Maryland
Department of
the Environment

Larry Hogan, Governor
Boyd K. Rutherford, Lt. Governor

Ben Grumbles, Secretary
Horacio Tablada, Deputy Secretary

May 30, 2019

David Foerter, Executive Director
Ozone Transport Commission
800 Maine Avenue SW
Suite 200
Washington, DC 20024

RE: Petition to the Ozone Transport Commission for Additional Control Measures Pursuant to Section 184(c) of the Clean Air Act

Dear Mr. Foerter:

The purpose of this letter is to petition the Ozone Transport Commission (OTC or the Commission) under Section 184(c) of the Clean Air Act (CAA) to develop, and transmit to the administrator of the U.S. Environmental Protection Agency (EPA), recommendations for additional control measures to be applied within a part of the Ozone Transport Region (OTR). For the OTC to proceed with a 184(c) petition, it must be supported by a majority vote of the governors on the Commission (or their designees). A draft motion to vote on the petition is included as Attachment 1 and Maryland requests it be considered as a potential action at the June 11, 2019 OTC meeting. A copy of Section 184(c) of the CAA is included as Attachment 2.

Additional control measures are necessary to bring certain areas of the OTR into attainment of the 2008 ozone national ambient air quality standards (NAAQS) and the 2015 ozone NAAQS. Parts of New Jersey, New York, and Connecticut have failed to attain the 2008 ozone NAAQS and parts of Maryland are classified as maintenance under the 2008 ozone NAAQS. Parts of all of these states, as well as parts of other states within the OTR, are classified as nonattainment under the 2015 ozone NAAQS.

Maryland has completed an analysis of excess emissions from Pennsylvania coal-fired power plants in 2017 and 2018 after implementation of Pennsylvania's Reasonably Available Control Technology (RACT) II and the Cross State Air Pollution Rule (CSAPR) Update. Despite significant progress in reducing *long term* average nitrogen oxides (NO_x) emissions from coal-fired power plants, Pennsylvania rules still allow excess emissions on a *daily* basis. The ozone NAAQS is set to address short-term (8-hour) exposures and an air quality monitor's design value—the calculation controlling whether an area is in attainment—is based on the fourth-highest *daily* 8-hour concentration in a season, averaged over three consecutive years. Therefore, reducing excess emissions on a daily basis is critical to attaining and maintaining the ozone NAAQS.

This is especially important on hot summer days when ozone is likely to form. Attachment 3 is a summary of the excess emissions allowed under the current Pennsylvania rules on the day before and the day of an ozone exceedance day in Maryland (days where measured levels are above the standard) in

2017 and 2018. As shown in Attachment 3, on many summer days excess NO_x emissions, up to an excess of 47 tons[1], are released by coal-fired power plants in Pennsylvania. These emissions would not be released if the coal-fired electric generating unit (EGU) operators ran existing control technology consistent with manufacturers' specifications and past best practices. The failure to run existing controls at these Pennsylvania coal-fired EGUs will drive the New York-New Jersey-Connecticut nonattainment area into continued nonattainment of the 2008 ozone NAAQS and 2015 ozone NAAQS. Failure to optimize the existing controls also threatens Maryland's maintenance of the 2008 ozone NAAQS and continued nonattainment for the 2015 ozone NAAQS.

EPA has identified Pennsylvania as a significant contributor to high ozone in Maryland, New Jersey, New York, Connecticut, and eight other jurisdictions within the OTR. Sensitivity modeling performed by the University of Maryland shows that Maryland and other states could see up to a maximum 7.0 parts per billion (ppb) ozone benefit on peak ozone days if Pennsylvania coal-fired power plants optimized the use of their existing control technologies. Attachment 4 includes sensitivity modeling results for maximum daily ozone impacts for each OTC state south of Massachusetts and for key OTC problem monitors.

Maryland analyzed 2017 and 2018 ozone season emissions data not only because it represents the most recent set of full ozone season data, but also because both the Pennsylvania RACT II rule requirements and the federal requirements in the CSAPR Update were both already in place for the 2017 and 2018 ozone season. The fact that there were a large amount of excess *daily* emissions, in spite of both of the above rules, demonstrates that more can and should be done.

These Pennsylvania and federal rules do not include daily limits to ensure that existing controls are run optimally every day of the ozone season. The Pennsylvania rule allows EGUs to average over a 30-day period where emission rates on some days can be much higher than rates on other days. The Pennsylvania rule also allows averaging between coal-fired and non-coal-fired EGUs. This allows some coal-fired EGUs to run without utilizing existing control technology as long as other EGUs are meeting rates much lower than the rates in Pennsylvania's rule. Most other states in the OTR with coal-fired EGUs are already addressing this issue with daily limits that require control equipment to be optimized on each day of the ozone season.

Therefore, the recommendation that Maryland is asking the OTC to develop is to simply require these coal-fired EGUs in Pennsylvania to run their existing controls in an optimized manner every day of the ozone season. This is one of the most important remaining strategies to OTC nonattainment areas.

Attachment 5 is a draft of the recommendation that Maryland is petitioning the OTC to develop. Attachment 6 is the technical support information required under section 184(c).

Sincerely,

Ben Grumbles, Secretary
Maryland Department of the Environment

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[1] *To put this number into context, the fixes to the aftermarket catalyst program that OTC has been asking for EPA to make would result in approximately 25 tons per day of additional NOx reductions across all 13 OTC states.*

cc: Shawn Garvin, OTC Chair, and Secretary, Delaware Department of Natural Resources and Environmental Control
Katie S. Dykes, Commissioner, Connecticut Department of Energy and Environmental Protection
Tommy Wells, Director, District of Columbia Department of Energy & Environment
Gerald D. Reid, Commissioner, Maine Department of Environmental Protection
Martin Suuberg, Commissioner, Massachusetts Department of Environmental Protection
Robert R. Scott, Commissioner, New Hampshire Department of Environmental Services
Catherine R. McCabe, Commissioner, New Jersey Department of Environmental Protection
Basil Seggos, Commissioner, New York Department of Environmental Conservation
Patrick McDonnell, Secretary, Pennsylvania Department of Environmental Protection
Janet Coit, Director, Rhode Island Department of Environmental Management
Emily Boedecker, Commissioner, Vermont Department of Environmental Conservation
David K. Paylor, Director, Virginia Department of Environmental Quality

ATTACHMENT 1

Proposed Motion from Maryland for June 11, 2019 OTC Annual Meeting

Maryland moves that the Ozone Transport Commission (OTC) develop, and transmit to the Administrator of the Environmental Protection Agency, recommendations for additional control measures to be applied within part of the Ozone Transport Region (OTR), specifically Pennsylvania, if the OTC determines that such measures are necessary to bring any area in the OTR into attainment by the dates mandated in the Clean Air Act. The recommendations and transmittal must be consistent with Section 184(c) of the Clean Air Act. The recommendations must be transmitted to EPA in a timeframe to impact the 2020 ozone season. The 2020 ozone season is the last year for the seven OTC states with marginal nonattainment areas to attain the 2015 standard and avoid a redesignation to a higher classification.

ATTACHMENT 2

Reprint of Clean Air Act Section 184(c)

CAA Section 184

(c) Additional control measures

(1) Recommendations

Upon petition of any State within a transport region established for ozone, and based on a majority vote of the Governors on the Commission (or their designees), the Commission may, after notice and opportunity for public comment, develop recommendations for additional control measures to be applied within all or a part of such transport region if the commission determines such measures are necessary to bring any area in such region into attainment by the dates provided by this subpart. The commission shall transmit such recommendations to the Administrator.

(2) Notice and review

Whenever the Administrator receives recommendations prepared by a commission pursuant to paragraph (1) (the date of receipt of which shall hereinafter in this section be referred to as the "receipt date"), the Administrator shall—

(A) immediately publish in the Federal Register a notice stating that the recommendations are available and provide an opportunity for public hearing within 90 days beginning on the receipt date; and

(B) commence a review of the recommendations to determine whether the control measures in the recommendations are necessary to bring any area in such region into attainment by the dates provided by this subpart and are otherwise consistent with this chapter.

(3) Consultation

In undertaking the review required under paragraph (2)(B), the Administrator shall consult with members of the commission of the affected States and shall take into account the data, views, and comments received pursuant to paragraph (2)(A).

(4) Approval and disapproval

Within 9 months after the receipt date, the Administrator shall (A) determine whether to approve, disapprove, or partially disapprove and partially approve the recommendations; (B) notify the commission in writing of such approval, disapproval, or partial disapproval; and (C) publish such determination in the Federal Register. If the Administrator disapproves or partially disapproves the recommendations, the Administrator shall specify—

(i) why any disapproved additional control measures are not necessary to bring any area in such region into attainment by the dates provided by this subpart or are otherwise not consistent with the chapter; and

(ii) recommendations concerning equal or more effective actions that could be taken by the commission to conform the disapproved portion of the recommendations to the requirements of this section.

(5) Finding

Upon approval or partial approval of recommendations submitted by a commission, the Administrator shall issue to each State which is included in the transport region and to which a requirement of the approved plan applies, a finding under section 7410(k)(5) of this title that the implementation plan for such State is inadequate to meet the requirements of section 7410(a)(2)(D) of this title. Such finding shall require each such State to revise its implementation plan to include the approved additional control measures within one year after the finding is issued.

ATTACHMENT 3

Summary of the Excess Emissions*Allowed Under Current Pennsylvania Rules on the Day Before and the Day of Ozone Exceedance Days in Maryland in 2017 and 2018

Table 3A - Total of All Coal-Fired EGUs in Pennsylvania

2017				2018		
Date	Excess Daily NOx Tons** High End Estimate	Excess Daily NOx Tons** Low End Estimate		Date	Excess Daily NOx Tons** High End Estimate	Excess Daily NOx Tons** Low End Estimate
5/16/2017	15.8355	13.4737		5/1/2018	33.2143	26.7995
5/17/2017	30.5954	25.2417		5/2/2018	34.0092	26.8560
5/18/2017	20.8652	13.9486		5/3/2018	32.2127	24.3410
6/9/2017	14.6912	10.2784		5/4/2018	30.6024	22.0734
6/10/2017	27.3882	20.4652		5/31/2018	11.8276	8.8104
6/11/2017	42.6550	33.6005		6/1/2018	11.7754	9.5523
6/12/2017	37.8615	25.5729		6/16/2018	23.2727	18.1543
6/13/2017	29.6581	18.3291		6/17/2018	28.2657	21.2240
6/14/2017	24.5045	13.9278		6/18/2018	40.9510	31.0909
6/15/2017	24.1780	17.2997		6/29/2018	27.2328	22.1535
6/21/2017	22.7355	17.6924		6/30/2018	37.1244	28.9534
6/22/2017	26.5435	20.7927		7/1/2018	42.2820	31.9524
7/2/2017	34.9546	26.5148		7/2/2018	47.8667	35.9526
7/3/2017	33.8381	23.9221		7/3/2018	40.4700	28.5315
7/4/2017	31.3738	22.8278		7/8/2018	38.1178	31.4099
7/18/2017	30.8749	23.8020		7/9/2018	40.5003	32.4579
7/19/2017	29.2956	22.1134		7/10/2018	32.5975	24.3146
7/20/2017	36.4724	28.7385		7/15/2018	32.5852	25.6061
7/21/2017	33.9775	26.8924		7/16/2018	44.2404	33.0614
7/31/2017	27.4446	21.2695		8/9/2018	38.7924	30.2631
8/1/2017	31.6852	24.2231		8/10/2018	29.4185	20.6060
8/15/2017	36.1081	29.4700		8/26/2018	28.4546	21.8786
8/16/2017	41.9732	32.8235		8/27/2018	31.9345	23.4366
9/24/2017	24.6999	17.4890		9/5/2018	39.5098	27.9122
9/25/2017	31.5224	20.7481		9/6/2018	46.3698	34.9360

Ozone exceedance days highlighted with red background
Day before an ozone exceedance day highlighted with yellow background

* To put these numbers into context, the fixes to the aftermarket catalyst program that OTC has been asking for EPA to make would result in approximately 25 tons per day of additional NOx reductions across all OTC states.
** The high end estimate was based upon the best (lowest) rate for an entire ozone season calculated from CAMD data for each coal-fired EGU in Pennsylvania. If the best rate for any individual day were to be used, estimated reductions would be even larger. The low end estimate was based upon the highest (least restrictive) 30-day rolling average rate using CAMD data for each coal-fired EGU in Pennsylvania in the year that had the best (lowest) full ozone season rate.

ATTACHMENT 3

Summary of the Excess Emissions* Allowed Under Current Pennsylvania Rules on the Day Before and the Day of Ozone Exceedance Days in Maryland in 2017 and 2018

Table 3B.1 – Individual EGUs- Homer City Unit 1

2017				2018		
Date	Excess Daily NOx Tons** High End Estimate	Excess Daily NOx Tons** Low End Estimate		Date	Excess Daily NOx Tons** High End Estimate	Excess Daily NOx Tons** Low End Estimate
5/16/2017	10.1209	9.7318		5/1/2018	6.5444	6.3387
5/17/2017	12.4837	12.0303		5/2/2018	4.0307	3.7756
5/18/2017	9.0451	8.6251		5/3/2018	6.5898	6.2843
6/9/2017	0.0000	0.0000		5/4/2018	5.3428	5.0664
6/10/2017	0.0000	0.0000		5/31/2018	0.0000	0.0000
6/11/2017	4.9154	4.6994		6/1/2018	0.0000	0.0000
6/12/2017	6.8922	6.5074		6/16/2018	3.7609	3.5042
6/13/2017	6.8223	6.4452		6/17/2018	5.4442	5.1531
6/14/2017	4.4686	4.1310		6/18/2018	7.2430	6.9088
6/15/2017	6.9154	6.5189		6/29/2018	3.9507	3.6885
6/21/2017	6.1489	5.7748		6/30/2018	4.9354	4.6499
6/22/2017	6.2188	5.8435		7/1/2018	6.1592	5.8524
7/2/2017	5.8056	5.4524		7/2/2018	6.1064	5.7934
7/3/2017	6.2802	5.9146		7/3/2018	6.7601	6.4255
7/4/2017	4.7444	4.4206		7/8/2018	3.7982	3.5452
7/18/2017	8.7993	8.3574		7/9/2018	4.8952	4.6117
7/19/2017	7.8344	7.4180		7/10/2018	4.6335	4.3468
7/20/2017	9.7929	9.3456		7/15/2018	3.6096	3.3473
7/21/2017	7.8158	7.3992		7/16/2018	6.8916	6.5427
7/31/2017	5.4234	5.0767		8/9/2018	7.9263	7.5421
8/1/2017	7.0266	6.6382		8/10/2018	3.8510	3.5762
8/15/2017	0.0000	0.0000		8/26/2018	9.1193	8.7643
8/16/2017	4.8715	4.7189		8/27/2018	8.5315	8.1838
9/24/2017	5.9906	5.6948		9/5/2018	5.1205	4.8322
9/25/2017	9.7820	9.4055		9/6/2018	4.2100	3.9447

Ozone exceedance days highlighted with red background
Day before an ozone exceedance day highlighted with yellow background

* To put these numbers into context, the fixes to the aftermarket catalyst program that OTC has been asking for EPA to make would result in approximately 25 tons per day of additional NOx reductions across all OTC states.
** The high end estimate was based upon the best (lowest) ozone season rate calculated using CAMD data for each coal-fired EGU in Pennsylvania. If the best rate for any individual day were to be used, estimated reductions would be even larger. The low end estimate was based upon the highest (least restrictive) 30-day rolling average rate using CAMD data for each coal-fired EGU in Pennsylvania in the year that had the best (lowest) full ozone season rate.

