme grid stress in the summer months. Demand response is a crucial program for maintaining the grid and reducing load as needed, and our grid operator, PJM, needs as many entities as possible to participate. CVFF participates with backup generation because it is not feasible for us to curtail time-sensitive processes such as the cleaning of our animal pens.

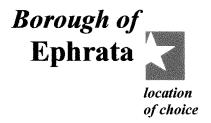
Demand response not only stabilizes the electric grid, but provides a valuable income stream to our farms. We have over 100 family farms raising hogs under contract, infusing nearly \$12 million a year into rural communities. The payments we receive from demand response are an important contribution to this business model, though we stand to lose them if we can no longer use our stationary backup engines to participate for up to 100 hours. Please uphold your ruling to maximize the hours allowed for stationary engines in demand response.

On behalf of Country Valley Family Farms, I thank you.

Sten gon

Sincerely,

Steve Jones, Manager



124 South State Street, Ephrata, PA 17522 717-738-9232, X-108 / 717-738-9201 (Fax) bthompson@ephrataboro.org

#### August 7, 2012

Via Electronic Filing: a-and-r-docket@epa.gov

Copy to: king.melanie@epa.gov

Air and Radiation Docket and Information Center

**Environmental Protection Agency** 

Mail Code: 6102T

1200 Pennsylvania Avenue, NW

Washington, DC 20460

RE: Proposed Rule (Federal Register / Vol. 77, No. 110, June 7, 2012 pp. 33812-33857): National Emission Standards for Hazardous Air Pollutants for Reciprocating Internal Combustion Engines; New Source Performance Standards for Stationary Internal Combustion Engines

(Docket: EPA-HQ-OAR-2008-0708)

#### Dear Sir or Madam:

I am writing to you today to provide comments on the above-referenced docket on behalf of Ephrata Borough. Our Borough has been providing municipal power to the residents of Ephrata, Pennsylvania since 1902. The Borough distributes approximately 140 million kilowatt hours of electricity annually. Ephrata Borough respectfully submits these comments to be included in the record for the Environmental Protection Agency's (EPA) proposed amendments to the National Emission Standards for Hazardous Air Pollutants (NESHAP) for stationary reciprocating internal combustion engines (RICE) under Section 112 of the Clean Air Act (Docket: EPA-HQ-OAR-2008-0708).

Ephrata Borough is a member of American Municipal Power, Inc. (AMP) and endorses their more extensive comments already filed on this docket, as well as comments on the proposed amendments that will be filed by the August 9 deadline.

Ephrata Borough appreciates EPA's responsiveness to the somewhat unique operational characteristics of small municipal electric utility RICE units raised by AMP and others through the reconsideration process. Ephrata Borough is supportive of the proposed amendments relating to the allowable hours of use for emergency demand response as part of the allowable 100 hours

per year for maintenance and testing purposes. Ephrata Borough is also supportive of EPA's new proposal to temporarily allow up to 50 hours annually for non-emergency uses for area sources only, including peak shaving. Ephrata Borough appreciates EPA's accommodation on these points and joins AMP in seeking clarification from the agency on some key aspects of the proposed amendments (incorporating the entirety of AMP's comments by reference).

## **Emergency Demand Response**

Ephrata Borough fully supports EPA's acknowledgement of the importance of ensuring grid reliability and the need to align the RICE NESHAP provisions with the EDR requirements of RTOs, by proposing to eliminate the current rule's 15-hour annual limit for EDR and to instead allow emergency RICE units to participate in EDR programs as part of the 100 hours currently allowable for unit maintenance and testing.

Importantly, EPA acknowledges and Ephrata Borough concurs that emissions are not expected to increase under this proposal, since the amount of total allowable hours remains at 100. Further, by being able to rely on smaller, more localized units in these EDR situations, RTOs and other balancing authorities should be able to reduce their reliance on more remote central station units, where line losses could further impact reliability.

