Final
Kentucky State Implementation Plan Revision

Clean Air Act Section 110(a)(2)(D)(i)(I)
Demonstration of the "Good Neighbor" Provision for the 2010 Nitrogen Dioxide National Ambient Air Quality Standard

Kentucky Energy and Environment Cabinet
Department for Environmental Protection
Division for Air Quality

November 2018

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November 16, 2018

Mr. Trey Glenn
Regional Administrator
U.S. EPA, Region 4
Sam Nunn Atlanta Federal Center
61 Forsyth Street
Atlanta, Georgia 30303-8960

RE: Final Clean Air Action Section 110(a)(2)(D)(i)(I), "Good Neighbor" Provision, Demonstration for the 2010 1-hour Nitrogen Dioxide (NO_2) National Ambient Air Quality Standard

Dear Mr. Glenn:

The Kentucky Energy and Environment Cabinet (Cabinet), on behalf of the Commonwealth of Kentucky, hereby submits a final revision to the Kentucky State Implementation Plan (SIP). The Cabinet requests the United States Environmental Protection Agency (EPA) to approve this revision to the Kentucky SIP and find that Kentucky meets the requirements of the Clean Air Act Section 110(a)(2)(D)(i)(I) for the 2010 1-hour NO_2 primary National Ambient Air Quality Standard (NAAQS). This submittal supplements the 2010 NO_2 primary NAAQS portion of the Infrastructure State Implementation Plan (I-SIP) submitted to EPA on April 26, 2013.

The Cabinet requests EPA's approval of the attached submittal, which demonstrates Kentucky is meeting the requirements of the "Good Neighbor" provision for the 2010 NO_2 NAAQS. Specifically, the Cabinet proposes that NO_2 emissions from the state of Kentucky:

I. Do not contribute significantly to nonattainment areas in any other state; and
II. Do not interfere with maintenance areas in any other state.

In accordance with 40 CFR 51.102, the SIP revision was available for public review and comment from August 13, 2018 through September 18, 2018. The public hearing, scheduled for September 18, 2018, was cancelled on September 12, 2018 due to lack of request. A copy of the public hearing notice is available in Appendix A.

Your prompt consideration of this request is appreciated. If you have any questions or comments concerning this matter, please contact Ms. Kelly Lewis, Program Planning Manager, Division for Air Quality at (502) 782-6687 or kelly.lewis@ky.gov.

Sincerely,

Charles G. Snavely
Secretary

CGS/lmp
c: Beverly Banister, EPA Region 4
Scott Davis, EPA Region 4
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Enclosures

COMPLETENESS CRITERIA FOR SIP SUBMITTALS –
40 CFR PART 51 APPENDIX V

To ensure completeness of this SIP revision submittal, the following elements detailed in 40 CFR Part 51, Appendix V are listed:

A. ADMINISTRATIVE MATERIALS:

1. A formal letter of submittal from the Governor or his designee, requesting EPA approval of the plan or revision.

The cover letter dated November 16, 2018 signed by Secretary Charles G. Snavely, the Governor's designee, requests EPA's approval of the SIP revision to approve this revision to the Kentucky SIP and find that Kentucky meets the requirements of the Clean Air Act Section 110(a)(2)(d)(i)(I) for the 2010 1-hour NO_2 primary National Ambient Air Quality Standard.

2. Evidence that the State has adopted the plan in the State code or body of regulations; or issued the permit, order, consent agreement in final form. That evidence shall include the date of adoption or final issuance as well as the effective date of the plan, if different from the adoption/issuance date.

This SIP submission is legally adopted by the letter signed by Secretary Charles G. Snavely, the Governor's designee, on November 16, 2018.

3. Evidence that the State has the necessary legal authority under State law to adopt and implement the plan.

The powers and duties of the Cabinet established in KRS 224.10-100 provide the Energy and Environment Cabinet with the statutory authority to prepare and develop a comprehensive plan or plans related to the environment of the Commonwealth. Additionally, KRS 224.10-100 requires the cabinet to administer and enforce all rules, regulations and orders promulgated under Chapter 224, Environmental Protection, including those regulations that provide for the prevention, abatement, and control of all air pollution.