ATTACHMENT 3

Summary of the Excess Emissions* Allowed Under Current Pennsylvania Rules on the Day Before and the Day of Ozone Exceedance Days in Maryland in 2017 and 2018

Table 3B.2 – Individual EGUs- Keystone Unit 1

2017				2018		
Date	Excess Daily NOx Tons** High End Estimate	Excess Daily NOx Tons** Low End Estimate		Date	Excess Daily NOx Tons** High End Estimate	Excess Daily NOx Tons** Low End Estimate
5/16/2017	2.2990	1.8058		5/1/2018	2.3530	1.8588
5/17/2017	2.6501	2.1602		5/2/2018	2.4771	1.9861
5/18/2017	2.9505	2.4362		5/3/2018	2.5276	2.0248
6/9/2017	3.9498	3.4664		5/4/2018	2.1836	1.6818
6/10/2017	3.9212	3.4440		5/31/2018	3.0870	2.6362
6/11/2017	3.9937	3.5110		6/1/2018	3.4218	2.9273
6/12/2017	4.1649	3.6637		6/16/2018	3.2816	2.8024
6/13/2017	4.6404	4.1280		6/17/2018	3.3317	2.8455
6/14/2017	5.0060	4.4940		6/18/2018	4.2534	3.7529
6/15/2017	4.4686	3.9629		6/29/2018	4.3894	3.8826
6/21/2017	4.2630	3.7770		6/30/2018	4.0554	3.5466
6/22/2017	4.1905	3.7045		7/1/2018	4.3181	3.8001
7/2/2017	3.6072	3.1148		7/2/2018	9.2626	8.8626
7/3/2017	3.7970	3.2974		7/3/2018	4.4723	3.9728
7/4/2017	3.6541	3.1675		7/8/2018	12.4941	12.2481
7/18/2017	3.9785	3.4698		7/9/2018	13.6645	13.4062
7/19/2017	4.1074	3.5760		7/10/2018	7.4625	7.0167
7/20/2017	4.2257	3.6875		7/15/2018	7.4969	7.0818
7/21/2017	4.0508	3.5145		7/16/2018	4.6576	4.1769
7/31/2017	4.0097	3.5124		8/9/2018	3.1035	2.5621
8/1/2017	3.7504	3.2470		8/10/2018	2.9579	2.4200
8/15/2017	6.8192	6.3239		8/26/2018	2.9854	2.4897
8/16/2017	5.5477	5.0556		8/27/2018	2.8791	2.3524
9/24/2017	0.0000	0.0000		9/5/2018	5.8733	5.3450
9/25/2017	0.0000	0.0000		9/6/2018	5.3851	4.8573

Ozone exceedance days highlighted with red background
Day before an ozone exceedance day highlighted with yellow background

* To put these numbers into context, the fixes to the aftermarket catalyst program that OTC has been asking for EPA to make would result in approximately 25 tons per day of additional NOx reductions across all OTC states.
** The high end estimate was based upon the best (lowest) ozone season rate calculated using CAMD data for each coal-fired EGU in Pennsylvania. If the best rate for any individual day were to be used, estimated reductions would be even larger. The low end estimate was based upon the highest (least restrictive) 30-day rolling average rate using CAMD data for each coal-fired EGU in Pennsylvania in the year that had the best (lowest) full ozone season rate.

ATTACHMENT 3

Summary of the Excess Emissions* Allowed Under Current Pennsylvania Rules on the Day Before and the Day of Ozone Exceedance Days in Maryland in 2017 and 2018

Table 3B.3 – Individual EGUs- Homer City Unit 2

2017				2018		
Date	Excess Daily NOx Tons** High End Estimate	Excess Daily NOx Tons** Low End Estimate		Date	Excess Daily NOx Tons** High End Estimate	Excess Daily NOx Tons** Low End Estimate
5/16/2017	0.0000	0.0000		5/1/2018	10.9638	10.1426
5/17/2017	4.6422	4.1936		5/2/2018	8.7790	8.0397
5/18/2017	0.0000	0.0000		5/3/2018	9.6388	8.7407
6/9/2017	0.3044	0.2696		5/4/2018	2.5542	2.3209
6/10/2017	5.8366	4.9775		5/31/2018	0.0000	0.0000
6/11/2017	7.3588	6.3791		6/1/2018	0.0000	0.0000
6/12/2017	2.5553	2.2082		6/16/2018	3.6172	2.8669
6/13/2017	0.0000	0.0000		6/17/2018	5.1410	4.3105
6/14/2017	0.0000	0.0000		6/18/2018	6.7786	5.8030
6/15/2017	0.0000	0.0000		6/29/2018	4.1725	3.4156
6/21/2017	0.0000	0.0000		6/30/2018	5.4596	4.6602
6/22/2017	0.0000	0.0000		7/1/2018	7.0521	6.1733
7/2/2017	5.4759	4.5141		7/2/2018	7.1517	6.2954
7/3/2017	5.8071	4.8140		7/3/2018	5.4877	4.6237
7/4/2017	4.0657	3.1738		7/8/2018	2.8885	2.1674
7/18/2017	6.4668	5.6528		7/9/2018	3.8992	3.1334
7/19/2017	6.1496	5.0802		7/10/2018	4.2962	3.4862
7/20/2017	7.7216	6.5559		7/15/2018	4.1917	3.4559
7/21/2017	7.7929	6.6415		7/16/2018	7.3270	6.3903
7/31/2017	0.0000	0.0000		8/9/2018	4.5460	3.7155
8/1/2017	0.0000	0.0000		8/10/2018	2.7965	1.9814
8/15/2017	8.1652	7.1213		8/26/2018	0.7763	0.6633
8/16/2017	7.9169	6.8448		8/27/2018	6.9334	6.3080
9/24/2017	0.0000	0.0000		9/5/2018	6.8466	5.8840
9/25/2017	0.0000	0.0000		9/6/2018	5.9972	5.1694

Ozone exceedance days highlighted with red background
Day before an ozone exceedance day highlighted with yellow background

* To put these numbers into context, the fixes to the aftermarket catalyst program that OTC has been asking for EPA to make would result in approximately 25 tons per day of additional NOx reductions across all OTC states.
** The high end estimate was based upon the best (lowest) ozone season rate calculated using CAMD data for each coal-fired EGU in Pennsylvania. If the best rate for any individual day were to be used, estimated reductions would be even larger. The low end estimate was based upon the highest (least restrictive) 30-day rolling average rate using CAMD data for each coal-fired EGU in Pennsylvania in the year that had the best (lowest) full ozone season rate.

ATTACHMENT 3

Summary of the Excess Emissions* Allowed Under Current Pennsylvania Rules on the Day Before and the Day of Ozone Exceedance Days in Maryland in 2017 and 2018

Table 3B.4 – Individual EGUs- Cheswick Unit 1

2017				2018		
Date	Excess Daily NOx Tons** High End Estimate	Excess Daily NOx Tons** Low End Estimate		Date	Excess Daily NOx Tons** High End Estimate	Excess Daily NOx Tons** Low End Estimate
5/16/2017	0.0000	0.0000		5/1/2018	2.1739	1.2871
5/17/2017	0.0000	0.0000		5/2/2018	3.9844	3.2709
5/18/2017	0.0000	0.0000		5/3/2018	3.7001	2.8275
6/9/2017	4.0111	3.0698		5/4/2018	2.9659	2.0838
6/10/2017	2.9825	2.1970		5/31/2018	3.1530	2.2584
6/11/2017	5.0788	4.1566		6/1/2018	3.6596	2.8481
6/12/2017	3.5405	2.4978		6/16/2018	4.0560	3.5603
6/13/2017	3.1631	2.1121		6/17/2018	3.5892	2.9065
6/14/2017	3.1982	2.1820		6/18/2018	3.3650	2.5426
6/15/2017	3.6010	2.6414		6/29/2018	3.7705	2.9517
6/21/2017	4.5412	3.5945		6/30/2018	3.4695	2.5765
6/22/2017	3.7433	2.7494		7/1/2018	3.5606	2.6773
7/2/2017	0.0000	0.0000		7/2/2018	3.3462	2.3927
7/3/2017	2.7742	2.0430		7/3/2018	3.6560	2.7793
7/4/2017	5.1625	4.3560		7/8/2018	0.0000	0.0000
7/18/2017	4.1217	3.1135		7/9/2018	3.0221	2.3760
7/19/2017	3.5881	2.5078		7/10/2018	4.6126	3.8013
7/20/2017	3.7102	2.6131		7/15/2018	4.4834	3.8314
7/21/2017	3.4153	2.3318		7/16/2018	4.3172	3.5012
7/31/2017	2.8272	1.9725		8/9/2018	3.6164	2.9813
8/1/2017	3.9707	2.9771		8/10/2018	6.2839	5.8227
8/15/2017	4.3763	3.3840		8/26/2018	4.7168	4.3487
8/16/2017	4.4960	3.5185		8/27/2018	3.5621	2.8251
9/24/2017	2.8749	2.4903		9/5/2018	4.9281	4.1928
9/25/2017	2.5332	1.6116		9/6/2018	4.3695	3.5538

Ozone exceedance days highlighted with red background
Day before an ozone exceedance day highlighted with yellow background

* To put these numbers into context, the fixes to the aftermarket catalyst program that OTC has been asking for EPA to make would result in approximately 25 tons per day of additional NOx reductions across all OTC states.
** The high end estimate was based upon the best (lowest) ozone season rate calculated using CAMD data for each coal-fired EGU in Pennsylvania. If the best rate for any individual day were to be used, estimated reductions would be even larger. The low end estimate was based upon the highest (least restrictive) 30-day rolling average rate using CAMD data for each coal-fired EGU in Pennsylvania in the year that had the best (lowest) full ozone season rate.

ATTACHMENT 3

Summary of the Excess Emissions* Allowed Under Current Pennsylvania Rules on the Day Before and the Day of Ozone Exceedance Days in Maryland in 2017 and 2018

Table 3B.5 – Individual EGUs- Montour Unit 1

2017				2018		
Date	Excess Daily NOx Tons** High End Estimate	Excess Daily NOx Tons** Low End Estimate		Date	Excess Daily NOx Tons** High End Estimate	Excess Daily NOx Tons** Low End Estimate
5/16/2017	0.0000	0.0000		5/1/2018	0.0000	0.0000
5/17/2017	6.1161	4.3499		5/2/2018	0.0000	0.0000
5/18/2017	3.1154	0.1590		5/3/2018	1.1026	0.9119
6/9/2017	0.7610	0.6129		5/4/2018	7.8144	5.7728
6/10/2017	10.8968	8.3910		5/31/2018	0.0000	0.0000
6/11/2017	5.9399	3.2095		6/1/2018	0.0000	0.0000
6/12/2017	4.7194	1.7026		6/16/2018	0.0000	0.0000
6/13/2017	3.4076	0.2798		6/17/2018	0.1466	0.0829
6/14/2017	3.3796	0.4641		6/18/2018	7.6451	6.1226
6/15/2017	4.2966	2.1548		6/29/2018	0.0000	0.0000
6/21/2017	0.1607	0.1018		6/30/2018	0.0000	0.0000
6/22/2017	4.7270	4.0535		7/1/2018	4.9391	3.2473
7/2/2017	6.9877	4.3331		7/2/2018	3.6794	0.4082
7/3/2017	4.9174	2.0566		7/3/2018	3.9741	0.6767
7/4/2017	4.5663	2.0845		7/8/2018	3.7050	1.0733
7/18/2017	0.9634	0.0200		7/9/2018	2.9802	0.0000
7/19/2017	0.2222	0.1487		7/10/2018	2.8449	0.0000
7/20/2017	0.0000	0.0000		7/15/2018	2.6828	0.2060
7/21/2017	0.0000	0.0000		7/16/2018	6.2214	3.3394
7/31/2017	0.1776	0.1185		8/9/2018	4.1266	1.0529
8/1/2017	5.1458	4.3350		8/10/2018	3.9066	0.7037
8/15/2017	5.5512	3.9614		8/26/2018	4.5004	1.5722
8/16/2017	5.8715	2.9527		8/27/2018	3.0183	0.0000
9/24/2017	4.3903	3.0402		9/5/2018	3.8590	0.4800
9/25/2017	4.8160	1.5538		9/6/2018	5.8303	2.6787

Ozone exceedance days highlighted with red background
Day before an ozone exceedance day highlighted with yellow background

* To put these numbers into context, the fixes to the aftermarket catalyst program that OTC has been asking for EPA to make would result in approximately 25 tons per day of additional NOx reductions across all OTC states.
** The high end estimate was based upon the best (lowest) ozone season rate calculated using CAMD data for each coal-fired EGU in Pennsylvania. If the best rate for any individual day were to be used, estimated reductions would be even larger. The low end estimate was based upon the highest (least restrictive) 30-day rolling average rate using CAMD data for each coal-fired EGU in Pennsylvania in the year that had the best (lowest) full ozone season rate.

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Summary of the Excess Emissions* Allowed Under Current Pennsylvania Rules on the Day Before and the Day of Ozone Exceedance Days in Maryland in 2017 and 2018

Table 3B.6 – Individual EGUs- Montour Unit 2

2017				2018		
Date	Excess Daily NOx Tons** High End Estimate	Excess Daily NOx Tons** Low End Estimate		Date	Excess Daily NOx Tons** High End Estimate	Excess Daily NOx Tons** Low End Estimate
5/16/2017	0.0000	0.0000		5/1/2018	3.3902	1.8049
5/17/2017	0.0000	0.0000		5/2/2018	5.2913	3.4440
5/18/2017	0.0000	0.0000		5/3/2018	2.5486	0.4249
6/9/2017	0.0000	0.0000		5/4/2018	4.0266	2.3188
6/10/2017	0.0000	0.0000		5/31/2018	0.0000	0.0000
6/11/2017	5.0597	4.2618		6/1/2018	0.0000	0.0000
6/12/2017	7.7063	5.7140		6/16/2018	2.9383	1.2822
6/13/2017	5.5750	3.3265		6/17/2018	3.3274	1.3200
6/14/2017	2.6287	0.4917		6/18/2018	2.9822	0.7781
6/15/2017	0.0000	0.0000		6/29/2018	1.4154	1.2319
6/21/2017	0.0000	0.0000		6/30/2018	5.9367	3.7277
6/22/2017	0.0000	0.0000		7/1/2018	4.1155	1.9099
7/2/2017	8.2418	6.3399		7/2/2018	5.0134	2.7785
7/3/2017	5.4289	3.4160		7/3/2018	5.8842	3.6404
7/4/2017	4.2252	2.4387		7/8/2018	0.0000	0.0000
7/18/2017	0.0000	0.0000		7/9/2018	0.0000	0.0000
7/19/2017	0.0402	0.0316		7/10/2018	0.0000	0.0000
7/20/2017	4.2259	2.8866		7/15/2018	0.3495	0.2843
7/21/2017	4.7508	3.1296		7/16/2018	5.9789	3.8817
7/31/2017	6.7505	4.8244		8/9/2018	0.0000	0.0000
8/1/2017	3.8010	1.7507		8/10/2018	0.0000	0.0000
8/15/2017	0.0000	0.0000		8/26/2018	0.0000	0.0000
8/16/2017	0.0000	0.0000		8/27/2018	0.0445	0.0132
9/24/2017	3.7394	1.7349		9/5/2018	3.3559	1.0768
9/25/2017	3.5142	1.3049		9/6/2018	9.9475	7.7367

Ozone exceedance days highlighted with red background
Day before an ozone exceedance day highlighted with yellow background

* To put these numbers into context, the fixes to the aftermarket catalyst program that OTC has been asking for EPA to make would result in approximately 25 tons per day of additional NOx reductions across all OTC states.
** The high end estimate was based upon the best (lowest) ozone season rate calculated using CAMD data for each coal-fired EGU in Pennsylvania. If the best rate for any individual day were to be used, estimated reductions would be even larger. The low end estimate was based upon the highest (least restrictive) 30-day rolling average rate using CAMD data for each coal-fired EGU in Pennsylvania in the year that had the best (lowest) full ozone season rate.

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Summary of the Excess Emissions* Allowed Under Current Pennsylvania Rules on the Day Before and the Day of Ozone Exceedance Days in Maryland in 2017 and 2018

Table 3B.7 – Individual EGUs- Keystone Unit 2

2017				2018		
Date	Excess Daily NOx Tons** High End Estimate	Excess Daily NOx Tons** Low End Estimate		Date	Excess Daily NOx Tons** High End Estimate	Excess Daily NOx Tons** Low End Estimate
5/16/2017	0.9421	0.6019		5/1/2018	2.5294	2.1830
5/17/2017	1.1077	0.7626		5/2/2018	2.3472	2.0100
5/18/2017	1.0695	0.7141		5/3/2018	0.8320	0.7247
6/9/2017	1.3118	0.9806		5/4/2018	0.0000	0.0000
6/10/2017	0.9543	0.6295		5/31/2018	2.7656	2.4528
6/11/2017	1.1322	0.8054		6/1/2018	3.2204	2.8713
6/12/2017	1.5569	1.3511		6/16/2018	3.0624	2.7239
6/13/2017	0.0000	0.0000		6/17/2018	3.0294	2.6827
6/14/2017	0.0000	0.0000		6/18/2018	3.2780	2.9228
6/15/2017	0.0000	0.0000		6/29/2018	2.9730	2.6211
6/21/2017	1.6826	1.3497		6/30/2018	3.0138	2.6597
6/22/2017	1.8723	1.5398		7/1/2018	5.0371	4.6777
7/2/2017	1.1326	0.8005		7/2/2018	6.4545	6.2682
7/3/2017	1.2303	0.8937		7/3/2018	3.3981	3.0391
7/4/2017	1.0117	0.6833		7/8/2018	7.0881	6.8442
7/18/2017	1.1006	0.7546		7/9/2018	5.3068	5.0103
7/19/2017	1.4116	1.0524		7/10/2018	3.5110	3.1759
7/20/2017	0.8954	0.5327		7/15/2018	6.7289	6.4256
7/21/2017	1.3363	0.9754		7/16/2018	2.8232	2.4684
7/31/2017	1.2948	0.9578		8/9/2018	8.9284	8.6377
8/1/2017	2.1599	1.8183		8/10/2018	3.6647	3.3190
8/15/2017	5.2514	4.9100		8/26/2018	2.7496	2.4092
8/16/2017	5.5411	5.1987		8/27/2018	2.6676	2.3091
9/24/2017	3.5606	3.2261		9/5/2018	2.7648	2.4007
9/25/2017	3.7714	3.4237		9/6/2018	2.7140	2.3500

Ozone exceedance days highlighted with red background
Day before an ozone exceedance day highlighted with yellow background

* To put these numbers into context, the fixes to the aftermarket catalyst program that OTC has been asking for EPA to make would result in approximately 25 tons per day of additional NOx reductions across all OTC states.
** The high end estimate was based upon the best (lowest) ozone season rate calculated using CAMD data for each coal-fired EGU in Pennsylvania. If the best rate for any individual day were to be used, estimated reductions would be even larger. The low end estimate was based upon the highest (least restrictive) 30-day rolling average rate using CAMD data for each coal-fired EGU in Pennsylvania in the year that had the best (lowest) full ozone season rate.