## Voltage-Variance Trigger for EDR

Ephrata Borough applauds EPA for proposing the use of voltage variance as an appropriate alternative to the EEA Level 2 trigger for allowable EDR – a suggestion offered by AMP and others during the reconsideration process. The two trigger options that are included in the proposed amendments recognize that one size does not fit all when it comes to system control. Ephrata Borough does share AMP's concern that, in some cases, allowing the use of EDR in response to a 5% or greater voltage variance would not be sufficient to avoid or isolate system problems, particularly for very small systems, which could cascade into neighboring systems. Ephrata Borough also notes that the proposed amendments are silent on the recordkeeping that might be appropriate in tracking when the voltage-variance trigger is used by local operators. Ephrata Borough joins AMP in requesting additional guidance from EPA as to what type of recordkeeping would be required.

#### Temporary Allowance for Peak Shaving

Ephrata Borough generally supports EPA's new proposal to provide a temporary allowance (until April 16, 2017) of up to 50 hours annually for peak-shaving and other non-emergency use for existing stationary emergency RICE units at area sources. This proposal recognizes that RICE units could prove to be invaluable reliability resources as other larger generating units are working to meet compliance obligations under tight timeframes for other EPA rules, including the Mercury and Air Toxics Standards rule. Ephrata Borough shares AMP's concern that reliability issues may be disproportionally experienced in our region of the nation, where the vast majority of generation capacity is coal-fired and thus subject to the MATS rule. Any effort to provide additional generation resource options – even temporarily – is appreciated. However, as noted in AMP's comments, clarification is needed from EPA on several key points in this section of the proposed amendments (please see AMP's comments for details).

## Align Compliance Deadlines

Based on comments by EPA staff during a webinar on the proposed amendments, the agency is expecting that entities needing to install controls will encounter equipment and vendor delays. It appears that many units have not yet made required modifications, no doubt because they have lacked clear direction as to the final requirements. Even the improvements outlined in the proposed amendments cannot yet be embraced with confidence by the regulated community because they are not final, nor is the regulated community likely to know what is final until December 14, 2012, the date by which EPA has promised to issue its final RICE NESHAP. Impacted units cannot commit investment dollars toward compliance that might not be required. In light of these considerations, but also to simplify compliance decision-making, Ephrata Borough endorses AMP's proposal to align both the CI and SI compliance dates so that the current date for SI compliance (October 19, 2013) is the same for CI compliance. This would extend the compliance date for CI units by approximately five months. Ephrata Borough also supports EPA's retention of the additional one-year for compliance that could be requested by units on a case-by-case basis. Indeed, Ephrata Borough concurs with AMP that a short fivemonth extension of the time for CI compliance should reduce the need for EPA to evaluate caseby-case extension requests.

### Conclusion

Ephrata Borough appreciates the opportunity to provide these comments for the record and thanks the agency for the direction of the proposed amendments, which balances electric reliability and health considerations.

Sincerely,

**BOROUGH OF EPHRATA** 

D. Robert Thompson, P.E.

Borough Manager



Your ideas become reality...

ARMSTRONG WORLD INDUSTRIES, INC. 2500 COLUMBIA AVE., LANCASTER, PA 17603 P.O. BOX 3001, LANCASTER, PA 17604 717 397 0611

www.armstrong.com

July 17, 2012

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

SUBJECT: Docket ID No. EPA-HQ-OAR-2008-0708-0866 (NOPR for RICE NESHAP and NSPS)

Dear Administrator Jackson:

Established in 1860, Armstrong World Industries, Inc. ("Armstrong") is a global leader in the design and manufacture of floors, ceilings and cabinets. Based in Lancaster, Pennsylvania, Armstrong operates 33 plants in eight countries and has approximately 9,100 employees worldwide. Twenty-one of these plants plus our Corporate Campus are in the United States. Armstrong is providing these comments in response to the U.S. Environmental Protection Agency ("EPA") Notice of Proposed Rulemaking ("NOPR") that appeared in the Federal Register on June 7, 2012 regarding the use of engines in both emergency and non-emergency demand response ("DR") programs as detailed in the National Emission Standards for Hazardous Air Pollutants ("NESHAP") for Reciprocating Internal Combustion Engines ("RICE") and the EPA's New Source Performance Standards ("NSPS") in 40 CFR 60 Subparts IIII and JJJJ.