4. A copy of the actual regulation, or document submitted for approval and incorporation by reference into the plan, including indication of the changes made to the existing approved plan, where applicable. The submittal shall be a copy of the official State regulation/document signed, stamped, dated by the appropriate State official indicating that it is fully enforceable by the State. The effective data of the regulation/document shall, whenever possible, be indicated in the document itself.

The Energy and Environment Cabinet has attached the entire document with appendix for approval. The SIP revision has been signed by the Governor's designee, Charles G. Snavely, Secretary for the Energy and Environment Cabinet, and is effective November 16, 2018.

5. Evidence that the State followed all of the procedural requirements of the State's laws and constitution in conducting and completing the adoption/issuance of the plan.

The procedural requirements associated with this plan and public comment period are included in the submittal to EPA.

6. **Evidence that public notice was given of the proposed change consistent with procedures approved by EPA, including the date of publication of such notice.**

   In accordance with 40 CFR 51.102, a public hearing notice was posted on the Division's website and sent to members of the community on August 13, 2018. This notice detailed that the public had 37 days to provide comment and that a public hearing would be held on September 18, 2018 at 10:00am in room 216 at 300 Sower Blvd, Frankfort, KY, if any requests for a public hearing were received. A copy of the public hearing notice is included in Appendix A-1.

7. **Certification that public hearing(s) were held in accordance with the information provided in the public notice and the State's laws and constitutions, if applicable.**

   No requests for a public hearing were received, therefore the public hearing scheduled for September 18, 2018 was cancelled. The SIP revision document was made available for public review on the Division's website throughout the 37 day review period.

8. **Compilation of public comments and the State's response thereto.**

   All comments along with the Cabinet's responses are available in Appendices A-2 and A-3.

B. TECHNICAL SUPPORT:

1. **Identification of all regulated pollutants affected by the plan.**

   The appropriate pollutant(s) have been identified within the narrative consistent with EPA's guidance.

2. **Identification of the locations of affected sources including the EPA attainment/nonattainment designations and the status of the attainment plan for the affected area(s).**

   This plan focuses on CAA section 110(a)(2)(D)(i)(I), Good Neighbor Provisions, which encompasses the entire state of Kentucky.

3. **Quantification of the changes in plan allowable emissions from the affected sources; estimates of changes in current actual emissions from affected sources or, where appropriate, quantification of changes in actual emissions from affected sources through calculations of the differences between certain baseline levels and allowable emissions anticipated as a result of the revision.**

   Quantification and changes in emissions are discussed within the NO_2 Monitoring Data and NO_2 Emissions Sections of this submittal.

4. **The State's demonstration that the national ambient air quality standards, prevention of significant deterioration increments, reasonable further progress demonstration, and visibility, as applicable, are protected if the plan is approved and implemented. For all requests to redesignate an area to attainment for a national ambient air quality standard, under section 107 of the Act, a revision must be submitted to provide for the maintenance of the national primary ambient air quality standards for at least 10 years as required by section 175A of the Act.**

   This submittal addresses CAA section 110(a)(2)(D)(i)(I) which focuses on interstate transport. The submittal demonstrates that the NAAQS will be protected if the plan is approved and implemented.

5. **Modeling information required to support the proposed revision, including input data, output data, models used, justification of model selections, ambient monitoring data used, meteorological data used, justification for use of offsite data (where used), modes of models used, assumptions, and other information relevant to the determination of adequacy of the modeling analysis.**

   Monitoring information is discussed in the NO_2 Monitoring Data section of this submittal.

6. **Evidence, where necessary, that emission limitations are based on continuous emission reduction technology.**

   This is not applicable to this submittal.

7. **Evidence that the plan contains emission limitations, work practice standards and recordkeeping/reporting requirements, where necessary, to ensure emission levels.**

   This information can be found in the NO_2 Control Measures section of this submittal.

8. **Compliance/enforcement strategies, including how compliance will be determined in practice.**

   Compliance and enforcement strategies have been addressed in the NO_2 Control Measures section of this submittal.