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Summary of the Excess Emissions* Allowed Under Current Pennsylvania Rules on the Day Before and the Day of Ozone Exceedance Days in Maryland in 2017 and 2018

Table 3B.8 – Individual EGUs- Homer City Unit 3

2017				2018		
Date	Excess Daily NOx Tons** High End Estimate	Excess Daily NOx Tons** Low End Estimate		Date	Excess Daily NOx Tons** High End Estimate	Excess Daily NOx Tons** Low End Estimate
5/16/2017	0.0000	0.0000		5/1/2018	0.0000	0.0000
5/17/2017	0.0000	0.0000		5/2/2018	0.0000	0.0000
5/18/2017	0.0000	0.0000		5/3/2018	0.0000	0.0000
6/9/2017	2.0421	0.8839		5/4/2018	0.0000	0.0000
6/10/2017	1.5130	0.3953		5/31/2018	0.0000	0.0000
6/11/2017	1.0443	0.0000		6/1/2018	0.0000	0.0000
6/12/2017	1.3625	0.0000		6/16/2018	0.5531	0.4211
6/13/2017	1.6058	0.1965		6/17/2018	1.9621	0.9494
6/14/2017	1.5339	0.1560		6/18/2018	1.6456	0.1065
6/15/2017	1.4327	0.1663		6/29/2018	1.3609	0.1822
6/21/2017	1.7101	0.4113		6/30/2018	1.4294	0.1487
6/22/2017	1.5357	0.1775		7/1/2018	1.5406	0.1789
7/2/2017	0.0000	0.0000		7/2/2018	1.5484	0.1511
7/3/2017	0.0000	0.0000		7/3/2018	1.5139	0.1856
7/4/2017	0.0000	0.0000		7/8/2018	1.0935	0.2120
7/18/2017	1.5005	0.1093		7/9/2018	1.2513	0.2343
7/19/2017	1.3417	0.1990		7/10/2018	1.3149	0.1802
7/20/2017	0.0000	0.0000		7/15/2018	1.0992	0.2067
7/21/2017	0.0000	0.0000		7/16/2018	1.4815	0.1997
7/31/2017	0.0000	0.0000		8/9/2018	1.2940	0.3039
8/1/2017	0.0000	0.0000		8/10/2018	1.5249	0.1618
8/15/2017	1.9618	1.2619		8/26/2018	0.9939	0.0531
8/16/2017	1.4954	0.1715		8/27/2018	1.1971	0.0000
9/24/2017	1.4267	0.2253		9/5/2018	1.1007	0.0000
9/25/2017	1.5546	0.1686		9/6/2018	1.1341	0.0838

Ozone exceedance days highlighted with red background
Day before an ozone exceedance day highlighted with yellow background

* To put these numbers into context, the fixes to the aftermarket catalyst program that OTC has been asking for EPA to make would result in approximately 25 tons per day of additional NOx reductions across all OTC states.
** The high end estimate was based upon the best (lowest) ozone season rate calculated using CAMD data for each coal-fired EGU in Pennsylvania. If the best rate for any individual day were to be used, estimated reductions would be even larger. The low end estimate was based upon the highest (least restrictive) 30-day rolling average rate using CAMD data for each coal-fired EGU in Pennsylvania in the year that had the best (lowest) full ozone season rate.

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Summary of the Excess Emissions* Allowed Under Current Pennsylvania Rules on the Day Before and the Day of Ozone Exceedance Days in Maryland in 2017 and 2018

Table 3B.9 – Individual EGUs- Conemaugh Unit 2

2017				2018		
Date	Excess Daily NOx Tons** High End Estimate	Excess Daily NOx Tons** Low End Estimate		Date	Excess Daily NOx Tons** High End Estimate	Excess Daily NOx Tons** Low End Estimate
5/16/2017	0.0000	0.0000		5/1/2018	1.2591	0.6423
5/17/2017	0.5315	0.0000		5/2/2018	1.0990	0.5255
5/18/2017	0.7130	0.0830		5/3/2018	1.2385	0.6436
6/9/2017	0.0000	0.0000		5/4/2018	1.1549	0.5465
6/10/2017	0.0000	0.0000		5/31/2018	0.2305	0.0000
6/11/2017	5.9788	5.6177		6/1/2018	0.0000	0.0000
6/12/2017	0.8285	0.2466		6/16/2018	0.0000	0.0000
6/13/2017	0.7369	0.1334		6/17/2018	0.0000	0.0000
6/14/2017	1.1809	0.5661		6/18/2018	0.0000	0.0000
6/15/2017	1.4294	0.8503		6/29/2018	0.0000	0.0000
6/21/2017	1.7568	1.2264		6/30/2018	0.0000	0.0000
6/22/2017	1.8244	1.2705		7/1/2018	0.0000	0.0000
7/2/2017	1.0251	0.4987		7/2/2018	0.0000	0.0000
7/3/2017	0.9227	0.3776		7/3/2018	0.0000	0.0000
7/4/2017	2.3423	1.8224		7/8/2018	0.0000	0.0000
7/18/2017	1.0329	0.4776		7/9/2018	0.0000	0.0000
7/19/2017	1.0620	0.4618		7/10/2018	0.0000	0.0000
7/20/2017	1.0213	0.4150		7/15/2018	0.0000	0.0000
7/21/2017	0.9228	0.3175		7/16/2018	0.2251	0.0000
7/31/2017	0.7757	0.2406		8/9/2018	0.0000	0.0000
8/1/2017	0.6432	0.0908		8/10/2018	0.0000	0.0000
8/15/2017	0.9540	0.4073		8/26/2018	0.0000	0.0000
8/16/2017	0.9373	0.3880		8/27/2018	0.0000	0.0000
9/24/2017	0.7556	0.2345		9/5/2018	0.0445	0.0000
9/25/2017	0.8276	0.2555		9/6/2018	0.3168	0.0000

Ozone exceedance days highlighted with red background
Day before an ozone exceedance day highlighted with yellow background

* To put these numbers into context, the fixes to the aftermarket catalyst program that OTC has been asking for EPA to make would result in approximately 25 tons per day of additional NOx reductions across all OTC states.
** The high end estimate was based upon the best (lowest) ozone season rate calculated using CAMD data for each coal-fired EGU in Pennsylvania. If the best rate for any individual day were to be used, estimated reductions would be even larger. The low end estimate was based upon the highest (least restrictive) 30-day rolling average rate using CAMD data for each coal-fired EGU in Pennsylvania in the year that had the best (lowest) full ozone season rate.

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Summary of the Excess Emissions* Allowed Under Current Pennsylvania Rules on the Day Before and the Day of Ozone Exceedance Days in Maryland in 2017 and 2018

Table 3B.10 – Individual EGUs- Bruce Mansfield Unit 3

2017				2018		
Date	Excess Daily NOx Tons** High End Estimate	Excess Daily NOx Tons** Low End Estimate		Date	Excess Daily NOx Tons** High End Estimate	Excess Daily NOx Tons** Low End Estimate
5/16/2017	0.6695	0.0000		5/1/2018	1.8179	0.7864
5/17/2017	0.8996	0.0000		5/2/2018	1.1961	0.1475
5/18/2017	0.8759	0.0000		5/3/2018	1.6572	0.4639
6/9/2017	0.0000	0.0000		5/4/2018	2.0838	0.8884
6/10/2017	0.0000	0.0000		5/31/2018	0.1162	0.1064
6/11/2017	0.0000	0.0000		6/1/2018	0.0000	0.0000
6/12/2017	1.2382	0.2492		6/16/2018	0.6666	0.0000
6/13/2017	0.5010	0.0000		6/17/2018	0.5242	0.0000
6/14/2017	0.4235	0.0000		6/18/2018	0.7108	0.0000
6/15/2017	0.0000	0.0000		6/29/2018	0.0000	0.0000
6/21/2017	0.1887	0.0000		6/30/2018	0.0000	0.0000
6/22/2017	0.4667	0.0000		7/1/2018	0.2264	0.0000
7/2/2017	0.0000	0.0000		7/2/2018	0.5762	0.0000
7/3/2017	0.0000	0.0000		7/3/2018	0.3470	0.0000
7/4/2017	0.0000	0.0000		7/8/2018	0.1262	0.0000
7/18/2017	0.0401	0.0000		7/9/2018	0.2804	0.0000
7/19/2017	0.0000	0.0000		7/10/2018	0.5706	0.0000
7/20/2017	0.4248	0.1284		7/15/2018	0.8764	0.0532
7/21/2017	0.0000	0.0000		7/16/2018	1.3129	0.3966
7/31/2017	0.0000	0.0000		8/9/2018	0.9691	0.0379
8/1/2017	0.0177	0.0035		8/10/2018	1.2570	0.3074
8/15/2017	0.1412	0.1072		8/26/2018	1.1147	0.4118
8/16/2017	2.2832	1.7301		8/27/2018	1.0516	0.1881
9/24/2017	0.0000	0.0000		9/5/2018	1.7930	0.7335
9/25/2017	2.2755	1.9108		9/6/2018	1.2392	0.1936

Ozone exceedance days highlighted with red background
Day before an ozone exceedance day highlighted with yellow background

* To put these numbers into context, the fixes to the aftermarket catalyst program that OTC has been asking for EPA to make would result in approximately 25 tons per day of additional NOx reductions across all OTC states.
** The high end estimate was based upon the best (lowest) ozone season rate calculated using CAMD data for each coal-fired EGU in Pennsylvania. If the best rate for any individual day were to be used, estimated reductions would be even larger. The low end estimate was based upon the highest (least restrictive) 30-day rolling average rate using CAMD data for each coal-fired EGU in Pennsylvania in the year that had the best (lowest) full ozone season rate.

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Summary of the Excess Emissions* Allowed Under Current Pennsylvania Rules on the Day Before and the Day of Ozone Exceedance Days in Maryland in 2017 and 2018

Table 3B.11 – Individual EGUs- Seward Unit 2

2017				2018		
Date	Excess Daily NOx Tons** High End Estimate	Excess Daily NOx Tons** Low End Estimate		Date	Excess Daily NOx Tons** High End Estimate	Excess Daily NOx Tons** Low End Estimate
5/16/2017	0.9585	0.6987		5/1/2018	0.0000	0.0000
5/17/2017	1.1188	0.8361		5/2/2018	0.0000	0.0000
5/18/2017	1.2018	0.9020		5/3/2018	0.0000	0.0000
6/9/2017	0.5903	0.3325		5/4/2018	0.0000	0.0000
6/10/2017	0.3320	0.0868		5/31/2018	0.0000	0.0000
6/11/2017	0.4486	0.2055		6/1/2018	0.0000	0.0000
6/12/2017	0.5233	0.2505		6/16/2018	0.0000	0.0000
6/13/2017	0.5839	0.3048		6/17/2018	0.2940	0.0427
6/14/2017	0.3398	0.0822		6/18/2018	0.7493	0.4804
6/15/2017	0.0893	0.0000		6/29/2018	0.9199	0.6411
6/21/2017	0.0000	0.0000		6/30/2018	0.8921	0.6232
6/22/2017	0.0000	0.0000		7/1/2018	1.1433	0.8760
7/2/2017	0.6576	0.4129		7/2/2018	1.1570	0.8806
7/3/2017	0.3636	0.1049		7/3/2018	1.0704	0.7863
7/4/2017	0.0845	0.0000		7/8/2018	0.4713	0.2646
7/18/2017	0.8333	0.5489		7/9/2018	0.9271	0.6963
7/19/2017	0.9069	0.6208		7/10/2018	0.9217	0.6605
7/20/2017	0.8807	0.5866		7/15/2018	0.0256	0.0000
7/21/2017	1.0469	0.7445		7/16/2018	0.8386	0.5777
7/31/2017	0.7065	0.4551		8/9/2018	1.4296	1.1786
8/1/2017	1.0053	0.7361		8/10/2018	0.8552	0.6043
8/15/2017	0.7522	0.4932		8/26/2018	0.0000	0.0000
8/16/2017	0.8030	0.5461		8/27/2018	0.1991	0.0000
9/24/2017	0.1517	0.0000		9/5/2018	1.0309	0.7986
9/25/2017	0.3830	0.1159		9/6/2018	0.0000	0.0000

Ozone exceedance days highlighted with red background
Day before an ozone exceedance day highlighted with yellow background

* To put these numbers into context, the fixes to the aftermarket catalyst program that OTC has been asking for EPA to make would result in approximately 25 tons per day of additional NOx reductions across all OTC states.
** The high end estimate was based upon the best (lowest) ozone season rate calculated using CAMD data for each coal-fired EGU in Pennsylvania. If the best rate for any individual day were to be used, estimated reductions would be even larger. The low end estimate was based upon the highest (least restrictive) 30-day rolling average rate using CAMD data for each coal-fired EGU in Pennsylvania in the year that had the best (lowest) full ozone season rate.

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Summary of the Excess Emissions* Allowed Under Current Pennsylvania Rules on the Day Before and the Day of Ozone Exceedance Days in Maryland in 2017 and 2018

Table 3B.12 – Individual EGUs- Conemaugh Unit 1

2017				2018		
Date	Excess Daily NOx Tons** High End Estimate	Excess Daily NOx Tons** Low End Estimate		Date	Excess Daily NOx Tons** High End Estimate	Excess Daily NOx Tons** Low End Estimate
5/16/2017	0.0000	0.0000		5/1/2018	0.6948	0.6366
5/17/2017	0.0000	0.0000		5/2/2018	3.2665	2.5087
5/18/2017	0.0000	0.0000		5/3/2018	0.6895	0.0000
6/9/2017	0.2380	0.0000		5/4/2018	0.7007	0.0000
6/10/2017	0.2688	0.0000		5/31/2018	0.8644	0.1204
6/11/2017	0.3218	0.0000		6/1/2018	0.1739	0.0000
6/12/2017	0.3550	0.0000		6/16/2018	0.0000	0.0000
6/13/2017	0.4536	0.0000		6/17/2018	0.0000	0.0000
6/14/2017	0.3437	0.0000		6/18/2018	0.0000	0.0000
6/15/2017	0.4207	0.0000		6/29/2018	1.6731	1.5858
6/21/2017	0.0000	0.0000		6/30/2018	5.3210	4.4329
6/22/2017	0.0000	0.0000		7/1/2018	1.1554	0.2289
7/2/2017	0.3971	0.0000		7/2/2018	0.7200	0.0000
7/3/2017	0.3960	0.0000		7/3/2018	0.6232	0.0000
7/4/2017	0.4002	0.0000		7/8/2018	0.5123	0.0000
7/18/2017	0.3189	0.0000		7/9/2018	0.5907	0.0000
7/19/2017	0.3499	0.0000		7/10/2018	0.1583	0.0000
7/20/2017	0.2660	0.0000		7/15/2018	0.0000	0.0000
7/21/2017	0.2351	0.0000		7/16/2018	0.0000	0.0000
7/31/2017	3.1896	2.4450		8/9/2018	0.0000	0.0000
8/1/2017	1.5674	0.6750		8/10/2018	0.0000	0.0000
8/15/2017	0.0324	0.0301		8/26/2018	0.0000	0.0000
8/16/2017	0.0000	0.0000		8/27/2018	0.0000	0.0000
9/24/2017	0.3471	0.0000		9/5/2018	0.0000	0.0000
9/25/2017	0.3211	0.0000		9/6/2018	0.0000	0.0000

Ozone exceedance days highlighted with red background
Day before an ozone exceedance day highlighted with yellow background

* To put these numbers into context, the fixes to the aftermarket catalyst program that OTC has been asking for EPA to make would result in approximately 25 tons per day of additional NOx reductions across all OTC states.
** The high end estimate was based upon the best (lowest) ozone season rate calculated using CAMD data for each coal-fired EGU in Pennsylvania. If the best rate for any individual day were to be used, estimated reductions would be even larger. The low end estimate was based upon the highest (least restrictive) 30-day rolling average rate using CAMD data for each coal-fired EGU in Pennsylvania in the year that had the best (lowest) full ozone season rate.