Armstrong is pleased that the EPA is proposing to increase the allowable hours to up to 100 for engines participating in emergency DR programs and fully supports this proposal. Armstrong is also pleased that EPA is proposing to allow up to 50 hours per year for non-emergency DR or peak shaving use; however, Armstrong recommends that this 50 hours be increased to 100 hours and that there be no close off date (e.g., the rule proposes that this 50 hour use would only be until April 16, 2017). EPA is specifying that the peak shaving power can only be used to generate income for a facility or the engine can only be operated as part of a program with the local distribution system operator and the power is provided only to the facility itself or to support the local distribution system. It is recommended that 40 CFR 63.6640(f)(4) be simplified and amended to:

Up to 100 hours per year for non-emergency situations can be used for peak shaving or non-emergency demand response.

We also note that the add-on controls required to meet the non-emergency requirements of the RICE NESHAP including a diesel oxidation catalyst (and the

engineering involved), crankcase ventilation system, parametric monitoring, and the required stack testing are extensive, expensive (approximately \$30,000 or more for one engine), and are questionable for low hours of operation. In addition to making the non-emergency/peak shaving changes in the NESHAP, Armstrong also recommends that the same changes be made in the NSPS in both subparts IIII and IIII.

Armstrong also recommends that EPA change the life-time non-emergency DR provision in the RICE NESHAP (40 CFR 63.640(f)) and in the NSPS regarding the proposal that if an engine exceeds the calendar year limitations on non-emergency operation, the engine will be considered a non-emergency engine and subject to the requirements of non-emergency engines for the remaining life of the engine. It is recommended that the hourly limits of non-emergency use be tracked on a 3-year running average rather than on a calendar year basis. Thus, if an engine is used for 101 hours in year 1 and 20 hours in years 2 and 3, it will not need to be treated as a non-emergency engine for the life of the engine.

Armstrong supports the EPA's proposed changes regarding the use of emergency engines for emergency DR programs. Although emergency DR is rarely called upon, it is an important resource to the Regional Transmission Operators in keeping the lights on and avoiding blackouts, which would severely impact the residential and business community. Emergency DR has proven over the years to be a highly valued resource that keeps the lights on in extreme conditions.

Thank you for accepting and considering these comments.

Sincerely,

John A. Ackiewicz AWI Environmental/ABP Senior EHS Manager Corporate EH&S Armstrong World Industries, Inc.

# BOROUGH

# AMBLER WASTEWATER TREATMENT PLANT

**AMBLER** 

122 EAST BUTLER AVENUE AMBLER, PA 19002-4476

Phone: (215) 628-9457 Fax: (215) 628-0142



July 20, 2012

**Bruce Jones** Borough of Ambler 122 E. Butler Avenue

Ambler, PA 19002

RE: Docket ID No. EPA-HQ-OAR-2008-0708

To Whom It May Concern CC: Ms. Melanie King, Governor Corbett, Secretary Krancer, and Chairman Powelson

Ambler, Pennsylvania is a small town about 20 miles northwest of Philadelphia. Our wastewater treatment plant has capacity to serve a population of about 65,000, including Lower Gwynedd, Upper Dublin, Whitpain, Whitemarsh and Montgomery Townships and relies on our backup generator in times of peak demand on the grid. I support the EPA's recently proposed ruling (Docket ID No. EPA-HQ-OAR-2008-0708), which allows up to 100 hours annually for participation of backup generators in emergency demand response.