9. **Special economic and technological justifications required by any applicable EPA policies, or an explanation of why such justifications are not necessary.**

   Economic and technological justifications are consistent with EPA's guidance.

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November 2018

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TABLE OF CONTENTS

TABLES

FIGURES

APPENDIX

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1. Introduction

1.1 Background

Section 110(a)(1) and (2) of the Clean Air Act (CAA) requires that each state adopt new or revised National Ambient Air Quality Standards (NAAQS) into an infrastructure plan that implements, maintains, and enforces each standard. On February 9, 2010, the U.S. Environmental Protection Agency (EPA) revised the nitrogen dioxide (NO_2) primary standard to a new 1-hour standard at a level of 100 parts per billion (ppb), based on the 3-year average of the annual 98th percentile of 1-hour daily maximum concentrations.[1]

The Kentucky Energy and Environment Cabinet (Cabinet) submitted the Section 110(a) Infrastructure State Implementation Plan (I-SIP) for the 2010 NO_2 and SO_2 NAAQS on April 26, 2013. At the time of submission, the EPA did not treat section 110(a)(2)(D)(i)(I) of the CAA as a required part of the SIP submission, in light of the EME Homer City opinion (EME Homer City Generation, LP v. EPA, 696 F.3d 7, D.C. Circuit 2012). Therefore, the Cabinet did not address prongs 1 and 2, referred to as the "Good Neighbor" provision, in the April 26th submittal. Through this submittal, the Cabinet requests EPA's approval that the following demonstration satisfies all of the requirements of section 110(a)(2)(D)(i)(I) of the CAA, for purposes of implementing the 2010 1-hour NO_2 NAAQS.

1.2 Good Neighbor Provision

CAA Section 110(a)(2)(D)(i)(I) specifically states that each implementation plan shall:

> *(D) Contain adequate provisions—*
>
> *(i) prohibiting, consistent with the provisions of this subchapter, any source or other type of emissions activity within the State from emitting any air pollutant in amounts which will—*
>
> *(I) contribute significantly to nonattainment in, or interfere with maintenance by, any other State with respect to any such national primary or secondary ambient air quality standard*

The following sections demonstrate that the implementation of regulations and controls in Kentucky effectively control NO_2 emissions and prevent Kentucky emissions from contributing significantly to another state's nonattainment areas or interfering with another state's maintenance areas.

[1] 75 FR 6473

2. NO_2 Good Neighbor Provision Demonstration

NO_2 is the most prevalent form of nitrogen oxides (NO_x) in the atmosphere that is generated by anthropogenic activities.[2] NO_2 is dispersed into the ambient air primarily through fossil fuel burning. These emissions mainly come from motor vehicles, power plants, and off-road equipment.[3] NO_2 sources are often ubiquitous, making the chances for exposure widespread. According to EPA's modeling guidance for the 1-hour NO_2 standard, a basic principle to follow in regard to estimating the distance is to know that the maximum 1-hour impact and the region of significant concentration gradients that may apply in relatively flat terrain is approximately 10 times the source release height.[4] Nitrogen oxides typically lose concentration quickly as they move away from the source; however, they can escape into the upper atmosphere and travel long distances, contributing to ozone and acidic depositions.[5] Based on this information, it is anticipated that a violation of the standard would be associated with local conditions near the emissions source rather than caused by long-range transport of NO_x emissions.

The information presented in this section will demonstrate that Kentucky sources do not contribute significantly to nonattainment of the NAAQS or interfere with maintenance in any other state. There have been no recorded exceedances of the NO_2 NAAQS in Kentucky since sampling first began in 1970, and statewide NO_2 levels show a steady downward trend.[6] NO_2 concentrations have primarily decreased due to the use of pollution control devices on power plants, industrial boilers, and motor vehicles.

2.1 NO_2 Monitoring Data

Along with the revised NO_2 primary hourly NAAQS, new monitoring requirements were promulgated on March 14, 2013.[7] There are currently no areas in the United States that are designated nonattainment for the 2010 1-hour NO_2 NAAQS.[8] The Cabinet evaluated quality-assured ambient air quality monitoring data collected from 2014-2016. As shown in Table 1, all of the NO_2 monitors located in Kentucky are attaining the 2010 1-hour NO_2 NAAQS. The average of the 98th percentile for each NO_2 monitor in Kentucky is well below the standard of 100 parts per billion (ppb). The highest annual design value for a Kentucky monitor is 40 ppb.