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Summary of the Excess Emissions* Allowed Under Current Pennsylvania Rules on the Day Before and the Day of Ozone Exceedance Days in Maryland in 2017 and 2018

Table 3B.13 – Individual EGUs- Seward Unit 1

2017				2018		
Date	Excess Daily NOx Tons** High End Estimate	Excess Daily NOx Tons** Low End Estimate		Date	Excess Daily NOx Tons** High End Estimate	Excess Daily NOx Tons** Low End Estimate
5/16/2017	0.1138	0.0512		5/1/2018	0.0000	0.0000
5/17/2017	0.0000	0.0000		5/2/2018	0.0000	0.0000
5/18/2017	0.6694	0.5055		5/3/2018	0.0000	0.0000
6/9/2017	0.5758	0.3512		5/4/2018	0.0000	0.0000
6/10/2017	0.3301	0.1192		5/31/2018	0.0000	0.0000
6/11/2017	0.4339	0.2279		6/1/2018	0.1479	0.0848
6/12/2017	0.5068	0.2729		6/16/2018	0.0000	0.0000
6/13/2017	0.5662	0.3184		6/17/2018	0.2914	0.0748
6/14/2017	0.3169	0.1003		6/18/2018	0.7148	0.4802
6/15/2017	0.0999	0.0000		6/29/2018	0.9203	0.6632
6/21/2017	1.2723	1.0115		6/30/2018	0.8865	0.6413
6/22/2017	1.2020	0.9448		7/1/2018	1.1533	0.9092
7/2/2017	0.6773	0.4515		7/2/2018	1.1618	0.9064
7/3/2017	0.3658	0.1307		7/3/2018	1.0845	0.8156
7/4/2017	0.0683	0.0000		7/8/2018	0.4746	0.2837
7/18/2017	0.0000	0.0000		7/9/2018	0.9560	0.7428
7/19/2017	0.0000	0.0000		7/10/2018	0.8984	0.6647
7/20/2017	0.0000	0.0000		7/15/2018	0.0029	0.0000
7/21/2017	0.0000	0.0000		7/16/2018	0.8475	0.6026
7/31/2017	0.6733	0.4546		8/9/2018	1.4271	1.1995
8/1/2017	0.9614	0.7291		8/10/2018	0.8579	0.6300
8/15/2017	0.6898	0.4734		8/26/2018	0.0000	0.0000
8/16/2017	0.7373	0.5225		8/27/2018	0.2192	0.0068
9/24/2017	0.1360	0.0000		9/5/2018	1.1368	0.9098
9/25/2017	0.3719	0.1334		9/6/2018	1.7182	1.4294

Ozone exceedance days highlighted with red background
Day before an ozone exceedance day highlighted with yellow background

* To put these numbers into context, the fixes to the aftermarket catalyst program that OTC has been asking for EPA to make would result in approximately 25 tons per day of additional NOx reductions across all OTC states.
** The high end estimate was based upon the best (lowest) ozone season rate calculated using CAMD data for each coal-fired EGU in Pennsylvania. If the best rate for any individual day were to be used, estimated reductions would be even larger. The low end estimate was based upon the highest (least restrictive) 30-day rolling average rate using CAMD data for each coal-fired EGU in Pennsylvania in the year that had the best (lowest) full ozone season rate.

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Summary of the Excess Emissions* Allowed Under Current Pennsylvania Rules on the Day Before and the Day of Ozone Exceedance Days in Maryland in 2017 and 2018

Table 3B.14 – Individual EGUs- Scrubgrass Generating Plant Unit 1

2017				2018		
Date	Excess Daily NOx Tons** High End Estimate	Excess Daily NOx Tons** Low End Estimate		Date	Excess Daily NOx Tons** High End Estimate	Excess Daily NOx Tons** Low End Estimate
5/16/2017	0.3701	0.2603		5/1/2018	0.3341	0.2843
5/17/2017	0.4378	0.3345		5/2/2018	0.3469	0.2830
5/18/2017	0.3706	0.2724		5/3/2018	0.4487	0.3818
6/9/2017	0.2849	0.1782		5/4/2018	0.4580	0.3999
6/10/2017	0.1802	0.0846		5/31/2018	0.4478	0.3718
6/11/2017	0.2544	0.1569		6/1/2018	0.2448	0.2000
6/12/2017	0.2431	0.1329		6/16/2018	0.3105	0.2474
6/13/2017	0.3687	0.2583		6/17/2018	0.3369	0.2628
6/14/2017	0.4194	0.3128		6/18/2018	0.4738	0.3896
6/15/2017	0.3049	0.1973		6/29/2018	0.4998	0.4210
6/21/2017	0.0000	0.0000		6/30/2018	0.5479	0.4709
6/22/2017	0.0000	0.0000		7/1/2018	0.5606	0.4856
7/2/2017	0.2600	0.1517		7/2/2018	0.4814	0.3964
7/3/2017	0.3191	0.2222		7/3/2018	0.4893	0.4100
7/4/2017	0.2157	0.1234		7/8/2018	0.3834	0.3268
7/18/2017	0.5131	0.4123		7/9/2018	0.3629	0.2927
7/19/2017	0.3413	0.2307		7/10/2018	0.3905	0.3093
7/20/2017	0.2851	0.1788		7/15/2018	0.0000	0.0000
7/21/2017	0.4136	0.3051		7/16/2018	0.0000	0.0000
7/31/2017	0.4659	0.3489		8/9/2018	0.4063	0.3427
8/1/2017	0.6055	0.4883		8/10/2018	0.3977	0.3253
8/15/2017	0.4069	0.2930		8/26/2018	0.4780	0.4101
8/16/2017	0.4875	0.3755		8/27/2018	0.4582	0.3799
9/24/2017	0.2716	0.1564		9/5/2018	0.4807	0.4016
9/25/2017	0.3346	0.2261		9/6/2018	0.4131	0.3461

Ozone exceedance days highlighted with red background
Day before an ozone exceedance day highlighted with yellow background

* To put these numbers into context, the fixes to the aftermarket catalyst program that OTC has been asking for EPA to make would result in approximately 25 tons per day of additional NOx reductions across all OTC states.
** The high end estimate was based upon the best (lowest) ozone season rate calculated using CAMD data for each coal-fired EGU in Pennsylvania. If the best rate for any individual day were to be used, estimated reductions would be even larger. The low end estimate was based upon the highest (least restrictive) 30-day rolling average rate using CAMD data for each coal-fired EGU in Pennsylvania in the year that had the best (lowest) full ozone season rate.

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Summary of the Excess Emissions* Allowed Under Current Pennsylvania Rules on the Day Before and the Day of Ozone Exceedance Days in Maryland in 2017 and 2018

Table 3B.15 – Individual EGUs- Cambria CoGen Unit 1

2017				2018		
Date	Excess Daily NOx Tons** High End Estimate	Excess Daily NOx Tons** Low End Estimate		Date	Excess Daily NOx Tons** High End Estimate	Excess Daily NOx Tons** Low End Estimate
5/16/2017	0.0000	0.0000		5/1/2018	0.4278	0.2809
5/17/2017	0.0000	0.0000		5/2/2018	0.4287	0.2800
5/18/2017	0.0000	0.0000		5/3/2018	0.4213	0.2725
6/9/2017	0.0000	0.0000		5/4/2018	0.4383	0.2900
6/10/2017	0.0000	0.0000		5/31/2018	0.3949	0.2648
6/11/2017	0.2683	0.2351		6/1/2018	0.3701	0.2387
6/12/2017	0.4301	0.3242		6/16/2018	0.3530	0.2283
6/13/2017	0.4187	0.2829		6/17/2018	0.3003	0.1851
6/14/2017	0.4538	0.3102		6/18/2018	0.3804	0.2459
6/15/2017	0.4084	0.2697		6/29/2018	0.3689	0.2323
6/21/2017	0.3413	0.2198		6/30/2018	0.3716	0.2353
6/22/2017	0.3763	0.2497		7/1/2018	0.3696	0.2364
7/2/2017	0.3353	0.2137		7/2/2018	0.3845	0.2478
7/3/2017	0.3888	0.2661		7/3/2018	0.3926	0.2470
7/4/2017	0.3368	0.2163		7/8/2018	0.3426	0.2155
7/18/2017	0.3725	0.2436		7/9/2018	0.3520	0.2191
7/19/2017	0.4070	0.2761		7/10/2018	0.3693	0.2343
7/20/2017	0.3493	0.2328		7/15/2018	0.3745	0.2369
7/21/2017	0.3866	0.2573		7/16/2018	0.3795	0.2369
7/31/2017	0.3461	0.2206		8/9/2018	0.3685	0.2300
8/1/2017	0.3834	0.2527		8/10/2018	0.3846	0.2487
8/15/2017	0.4265	0.2726		8/26/2018	0.3178	0.2031
8/16/2017	0.4995	0.3555		8/27/2018	0.3974	0.2672
9/24/2017	0.3108	0.1889		9/5/2018	0.3942	0.2579
9/25/2017	0.3289	0.1952		9/6/2018	0.3999	0.2620

Ozone exceedance days highlighted with red background
Day before an ozone exceedance day highlighted with yellow background

* To put these numbers into context, the fixes to the aftermarket catalyst program that OTC has been asking for EPA to make would result in approximately 25 tons per day of additional NOx reductions across all OTC states.
** The high end estimate was based upon the best (lowest) ozone season rate calculated using CAMD data for each coal-fired EGU in Pennsylvania. If the best rate for any individual day were to be used, estimated reductions would be even larger. The low end estimate was based upon the highest (least restrictive) 30-day rolling average rate using CAMD data for each coal-fired EGU in Pennsylvania in the year that had the best (lowest) full ozone season rate.

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Summary of the Excess Emissions* Allowed Under Current Pennsylvania Rules on the Day Before and the Day of Ozone Exceedance Days in Maryland in 2017 and 2018

Table 3B.16 – Individual EGUs- Cambria CoGen Unit 2

2017				2018		
Date	Excess Daily NOx Tons** High End Estimate	Excess Daily NOx Tons** Low End Estimate		Date	Excess Daily NOx Tons** High End Estimate	Excess Daily NOx Tons** Low End Estimate
5/16/2017	0.0000	0.0000		5/1/2018	0.4313	0.2869
5/17/2017	0.0000	0.0000		5/2/2018	0.4252	0.2818
5/18/2017	0.0091	0.0059		5/3/2018	0.4241	0.2809
6/9/2017	0.0000	0.0000		5/4/2018	0.4420	0.3000
6/10/2017	0.0000	0.0000		5/31/2018	0.4119	0.2793
6/11/2017	0.0000	0.0000		6/1/2018	0.3890	0.2569
6/12/2017	0.0136	0.0076		6/16/2018	0.3520	0.2325
6/13/2017	0.4466	0.3149		6/17/2018	0.2673	0.1663
6/14/2017	0.4446	0.3045		6/18/2018	0.3962	0.2620
6/15/2017	0.3944	0.2601		6/29/2018	0.3856	0.2487
6/21/2017	0.3465	0.2257		6/30/2018	0.3848	0.2499
6/22/2017	0.3864	0.2596		7/1/2018	0.3882	0.2542
7/2/2017	0.3515	0.2313		7/2/2018	0.4068	0.2697
7/3/2017	0.4014	0.2792		7/3/2018	0.4130	0.2665
7/4/2017	0.3420	0.2232		7/8/2018	0.3537	0.2283
7/18/2017	0.3908	0.2608		7/9/2018	0.3707	0.2385
7/19/2017	0.4258	0.2941		7/10/2018	0.3832	0.2477
7/20/2017	0.3550	0.2396		7/15/2018	0.3852	0.2469
7/21/2017	0.4035	0.2743		7/16/2018	0.3903	0.2469
7/31/2017	0.3766	0.2506		8/9/2018	0.3799	0.2413
8/1/2017	0.3883	0.2579		8/10/2018	0.4088	0.2730
8/15/2017	0.0000	0.0000		8/26/2018	0.3212	0.2097
8/16/2017	0.0068	0.0033		8/27/2018	0.4123	0.2822
9/24/2017	0.3019	0.1847		9/5/2018	0.4132	0.2739
9/25/2017	0.3289	0.1982		9/6/2018	0.4166	0.2727

Ozone exceedance days highlighted with red background
Day before an ozone exceedance day highlighted with yellow background

* To put these numbers into context, the fixes to the aftermarket catalyst program that OTC has been asking for EPA to make would result in approximately 25 tons per day of additional NOx reductions across all OTC states.
** The high end estimate was based upon the best (lowest) ozone season rate calculated using CAMD data for each coal-fired EGU in Pennsylvania. If the best rate for any individual day were to be used, estimated reductions would be even larger. The low end estimate was based upon the highest (least restrictive) 30-day rolling average rate using CAMD data for each coal-fired EGU in Pennsylvania in the year that had the best (lowest) full ozone season rate.

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Summary of the Excess Emissions* Allowed Under Current Pennsylvania Rules on the Day Before and the Day of Ozone Exceedance Days in Maryland in 2017 and 2018

Table 3B.17 – Individual EGUs- Scrubgrass Generating Plant Unit 2

2017				2018		
Date	Excess Daily NOx Tons** High End Estimate	Excess Daily NOx Tons** Low End Estimate		Date	Excess Daily NOx Tons** High End Estimate	Excess Daily NOx Tons** Low End Estimate
5/16/2017	0.3617	0.3240		5/1/2018	0.2946	0.2668
5/17/2017	0.6078	0.5746		5/2/2018	0.3371	0.3032
5/18/2017	0.2765	0.2456		5/3/2018	0.3941	0.3594
6/9/2017	0.1479	0.1332		5/4/2018	0.4373	0.4042
6/10/2017	0.1726	0.1402		5/31/2018	0.3563	0.3203
6/11/2017	0.1683	0.1346		6/1/2018	0.1479	0.1253
6/12/2017	0.2622	0.2272		6/16/2018	0.3211	0.2849
6/13/2017	0.2526	0.2180		6/17/2018	0.2800	0.2418
6/14/2017	0.3668	0.3329		6/18/2018	0.3348	0.2954
6/15/2017	0.3168	0.2781		6/29/2018	0.4076	0.3684
6/21/2017	0.0000	0.0000		6/30/2018	0.3697	0.3306
6/22/2017	0.0000	0.0000		7/1/2018	0.4667	0.4277
7/2/2017	0.0000	0.0000		7/2/2018	0.3309	0.2926
7/3/2017	0.1353	0.1062		7/3/2018	0.2548	0.2143
7/4/2017	0.1541	0.1183		7/8/2018	0.3434	0.3093
7/18/2017	0.4201	0.3814		7/9/2018	0.2470	0.2102
7/19/2017	0.2523	0.2162		7/10/2018	0.2302	0.1910
7/20/2017	0.2145	0.1812		7/15/2018	0.2787	0.2301
7/21/2017	0.3257	0.2907		7/16/2018	0.5480	0.5002
7/31/2017	0.4278	0.3918		8/9/2018	0.2705	0.2376
8/1/2017	0.2587	0.2233		8/10/2018	0.2718	0.2323
8/15/2017	0.4679	0.4308		8/26/2018	0.3811	0.3434
8/16/2017	0.4786	0.4418		8/27/2018	0.3630	0.3206
9/24/2017	0.3486	0.3129		9/5/2018	0.3676	0.3256
9/25/2017	0.2779	0.2450		9/6/2018	0.3534	0.3151

Ozone exceedance days highlighted with red background
Day before an ozone exceedance day highlighted with yellow background

* To put these numbers into context, the fixes to the aftermarket catalyst program that OTC has been asking for EPA to make would result in approximately 25 tons per day of additional NOx reductions across all OTC states.
** The high end estimate was based upon the best (lowest) ozone season rate calculated using CAMD data for each coal-fired EGU in Pennsylvania. If the best rate for any individual day were to be used, estimated reductions would be even larger. The low end estimate was based upon the highest (least restrictive) 30-day rolling average rate using CAMD data for each coal-fired EGU in Pennsylvania in the year that had the best (lowest) full ozone season rate.