As a facility that serves a vital purpose in our community - fresh, clean water for all - the plant cannot afford to shut down during a brownout or blackout, which is why we do our part in PJM's Emergency Load Response Program to prevent the occurrence of such a grid emergency. In addition, we have answered our State's call to reduce our overall peak demand, and we actively participate in Act 129 demand response programs.

I would like to reiterate my support of the ruling and encourage the EPA to uphold the limit of 100 hours for emergency demand response, 50 hours of which can be used for non-emergency purposes. In addition, I would encourage the EPA to extend the allocation for non-emergency usage.

Facilities that provide public health and safety should be able to utilize their backup generator for greater benefit of all.

Sincerely, Danies Janes

Bruce Jones

Plant Superintendent, Ambler Wastewater Treatment Plant



EnerNOC, Inc One Marina Park Drive Suite 400 Boston, MA 02210 Tel: 617 224 9900 Fax: 617 224 9910 www.enernoc.com info@enernoc.com

November 18, 2013

The Honorable Ron Miller House Environmental Resources & Energy Committee Commonwealth of Pennsylvania 115 Ryan Office Bldg. Harrisburg, PA 17120-2093

The Honorable Greg Vitali House Environmental Resources & Energy Committee Commonwealth of Pennsylvania 38B East Wing Harrisburg, PA 17120-2166

Dear Chairman Miller & Chairman Vitali,

EnerNOC is a leading provider of energy management services to commercial, industrial and institutional electric users and the largest provider of demand response ("DR") services in the world. In Pennsylvania we work with customers at over 1800 sites across the Commonwealth, primarily to provide demand response capacity to the PJM Interconnection ("PJM") in its Emergency Load Reduction Program ("ELRP"). These customers range from steel mills, to food processing facilities to municipal waste water treatment plants to universities and school districts.

I write to you today asking you to oppose HB 1699 sponsored by Rep. Chris Ross which is currently before the House Environmental Resources and Energy Committee. This legislation would negatively impact hundreds of Pennsylvania businesses, hospitals, school districts and local governments which currently participate in PJM's emergency load response program (ELRP).

EnerNOC is opposed to HB 1699 because it would place unnecessary and burdensome regulations on Pennsylvania businesses and institutions that go well beyond what has been deemed necessary by the federal Environmental Protection Agency ("EPA"). On January 30<sup>th</sup> of this year, the EPA finalized rules for Reciprocating Internal Combustion Engines in its National Emission Standards for Hazardous Air Pollutants (the "RICE NESHAP"). These final rules followed three years of study, multiple public hearings and hundreds of comments from the public.

The EPA concluded that owners of emergency diesel generators, the subject of H.B. 1699, would not have to add pollution control equipment to their engines if they only utilize them during 1) blackouts, 2) testing and maintenance and 3) participation in an emergency DR program or market. The EPA further placed a restriction of 100 hours per year on the allowable run time in the last two categories along with the requirement to use ultra-low sulfur diesel fuel and report annually to EPA if the engine was to run in an emergency demand response program.

The pollution control levels called for in HB 1699 go way beyond what the EPA has required. HB 1699 requires more stringent, costlier controls for economic demand response and applies them to the emergency demand response operation where EPA did not require any controls because emergency



EnerNOC, Inc One Marina Park Drive Suite 400 Boston, MA 02210 Tel: 617 224 9900 Fax: 617 224 9910 www.enernoc.com info@enernoc.com

demand response is so rarely called. <u>Demand response events have only been called an average of 3.7 hours a year since 2003.</u>

In conclusion, If HB 1699 is enacted, it would require expensive capital upgrades which would require many of our customers to suspend their participation in demand response programs altogether, resulting in a loss of revenue to Pennsylvania business and institutions, many of whom are already struggling in a tough economy.

Thank you for your attention to this matter. Please feel free to contact me directly if you have any questions or need any additional information.

Sincerely,

Rick Counihan

Vice President of Government Affairs

l. bH Carlo

rcounihan@enernoc.com

415.517.1861

Cc: Members of the House Environmental Resources & Energy Committee