Table 2 lists the highest annual design values for NO_2 monitors in states surrounding Kentucky. Among the surrounding states, the highest annual design value is located in Illinois at 56 ppb, which is also well below the 100 ppb standard. Tables 1 and 2 clearly

[2] U.S. EPA (1999) *Technical Bulletin: Nitrogen Oxides (NO_x), Why and How They Are Controlled*
[3] https://www.epa.gov/no2-pollution/basic-information-about-no2#What is NO_2
[4] U.S. EPA (2011) *Modeling Guidance for the 1-hour NO_2 National Ambient Air Quality Standard*
[5] World Bank Group (1998) *Pollution Prevention and Abatement Handbook*
[6] Figure 1, Statewide Averages for Nitrogen Dioxide, Kentucky Division for Air Quality 2016 Annual Report
[7] 78 FR 16184
[8] 77 FR 9532

demonstrate that emissions from Kentucky sources do not contribute significantly to NO_2 air quality problems in any state.

Table 1: Kentucky Monitored NO_2 Preliminary Design Values (ppb)

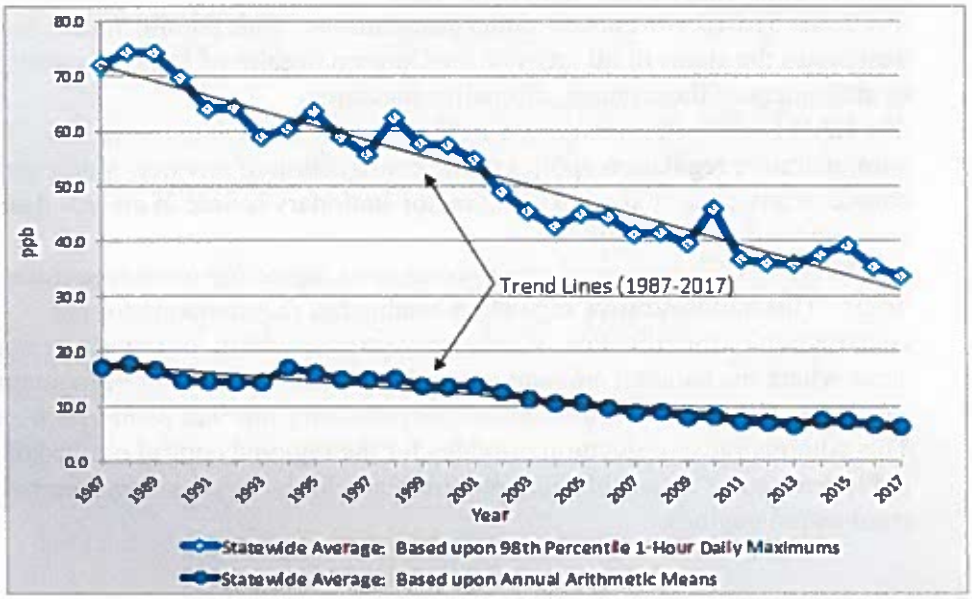
County	Site ID	2015	2016	2017	Annual Design Value
Boyd, FIVCO	21-019-0017	35.0	29.0	30.0	31
Campbell, NKU Johns Hill	21-037-3002	32.0	26.0	24.0	27
Daviess, Pleasant Valley Rd	21-059-0005	33.0	29.0	28.0	30
Fayette, Newtown Pike	21-067-0012	41.0	43.0	35.0	40
McCracken, JPRECC	21-145-1024	39.0	31.0	31.0	34

Table 2: Surrounding States' NO_2 Preliminary Design Values (ppb)

State	Site ID	2015	2016	2017	Annual Design Value
Illinois	17-031-3103	60.8	56.0	50.0	56
Indiana	18-089-0022	45.5	42.1	43.8	44
Missouri	29-095-0034	52.3	46.4	46.9	49
Ohio	39-061-0048	57.0	56.0	51.0	55
Tennessee	47-037-0040	55.0	54.0	51.0	53
Virginia	51-013-0020	48.9	44.0	42.5	45

As seen in Figure 1, statewide NO_2 levels have declined significantly over the past twenty years. Implemented control strategies that have decreased NO_2 emissions and the overall improvement of air quality in Kentucky are discussed in section 2.3.