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Summary of the Excess Emissions* Allowed Under Current Pennsylvania Rules on the Day Before and the Day of Ozone Exceedance Days in Maryland in 2017 and 2018

Table 3B.18 – Individual EGUs- Bruce Mansfield Unit 1

2017				2018		
Date	Excess Daily NOx Tons** High End Estimate	Excess Daily NOx Tons** Low End Estimate		Date	Excess Daily NOx Tons** High End Estimate	Excess Daily NOx Tons** Low End Estimate
5/16/2017	0.0000	0.0000		5/1/2018	0.0000	0.0000
5/17/2017	0.0000	0.0000		5/2/2018	0.0000	0.0000
5/18/2017	0.2178	0.0000		5/3/2018	0.0000	0.0000
6/9/2017	0.0000	0.0000		5/4/2018	0.0000	0.0000
6/10/2017	0.0000	0.0000		5/31/2018	0.0000	0.0000
6/11/2017	0.0000	0.0000		6/1/2018	0.0000	0.0000
6/12/2017	0.0000	0.0000		6/16/2018	0.0000	0.0000
6/13/2017	0.0000	0.0000		6/17/2018	0.0000	0.0000
6/14/2017	0.0000	0.0000		6/18/2018	0.0000	0.0000
6/15/2017	0.0000	0.0000		6/29/2018	0.0000	0.0000
6/21/2017	0.1369	0.0000		6/30/2018	0.0000	0.0000
6/22/2017	0.0000	0.0000		7/1/2018	0.0000	0.0000
7/2/2017	0.0000	0.0000		7/2/2018	0.0000	0.0000
7/3/2017	0.3101	0.0000		7/3/2018	0.5222	0.4218
7/4/2017	0.0000	0.0000		7/8/2018	4.0430	3.6916
7/18/2017	0.0000	0.0000		7/9/2018	1.3942	1.2863
7/19/2017	0.7649	0.0000		7/10/2018	0.0000	0.0000
7/20/2017	1.9898	1.1457		7/15/2018	0.0000	0.0000
7/21/2017	1.0074	0.7110		7/16/2018	0.0000	0.0000
7/31/2017	0.0000	0.0000		8/9/2018	0.0000	0.0000
8/1/2017	0.0000	0.0000		8/10/2018	0.0000	0.0000
8/15/2017	0.0000	0.0000		8/26/2018	0.0000	0.0000
8/16/2017	0.0000	0.0000		8/27/2018	0.0000	0.0000
9/24/2017	0.0000	0.0000		9/5/2018	0.0000	0.0000
9/25/2017	0.0000	0.0000		9/6/2018	0.0000	0.0000

Ozone exceedance days highlighted with red background
Day before an ozone exceedance day highlighted with yellow background

* To put these numbers into context, the fixes to the aftermarket catalyst program that OTC has been asking for EPA to make would result in approximately 25 tons per day of additional NOx reductions across all OTC states.
** The high end estimate was based upon the best (lowest) ozone season rate calculated using CAMD data for each coal-fired EGU in Pennsylvania. If the best rate for any individual day were to be used, estimated reductions would be even larger. The low end estimate was based upon the highest (least restrictive) 30-day rolling average rate using CAMD data for each coal-fired EGU in Pennsylvania in the year that had the best (lowest) full ozone season rate.

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Summary of the Excess Emissions* Allowed Under Current Pennsylvania Rules on the Day Before and the Day of Ozone Exceedance Days in Maryland in 2017 and 2018

Table 3B.19 – Individual EGUs- Bruce Mansfield Unit 2

2017				2018		
Date	Excess Daily NOx Tons** High End Estimate	Excess Daily NOx Tons** Low End Estimate		Date	Excess Daily NOx Tons** High End Estimate	Excess Daily NOx Tons** Low End Estimate
5/16/2017	0.0000	0.0000		5/1/2018	0.0000	0.0000
5/17/2017	0.0000	0.0000		5/2/2018	0.0000	0.0000
5/18/2017	0.3507	0.0000		5/3/2018	0.0000	0.0000
6/9/2017	0.4741	0.0000		5/4/2018	0.0000	0.0000
6/10/2017	0.0000	0.0000		5/31/2018	0.0000	0.0000
6/11/2017	0.2582	0.0000		6/1/2018	0.0000	0.0000
6/12/2017	0.8938	0.2170		6/16/2018	0.0000	0.0000
6/13/2017	0.0000	0.0000		6/17/2018	0.0000	0.0000
6/14/2017	0.0000	0.0000		6/18/2018	0.0000	0.0000
6/15/2017	0.0000	0.0000		6/29/2018	0.0000	0.0000
6/21/2017	0.1865	0.0000		6/30/2018	0.0000	0.0000
6/22/2017	0.0000	0.0000		7/1/2018	0.0000	0.0000
7/2/2017	0.0000	0.0000		7/2/2018	0.0000	0.0000
7/3/2017	0.0000	0.0000		7/3/2018	0.0000	0.0000
7/4/2017	0.0000	0.0000		7/8/2018	0.0000	0.0000
7/18/2017	0.0000	0.0000		7/9/2018	0.0000	0.0000
7/19/2017	0.0000	0.0000		7/10/2018	0.0000	0.0000
7/20/2017	0.0000	0.0000		7/15/2018	0.0000	0.0000
7/21/2017	0.0000	0.0000		7/16/2018	0.0000	0.0000
7/31/2017	0.0000	0.0000		8/9/2018	0.0000	0.0000
8/1/2017	0.0000	0.0000		8/10/2018	0.0000	0.0000
8/15/2017	0.1121	0.0000		8/26/2018	0.0000	0.0000
8/16/2017	0.0000	0.0000		8/27/2018	0.0000	0.0000
9/24/2017	0.0000	0.0000		9/5/2018	0.0000	0.0000
9/25/2017	0.0000	0.0000		9/6/2018	1.9248	1.7428

Ozone exceedance days highlighted with red background
Day before an ozone exceedance day highlighted with yellow background

* To put these numbers into context, the fixes to the aftermarket catalyst program that OTC has been asking for EPA to make would result in approximately 25 tons per day of additional NOx reductions across all OTC states.
** The high end estimate was based upon the best (lowest) ozone season rate calculated using CAMD data for each coal-fired EGU in Pennsylvania. If the best rate for any individual day were to be used, estimated reductions would be even larger. The low end estimate was based upon the highest (least restrictive) 30-day rolling average rate using CAMD data for each coal-fired EGU in Pennsylvania in the year that had the best (lowest) full ozone season rate.

ATTACHMENT 3

Summary of the Excess Emissions* Allowed Under Current Pennsylvania Rules on the Day Before and the Day of Ozone Exceedance Days in Maryland in 2017 and 2018

Table 3B.20 – Individual EGUs- Panther Creek Energy Unit 2

2017				2018		
Date	Excess Daily NOx Tons** High End Estimate	Excess Daily NOx Tons** Low End Estimate		Date	Excess Daily NOx Tons** High End Estimate	Excess Daily NOx Tons** Low End Estimate
5/16/2017	0.0000	0.0000		5/1/2018	0.0000	0.0000
5/17/2017	0.0000	0.0000		5/2/2018	0.0000	0.0000
5/18/2017	0.0000	0.0000		5/3/2018	0.0000	0.0000
6/9/2017	0.0000	0.0000		5/4/2018	0.0000	0.0000
6/10/2017	0.0000	0.0000		5/31/2018	0.0000	0.0000
6/11/2017	0.0000	0.0000		6/1/2018	0.0000	0.0000
6/12/2017	0.0378	0.0000		6/16/2018	0.0000	0.0000
6/13/2017	0.0752	0.0102		6/17/2018	0.0000	0.0000
6/14/2017	0.0000	0.0000		6/18/2018	0.0000	0.0000
6/15/2017	0.0000	0.0000		6/29/2018	0.0000	0.0000
6/21/2017	0.0000	0.0000		6/30/2018	0.0510	0.0000
6/22/2017	0.0000	0.0000		7/1/2018	0.0962	0.0172
7/2/2017	0.0000	0.0000		7/2/2018	0.0855	0.0090
7/3/2017	0.0000	0.0000		7/3/2018	0.0499	0.0000
7/4/2017	0.0000	0.0000		7/8/2018	0.0000	0.0000
7/18/2017	0.0221	0.0000		7/9/2018	0.0000	0.0000
7/19/2017	0.0591	0.0000		7/10/2018	0.0000	0.0000
7/20/2017	0.0853	0.0089		7/15/2018	0.0000	0.0000
7/21/2017	0.0502	0.0000		7/16/2018	0.0000	0.0000
7/31/2017	0.0000	0.0000		8/9/2018	0.0000	0.0000
8/1/2017	0.0000	0.0000		8/10/2018	0.0000	0.0000
8/15/2017	0.0000	0.0000		8/26/2018	0.0000	0.0000
8/16/2017	0.0000	0.0000		8/27/2018	0.0000	0.0000
9/24/2017	0.0674	0.0000		9/5/2018	0.0000	0.0000
9/25/2017	0.0636	0.0000		9/6/2018	0.0000	0.0000

Ozone exceedance days highlighted with red background
Day before an ozone exceedance day highlighted with yellow background

* To put these numbers into context, the fixes to the aftermarket catalyst program that OTC has been asking for EPA to make would result in approximately 25 tons per day of additional NOx reductions across all OTC states.
** The high end estimate was based upon the best (lowest) ozone season rate calculated using CAMD data for each coal-fired EGU in Pennsylvania. If the best rate for any individual day were to be used, estimated reductions would be even larger. The low end estimate was based upon the highest (least restrictive) 30-day rolling average rate using CAMD data for each coal-fired EGU in Pennsylvania in the year that had the best (lowest) full ozone season rate.

ATTACHMENT 3

Summary of the Excess Emissions* Allowed Under Current Pennsylvania Rules on the Day Before and the Day of Ozone Exceedance Days in Maryland in 2017 and 2018

Table 3B.21 – Individual EGUs- Panther Creek Energy Unit 1

2017				2018		
Date	Excess Daily NOx Tons** High End Estimate	Excess Daily NOx Tons** Low End Estimate		Date	Excess Daily NOx Tons** High End Estimate	Excess Daily NOx Tons** Low End Estimate
5/16/2017	0.0000	0.0000		5/1/2018	0.0000	0.0000
5/17/2017	0.0000	0.0000		5/2/2018	0.0000	0.0000
5/18/2017	0.0000	0.0000		5/3/2018	0.0000	0.0000
6/9/2017	0.0000	0.0000		5/4/2018	0.0000	0.0000
6/10/2017	0.0000	0.0000		5/31/2018	0.0000	0.0000
6/11/2017	0.0000	0.0000		6/1/2018	0.0000	0.0000
6/12/2017	0.0312	0.0000		6/16/2018	0.0000	0.0000
6/13/2017	0.0407	0.0000		6/17/2018	0.0000	0.0000
6/14/2017	0.0000	0.0000		6/18/2018	0.0000	0.0000
6/15/2017	0.0000	0.0000		6/29/2018	0.0252	0.0193
6/21/2017	0.0000	0.0000		6/30/2018	0.0000	0.0000
6/22/2017	0.0000	0.0000		7/1/2018	0.0000	0.0000
7/2/2017	0.0000	0.0000		7/2/2018	0.0000	0.0000
7/3/2017	0.0000	0.0000		7/3/2018	0.0765	0.0269
7/4/2017	0.0000	0.0000		7/8/2018	0.0000	0.0000
7/18/2017	0.0000	0.0000		7/9/2018	0.0000	0.0000
7/19/2017	0.0308	0.0000		7/10/2018	0.0000	0.0000
7/20/2017	0.0290	0.0000		7/15/2018	0.0000	0.0000
7/21/2017	0.0236	0.0000		7/16/2018	0.0000	0.0000
7/31/2017	0.0000	0.0000		8/9/2018	0.0000	0.0000
8/1/2017	0.0000	0.0000		8/10/2018	0.0000	0.0000
8/15/2017	0.0000	0.0000		8/26/2018	0.0000	0.0000
8/16/2017	0.0000	0.0000		8/27/2018	0.0000	0.0000
9/24/2017	0.0268	0.0000		9/5/2018	0.0000	0.0000
9/25/2017	0.0382	0.0000		9/6/2018	0.0000	0.0000

Ozone exceedance days highlighted with red background
Day before an ozone exceedance day highlighted with yellow background

* To put these numbers into context, the fixes to the aftermarket catalyst program that OTC has been asking for EPA to make would result in approximately 25 tons per day of additional NOx reductions across all OTC states.
** The high end estimate was based upon the best (lowest) ozone season rate calculated using CAMD data for each coal-fired EGU in Pennsylvania. If the best rate for any individual day were to be used, estimated reductions would be even larger. The low end estimate was based upon the highest (least restrictive) 30-day rolling average rate using CAMD data for each coal-fired EGU in Pennsylvania in the year that had the best (lowest) full ozone season rate.

ATTACHMENT 4

Maximum Modeled Ozone Benefits if Pennsylvania Coal-Fired EGUs Optimize Existing Control Technologies Every Day of the Ozone Season

Table 4A – Maximum Ozone Reductions in OTC Jurisdictions South of Massachusetts

State	Maximum Ozone Benefit (ppb)
PA	10.7
MD	7.0
NJ	5.8
DC	4.5
NY	4.2
VA	4.0
DE	3.2
CT	2.1
RI	1.2

Table 4A represents the maximum daily reduction in ozone concentrations had PA coal fired EGUs with SCR or SNCR optimized running their controls. Maryland would have experienced a decrease in ozone concentration of 7 ppb. This was only second to PA which would have experienced a decrease in ozone of over 10 ppb."

ATTACHMENT 4

Maximum Modeled Ozone Benefits if Pennsylvania Coal-Fired EGUs Optimize Existing Control Technologies Every Day of the Ozone Season

Table 4B – Maximum Ozone Reductions at Key Ozone Monitors in the OTC

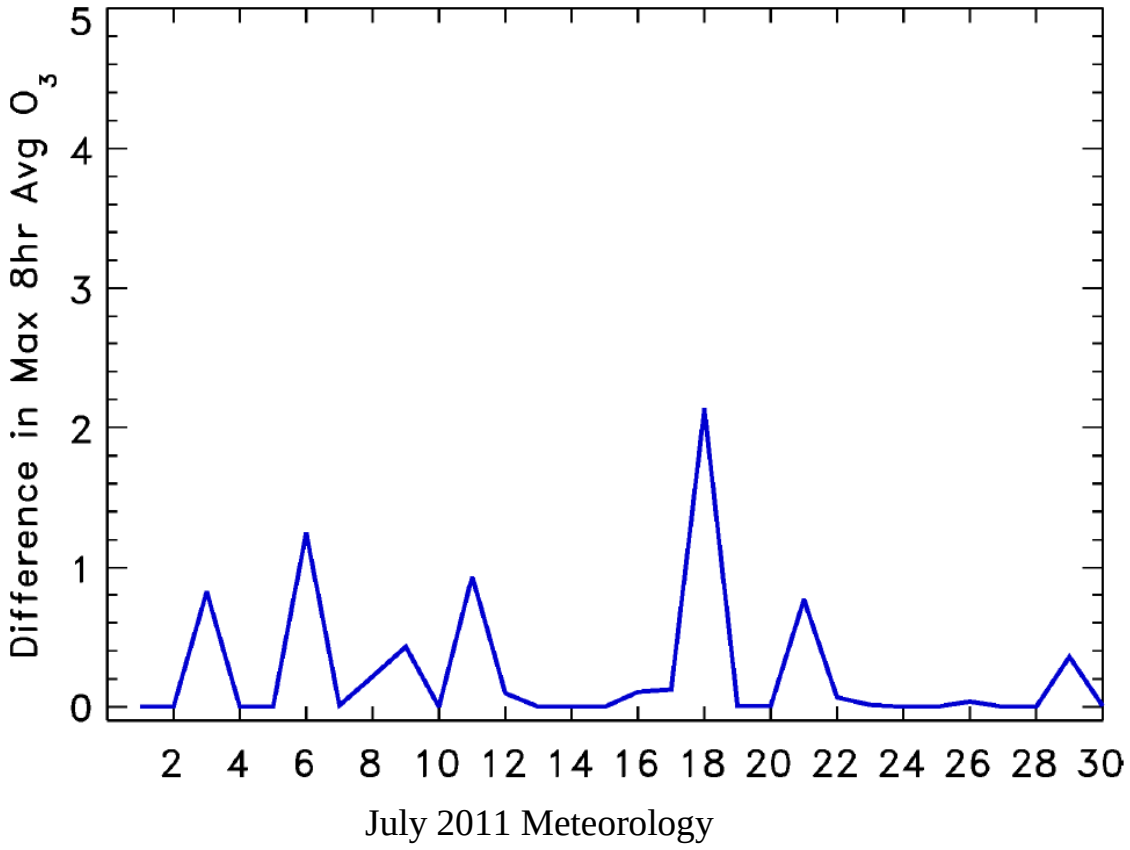
Monitor, State	AQS #	Maximum Ozone Benefit (ppb)
Greenwich Point Park, CT	90010017	2.1
Fairfield, CT	90013007	1.9
Sherwood Island Connector, CT	90019003	2.1
Hammonasset State Park, CT	90099002	1.5
Fair Hill, MD	240150003	3.5
Edgewood, MD	240251001	2.6
PG Equestrian Center, MD	240338003	4.9
Ancora State Hospital, NJ	340071001	2.5
Clarksboro, NJ	340150002	2.6
Susan Wagner HS, NY	360850067	4.5
Babylon, NY	361030002	2.4
Bucks County, PA	420170012	3.8
Northeast Airport, PA	421010024	3.6
Aurora Hills Visitors Center, VA	510130020	4.5

Table 4B lists several key OTR ozone monitors with each monitors corresponding maximum ozone benefit had PA coal fired EGUs with SCR or SNCR optimized running their controls during the summer ozone season. The Maryland PG Equestrian monitor had a predicted ozone reduction of 4.9 ppb. The Susan Wagner HS, NY and Aurora Hills Visitors Center, VA both had a predicted ozone reduction of 4.5 ppb.