Figure 1: Statewide Averages for Nitrogen Dioxide 1986-2016



2.2 NO_2 Control Measures

i. Kentucky Regulations Controlling NO_x

Section 110(a)(2)(A) of the CAA requires SIPs to include enforceable emission limitations and other control measures, means, or techniques, and schedules for compliance. Kentucky Revised Statute Chapter 224 provides the Cabinet the authority to promulgate regulations for the prevention, abatement and control of all water, land and air pollution.[9]

The following Kentucky administrative regulations ensure that emissions will be controlled to attain and maintain the NAAQS and not interfere with attainment or maintenance of the NAAQS in surrounding states:

- 401 KAR 50:055. *General compliance requirements.* This administrative regulation establishes requirements for demonstrating compliance with standards; establishes requirements for compliance when a source is relocated within the Commonwealth of Kentucky; and other general compliance requirements.
- 401 KAR 50:060. *Enforcement.* This administrative regulation provides for enforcement of the terms and conditions of permits and compliance schedules.
- 401 KAR 51:001. *Definitions for 401 KAR Chapter 51.* This administrative regulation defines the terms used in 401 KAR Chapter 51. The definitions contained in this administrative regulation are neither more stringent nor otherwise different than the corresponding federal definitions.
- 401 KAR 51:005. *Purpose and general provisions.* This administrative regulation establishes general provisions as related to new sources with respect to the prevention of significant deterioration of air quality and construction of stationary sources impacting on nonattainment areas.
- 401 KAR 51:010. *Attainment status designations.* This administrative regulation designates the status of all areas of the Commonwealth of Kentucky with regard to attainment of the ambient air quality standards.
- 401 KAR 51:017. *Prevention of significant deterioration of air quality.* This administrative regulation applies to the construction of any new major stationary source or any project at an existing major stationary source in an area designated as attainment or unclassifiable.
- 401 KAR 51:052. *Review of new sources in or impacting upon nonattainment areas.* This administrative regulation establishes requirements for the construction or modification of stationary sources within, or impacting upon, areas where the national ambient air quality standards have not been attained.
- 401 KAR 51:150. *NO_x requirements for stationary internal combustion engines.* This administrative regulation provides for the regional control of nitrogen oxides (NO_x) emissions by establishing requirements for large stationary internal combustion engines.

[9] KRS 224.10-100

- 401 KAR 51:170. *NO_x requirements for cement kilns.* This administrative regulation provides for the regional control of nitrogen oxides (NO_x) emission from Portland cement manufacturing plants pursuant to the federal mandate published under the NO_x SIP Call.
- 401 KAR 52:030. *Federally-enforceable permits for non-major sources*. This administrative regulation establishes requirements for air contaminant sources located in Kentucky that accept federally-enforceable emission limitations. It specifically deals with sources that are located in ozone nonattainment areas and emit, or have the potential to emit 25 tpy or more of VOCs or NO_x, stating that they shall submit an annual emission certification pursuant to Section 25(2) of this administrative regulation.
- 401 KAR 52:100. *Public, affected state, and US EPA review*. This administrative regulation establishes the procedures used by the cabinet to provide for the review of federally-enforceable permits by the public, affected states, and the U.S. EPA.
- 401 KAR 53:005. *General provisions*. This administrative regulation is to provide for the establishment of general provisions, definitions and time schedules as they pertain to this chapter. Except as provided in 401 KAR 51:010, no person shall violate, or interfere with the attainment or maintenance of, ambient air quality standards as specified in 401 KAR 53:010.
- 401 KAR 53:010. *Ambient air quality standards*. This administrative regulation establishes ambient air quality standards necessary for the protection of the public health, the general welfare, and the property and people in the Commonwealth of Kentucky.
- 401 KAR 59:001. *Definitions for 401 KAR Chapter 59.* This administrative regulation provides all the definitions used in 401 KAR Chapter 59 regulations.
- 401 KAR 59:005. *General provisions*. This administrative regulation includes the monitoring requirements for new sources with the potential to emit NO_x and other criteria pollutants, which applies to the controlling of emissions.
- 401 KAR 59:015. *New indirect heat exchangers.* This administrative regulation establishes requirements for the control of emissions from new indirect heat exchangers.
- 401 KAR 61:001. *Definitions for 401 KAR Chapter 61*. This administrative regulation provides definitions used in 401 KAR 61 including major source, VOC, NO_x, and others.
- 401 KAR 61:005. *General provisions*. This administrative regulation deals with performance test requirements and emissions monitoring.
- 401 KAR 61:015. *Existing indirect heat exchangers.* This administrative regulation establishes requirements for the control of emissions from existing indirect heat exchangers.
- 401 KAR 61:065. *Existing nitric acid plants*. This administrative regulation deals with controlling emissions from nitric acid plants and sets a limit on NO_x emissions.