ATTACHMENT 4

Maximum Modeled Ozone Benefits if Pennsylvania Coal-Fired EGUs Optimize Existing Control Technologies Every Day of the Ozone Season

Figure 4C.1 –Maximum Daily Ozone Reductions at Key Ozone Monitors in the OTC for the One Month Modeling Period - Greenwich Point Park, CT (#90010017)

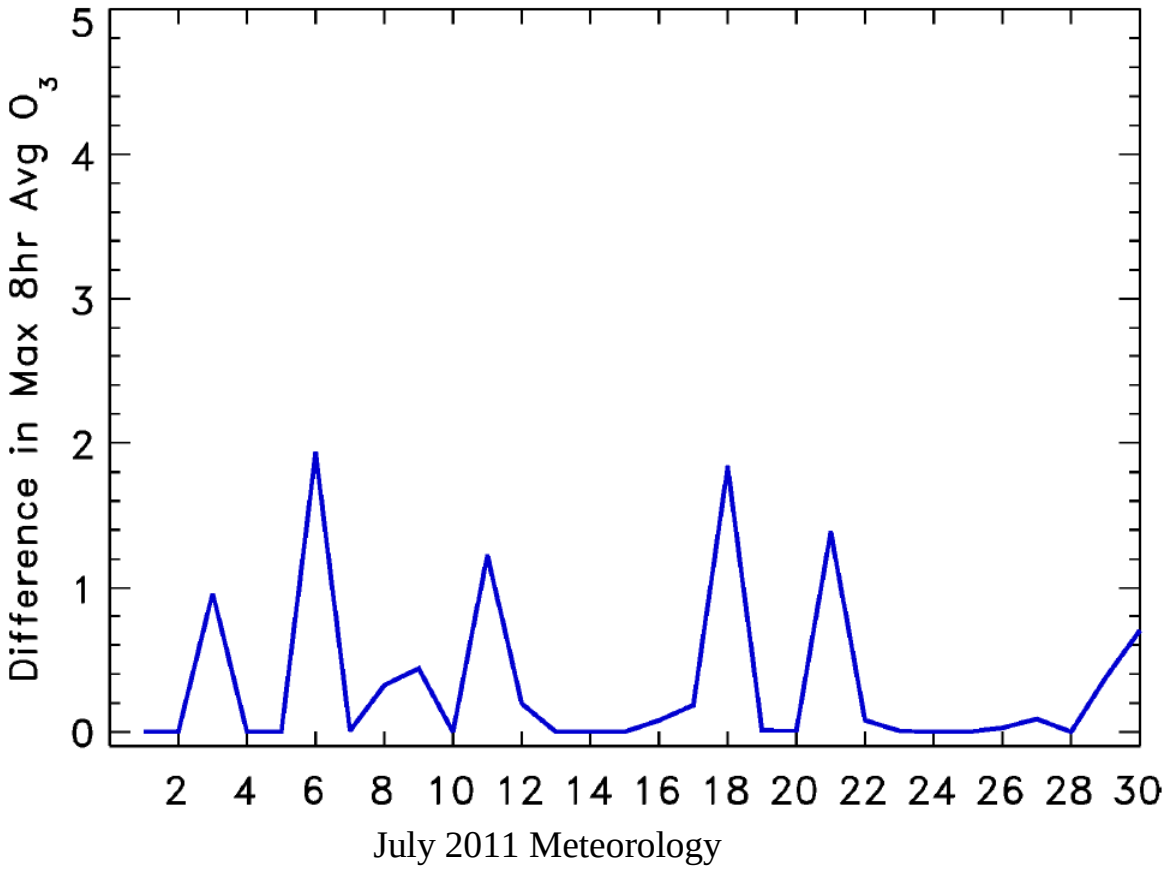


Greenwich Point Park, CT (#90010017) Difference in Maximum 8-Hour Average Ozone

ATTACHMENT 4

Maximum Modeled Ozone Benefits if Pennsylvania Coal-Fired EGUs Optimize Existing Control Technologies Every Day of the Ozone Season

Figure 4C.2 –Maximum Daily Ozone Reductions at Key Ozone Monitors in the OTC for the One Month Modeling Period - Fairfield, CT (#90013007)

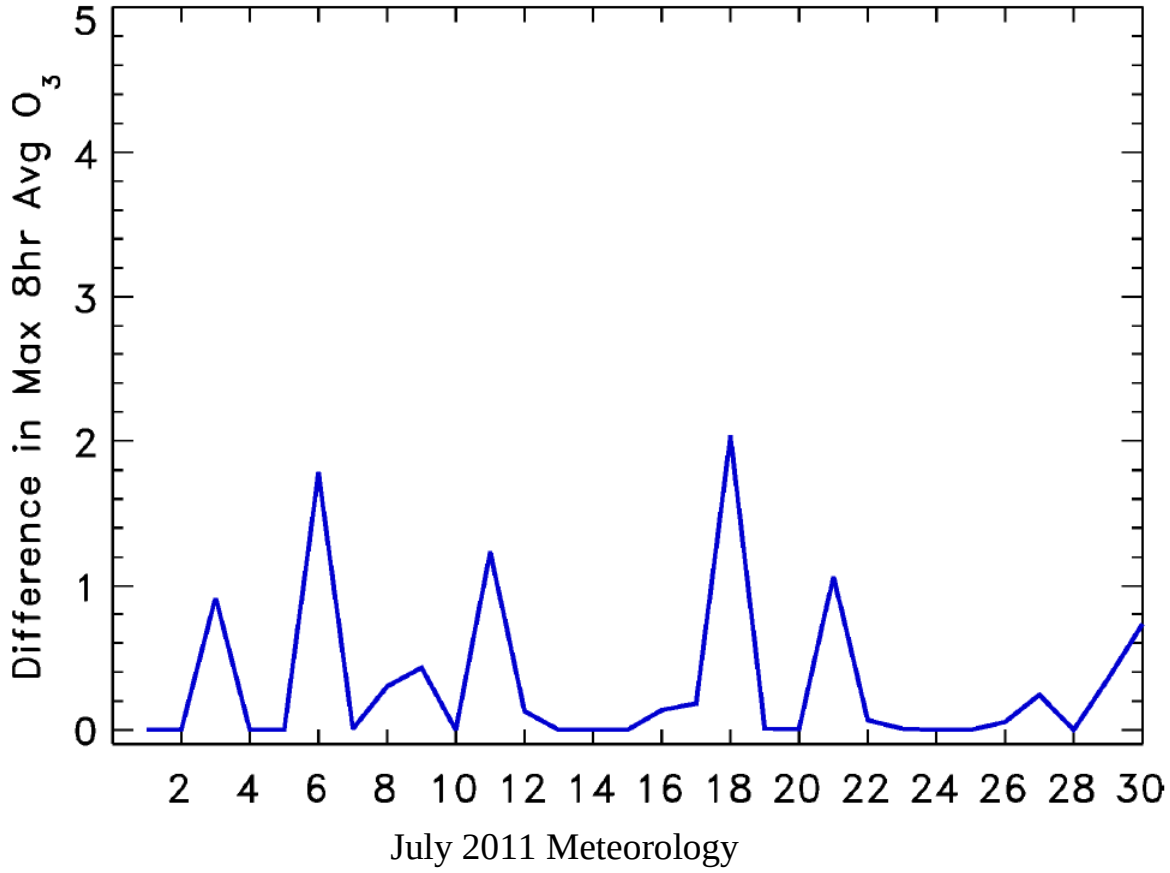


Fairfield, CT (#90013007) Difference in Maximum 8-Hour Average Ozone

ATTACHMENT 4

Maximum Modeled Ozone Benefits if Pennsylvania Coal-Fired EGUs Optimize Existing Control Technologies Every Day of the Ozone Season

Figure 4C.3 –Maximum Daily Ozone Reductions at Key Ozone Monitors in the OTC for the One Month Modeling Period - Sherwood Island Connector, CT (#90019003)

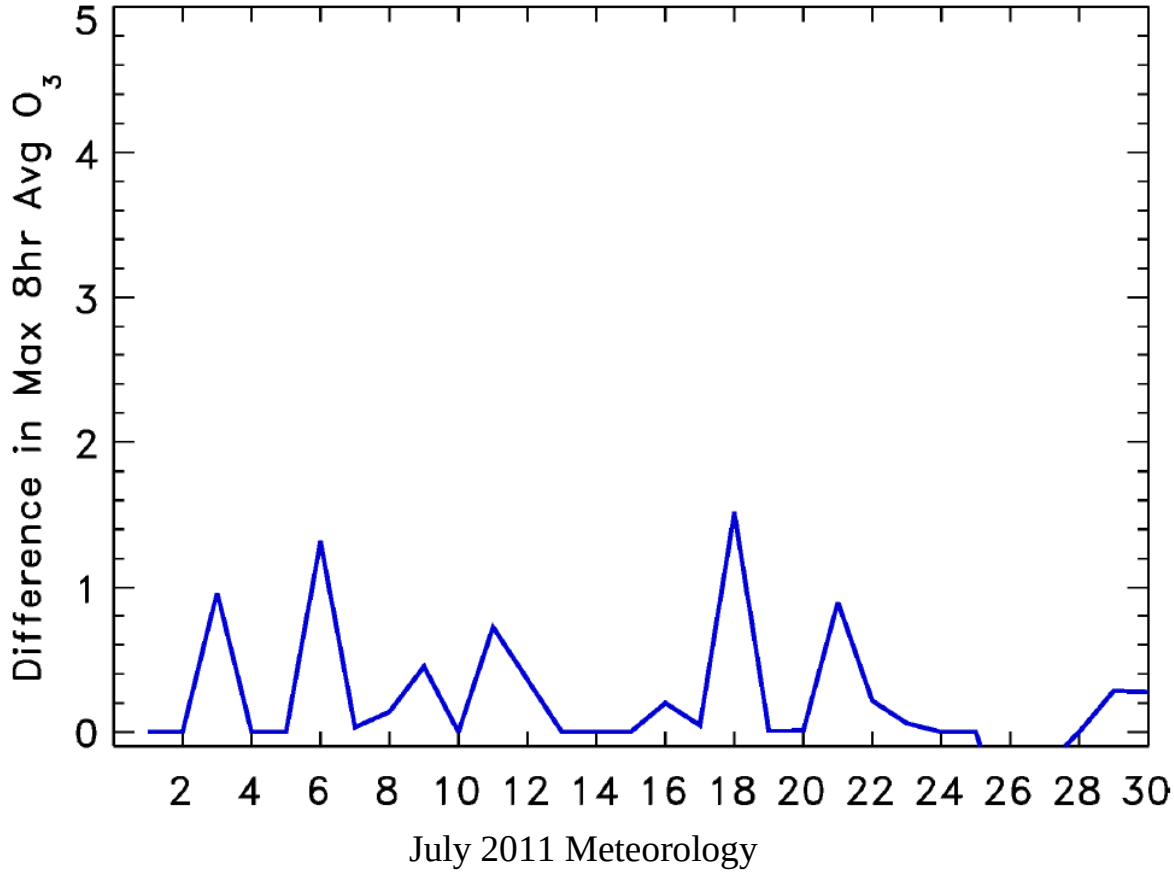


Sherwood Island Connector, CT (#90019003) Difference in Maximum 8-Hour Average Ozone

ATTACHMENT 4

Maximum Modeled Ozone Benefits if Pennsylvania Coal-Fired EGUs Optimize Existing Control Technologies Every Day of the Ozone Season

Figure 4C.4 –Maximum Daily Ozone Reductions at Key Ozone Monitors in the OTC for the One Month Modeling Period - Hammonasset State Park, CT (#90099002)

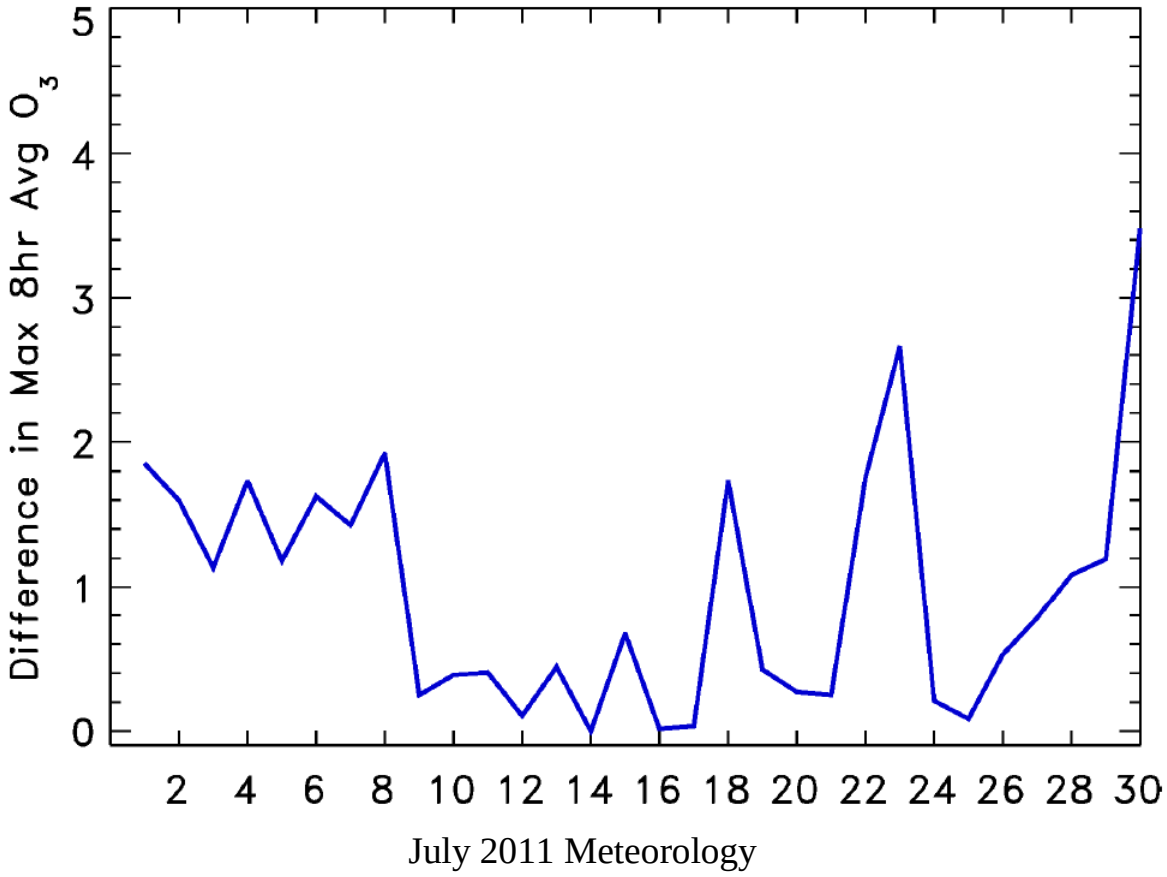


Hammonasset State Park, CT (#90099002) Difference in Maximum 8-Hour Average Ozone

ATTACHMENT 4

Maximum Modeled Ozone Benefits if Pennsylvania Coal-Fired EGUs Optimize Existing Control Technologies Every Day of the Ozone Season

Figure 4C.5 –Maximum Daily Ozone Reductions at Key Ozone Monitors in the OTC for the One Month Modeling Period - Fairhill, MD (#240150003)

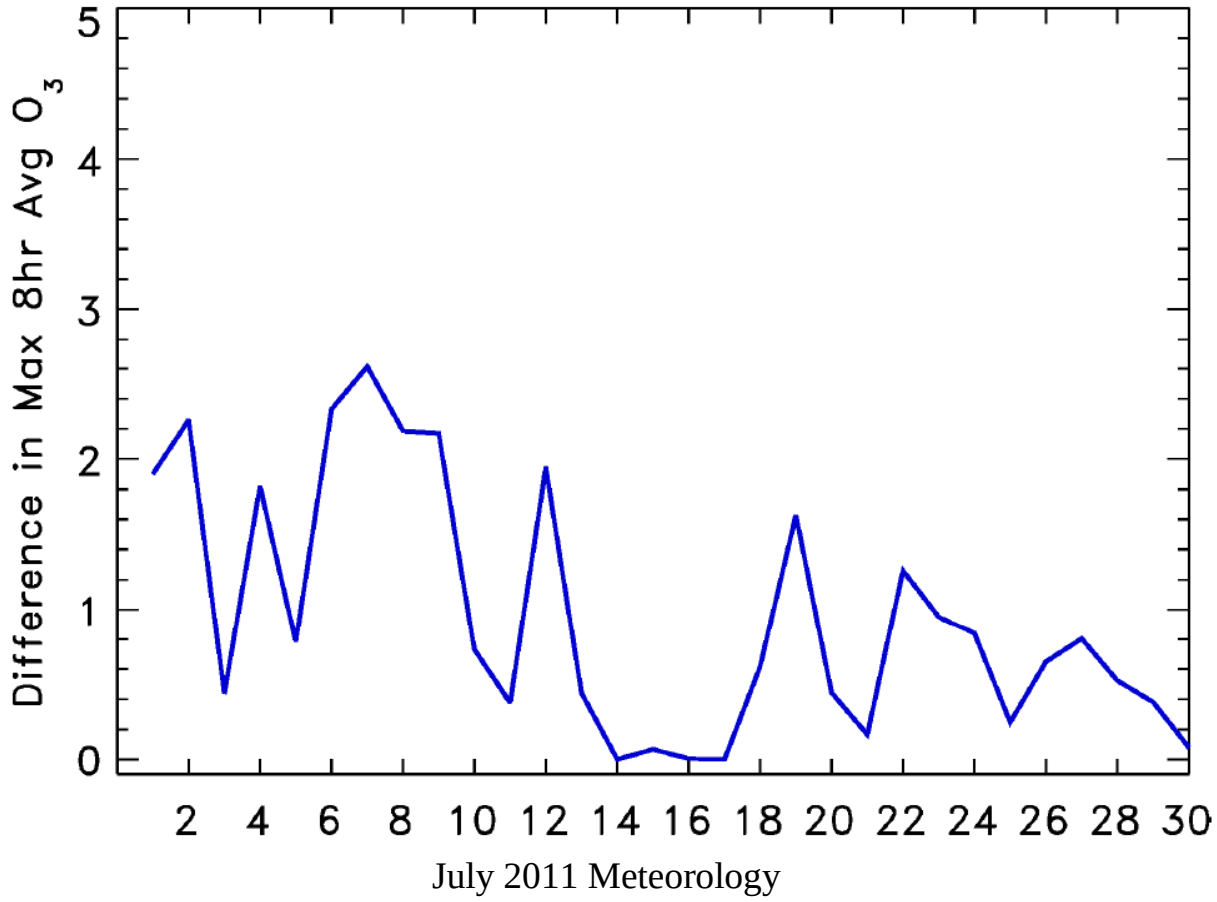


Fairhill, MD (#240150003) Difference in Maximum 8-Hour Average Ozone

ATTACHMENT 4

Maximum Modeled Ozone Benefits if Pennsylvania Coal-Fired EGUs Optimize Existing Control Technologies Every Day of the Ozone Season

Figure 4C.6 –Maximum Daily Ozone Reductions at Key Ozone Monitors in the OTC for the One Month Modeling Period - Edgewood, MD (#240251001)

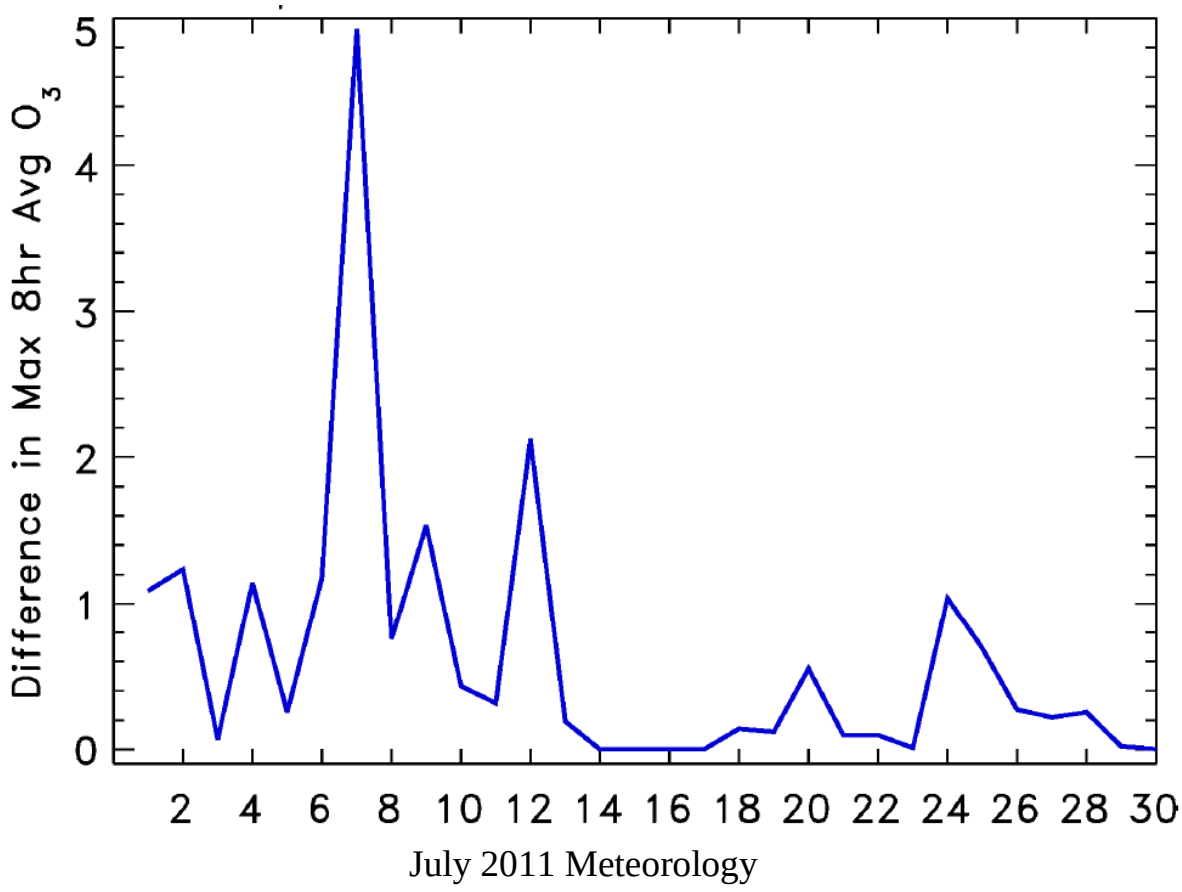


Edgewood, MD (#240251001) Difference in Maximum 8-Hour Average Ozone

ATTACHMENT 4

Maximum Modeled Ozone Benefits if Pennsylvania Coal-Fired EGUs Optimize Existing Control Technologies Every Day of the Ozone Season

Figure 4C.7 –Maximum Daily Ozone Reductions at Key Ozone Monitors in the OTC for the One Month Modeling Period - PG Equestrian Center, MD (#240338003)

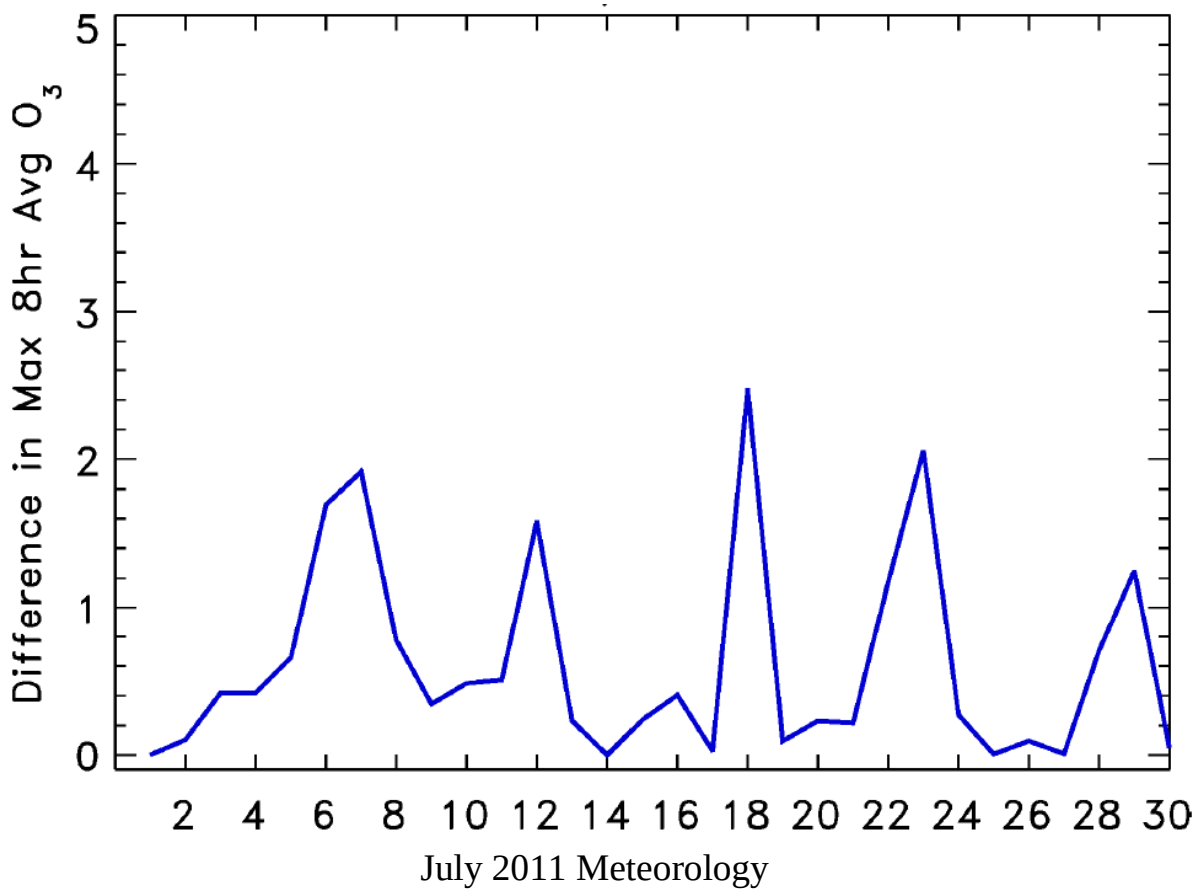


PG Equestrian Center, MD (#240338003) Difference in Maximum 8-Hour Average Ozone

ATTACHMENT 4

Maximum Modeled Ozone Benefits if Pennsylvania Coal-Fired EGUs Optimize Existing Control Technologies Every Day of the Ozone Season

Figure 4C.8 –Maximum Daily Ozone Reductions at Key Ozone Monitors in the OTC for the One Month Modeling Period - Ancora State Hospital, NJ (#340071001)

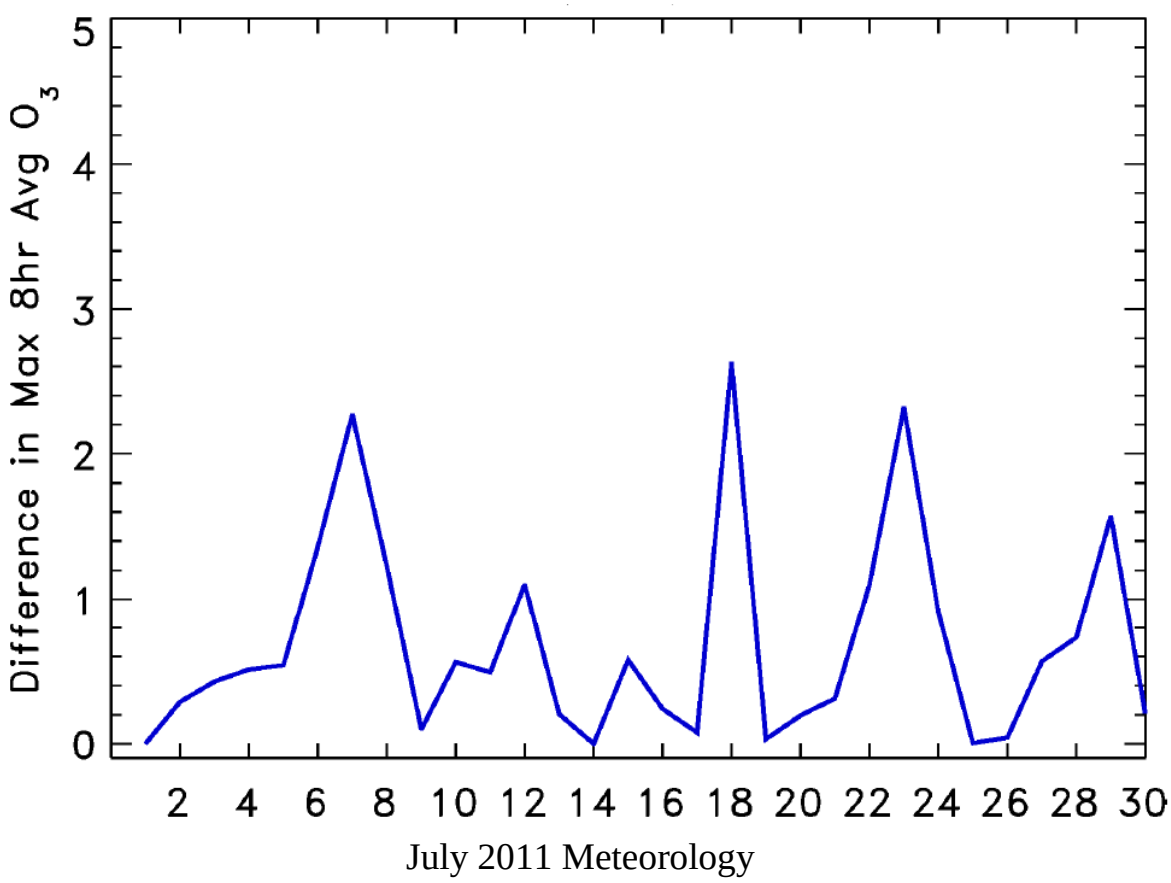


Ancora State Hospital, NJ (#340071001) Difference in Maximum 8-Hour Average Ozone

ATTACHMENT 4

Maximum Modeled Ozone Benefits if Pennsylvania Coal-Fired EGUs Optimize Existing Control Technologies Every Day of the Ozone Season

Figure 4C.9 –Maximum Daily Ozone Reductions at Key Ozone Monitors in the OTC for the One Month Modeling Period - Clarksboro, NJ (#340150002)

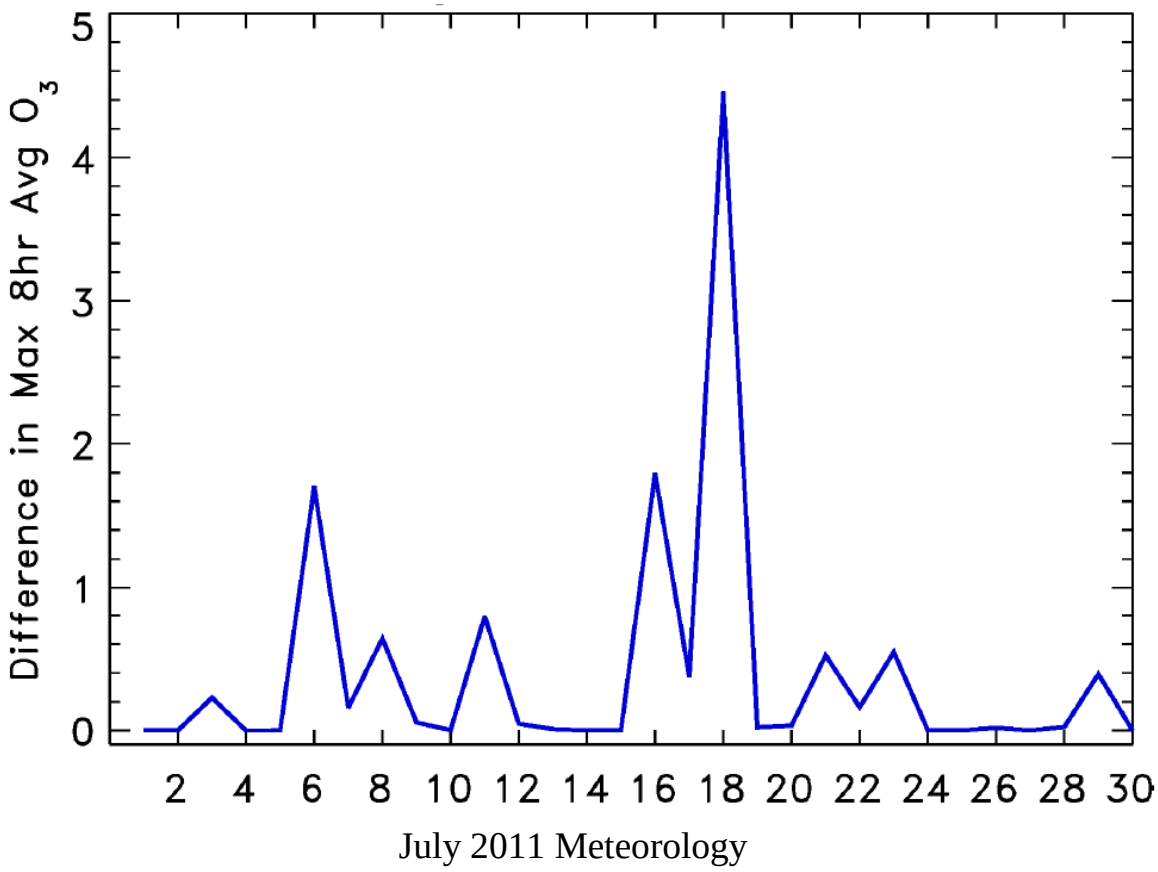


Clarksboro, NJ (#340150002) Difference in Maximum 8-Hour Average Ozone

ATTACHMENT 4

Maximum Modeled Ozone Benefits if Pennsylvania Coal-Fired EGUs Optimize Existing Control Technologies Every Day of the Ozone Season

Figure 4C.10 – Maximum Daily Ozone Reductions at Key Ozone Monitors in the OTC for the One Month Modeling Period - Susan Wagner High School, NY (#360850067)

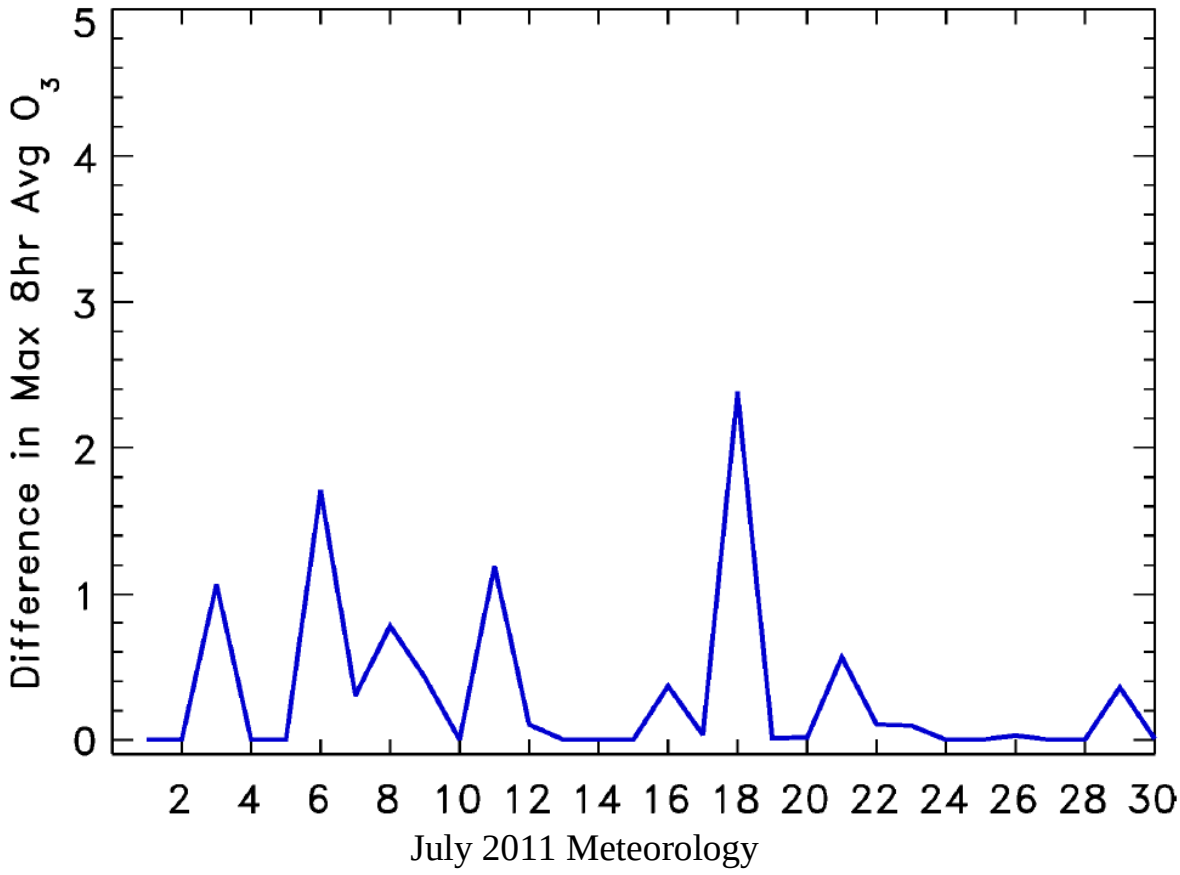


Susan Wagner High School, NY (#360850067) Difference in Maximum 8-Hour Average Ozone

ATTACHMENT 4

Maximum Modeled Ozone Benefits if Pennsylvania Coal-Fired EGUs Optimize Existing Control Technologies Every Day of the Ozone Season

Figure 4C.11 – Maximum Daily Ozone Reductions at Key Ozone Monitors in the OTC for the One Month Modeling Period - Babylon, NY (#361030002)

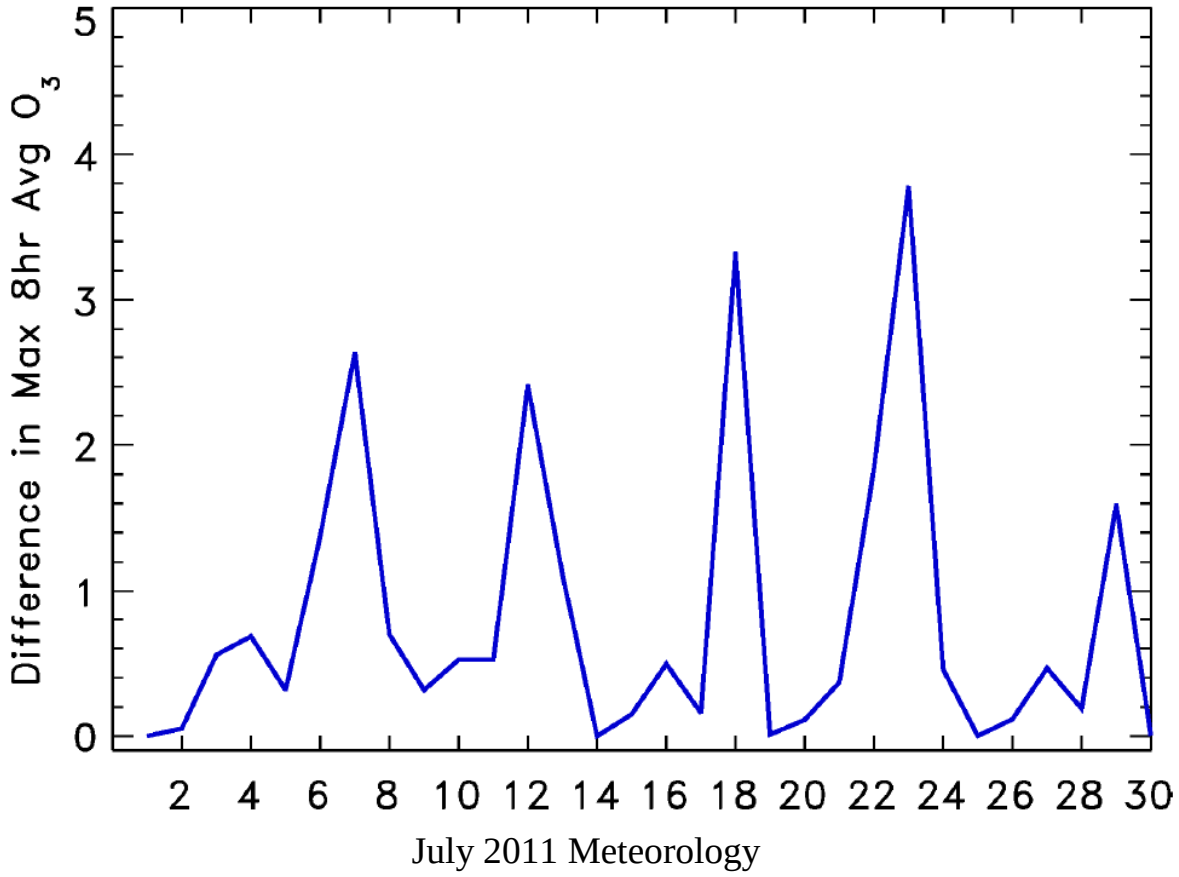


Babylon, NY (#361030002) Difference in Maximum 8-Hour Average Ozone

ATTACHMENT 4

Maximum Modeled Ozone Benefits if Pennsylvania Coal-Fired EGUs Optimize Existing Control Technologies Every Day of the Ozone Season

Figure 4C.12 –Maximum Daily Ozone Reductions at Key Ozone Monitors in the OTC for the One Month Modeling Period - Bucks County, PA (#420170012)

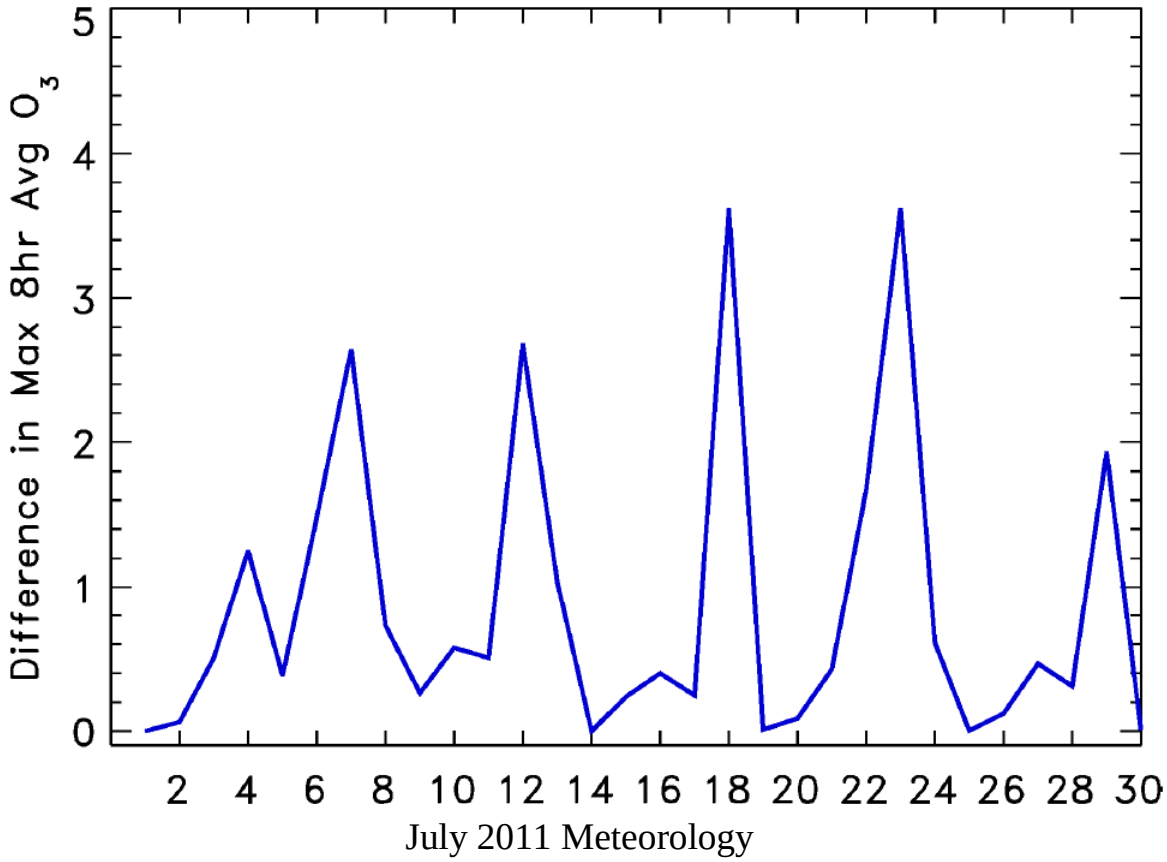


Bucks County, PA (#420170012) Difference in Maximum 8-Hour Average Ozone

ATTACHMENT 4

Maximum Modeled Ozone Benefits if Pennsylvania Coal-Fired EGUs Optimize Existing Control Technologies Every Day of the Ozone Season

Figure 4C.13 –Maximum Daily Ozone Reductions at Key Ozone Monitors in the OTC for the One Month Modeling Period - Northeast Airport, PA (#421010024)

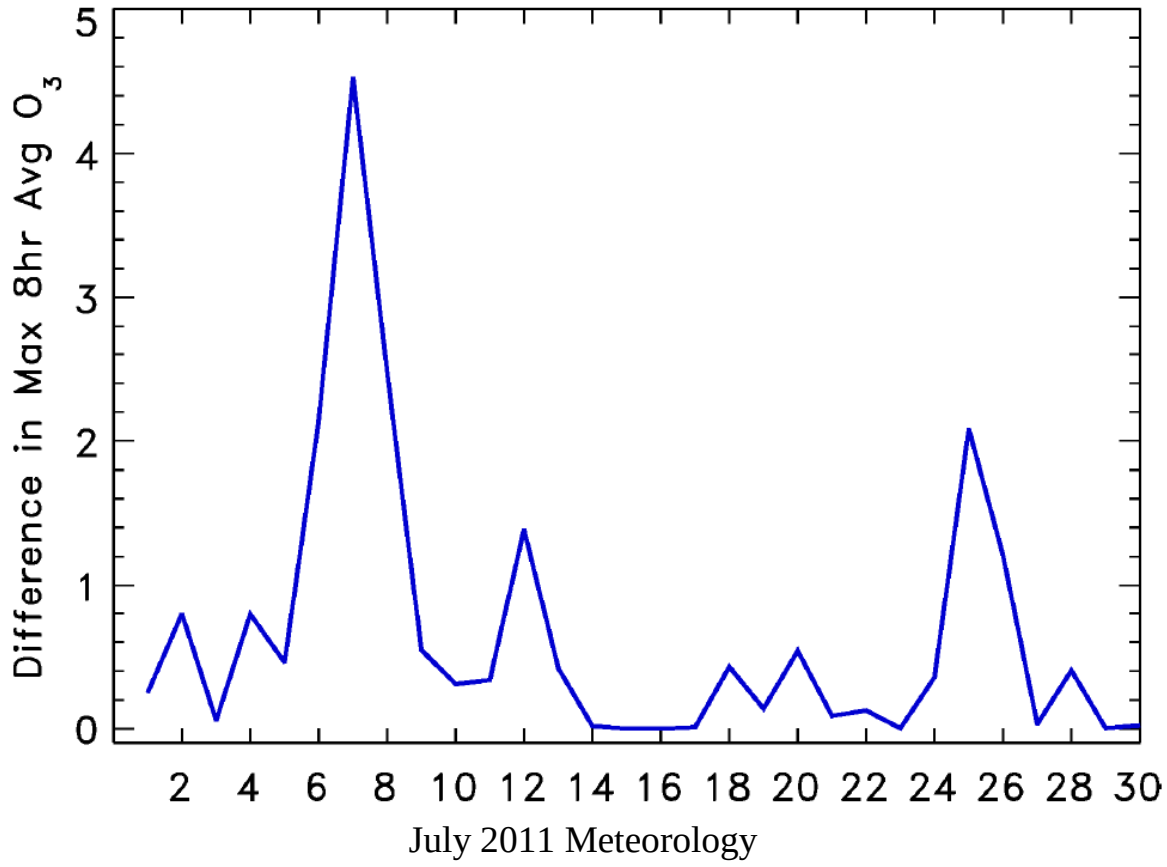


Northeast Airport, PA (#421010024) Difference in Maximum 8-Hour Average Ozone

ATTACHMENT 4

Maximum Modeled Ozone Benefits if Pennsylvania Coal-Fired EGUs Optimize Existing Control Technologies Every Day of the Ozone Season

Figure 4C.14 –Maximum Daily Ozone Reductions at Key Ozone Monitors in the OTC for the One Month Modeling Period - Aurora Hills Visitors Center, VA (#510130020)



Aurora Hills Visitors Center, VA (#510130020) Difference in Maximum 8-Hour Average Ozone

ATTACHMENT 5

Initial Straw-Man Draft of the Recommendation that Maryland is Petitioning the OTC to Develop

Beginning on May 1, 2020, for each operating day during the ozone season, the owner or operator of a coal-fired electric generating unit in Pennsylvania shall minimize NO_x emissions by operating and optimizing the use of all installed pollution control technology and combustion controls consistent with the technological limitations, manufacturers' specifications, good engineering and maintenance practices, and good air pollution control practices for minimizing emissions (as defined in 40 C.F.R. § 60.11(d)) for such equipment and the unit at all times the unit is in operation while burning any coal.

To ensure that this requirement is met, each unit must meet the 24-hour limit and the 30-day rolling average limit identified in Table 5.1.

Table 5.1 – Daily and 30-Day Rolling Average Limits to Compliment the Optimization Requirement

Facility - Unit	Maximum 24-Hour (Block) NOx Emission Limit (lbs/mmBtu)	Maximum 30-Day Rolling Average NOx Emission Limit (lbs/mmBtu)
Bruce Mansfield - 1	0.12	0.0887
Bruce Mansfield - 2	0.12	0.0862
Bruce Mansfield - 3	0.12	0.0858
Cambria Cogen - 1	0.16	0.1150
Cambria Cogen - 2	0.16	0.1153
Cheswick – 1	0.12	0.0970
Conemaugh - 1	0.12	0.0800
Conemaugh - 2	0.12	0.0876
Homer City - 1	0.12	0.0722
Homer City - 2	0.12	0.0930
Homer City - 3	0.12	0.1049
Keystone - 1	0.12	0.0479
Keystone - 2	0.12	0.0459
Montour - 1	0.12	0.0995
Montour - 2	0.12	0.0876
Panther Creek Energy Facility - 1	0.16	0.1162
Panther Creek Energy Facility - 2	0.16	0.1162
Scrubgrass Generating Plant - 1	0.16	0.0692
Scrubgrass Generating Plant - 2	0.16	0.0856
Seward - 1	0.16	0.0878
Seward - 2	0.16	0.0880