The following regulations are not approved into the Kentucky SIP; however, they are relevant to this element and therefore are only included for reference:

- 401 KAR 51:240. *Cross-State Air Pollution Rule (CSAPR) NO_x annual trading program.* This administrative regulation establishes the requirements for the control of annual NO_x emissions from large boilers and turbines used in power plants, pursuant to the Cross-State Air Pollution Rule (CSAPR) NO_x annual trading program, 40 CFR 97.401 through 97.435, Subpart AAAAA for sources located in the Commonwealth of Kentucky.
- 401 KAR 51:250. *Cross-State Air Pollution Rule (CSAPR) NO_x ozone season group 2 trading program.* This administrative regulation establishes the requirements for the control of ozone season NO_x emissions from large boilers and turbines used in power plants, pursuant to CSAPR NO_x ozone season group 2 trading program, 40 CFR 97.801 through 97.835, Subpart EEEEE for sources located in the Commonwealth of Kentucky.
- 401 KAR 52:020. *Title V permits*. This administrative regulation establishes the requirements for air contaminant sources located in Kentucky to obtain a Title V operating permit.
- 401 KAR 52:040. *State-origin permits*. This administrative regulation establishes requirements for minor sources whose permits are not required to be federally enforceable.
- 401 KAR 52:060. *Acid rain permits*. This administrative regulation incorporates by reference the federal acid rain provisions as codified in 40 CFR Parts 72 to 78.
- 401 KAR 52:070. *Registration of designated sources.* This administrative regulation establishes the procedure for the registration of designated air contaminant sources in Kentucky.

ii. On-Road Emission Reductions

There are several existing national rules designed to achieve emission reductions from on-road vehicles through 2025 and beyond:

- Control of Air Pollution from Motor Vehicles; Tier 3 Motor Vehicle Emission and Fuel Standards, April 28, 2014; [10]
- Control of Air Pollution from New Motor Vehicles; Tier 2 Motor Vehicle Emissions Standards and Gasoline Sulfur Control Requirements, February 10, 2000; [11]
- Control of Air Pollution from New Motor Vehicles: Heavy-Duty Engine and Vehicle Standards and Highway Diesel Fuel Sulfur Control Requirements, January 18, 2001; [12]

[10] 79 FR 23414
[11] 65 FR 6698
[12] 66 FR 5002

- Model Year 2017 and Later Light-Duty Vehicle Greenhouse Gas Emissions and Corporate Average Fuel Economy Standards, October 15, 2012; [13]
- Model Year 2012-2016 Light-Duty Vehicle Greenhouse Gas Emission Standards and Corporate Average Fuel Economy Standards, May 7, 2010; [14]
- Greenhouse Gas Emissions and Fuel Efficiency Standards for Medium- and Heavy-Duty Engines and Vehicles-Phase 2, October 25, 2016; [15]
- Phase I Greenhouse Gas Emissions Standards and Fuel Efficiency Standards for Medium- and Heavy-Duty Engines and Vehicles, September 15, 2011; [16] and
- Control of Hazardous Air Pollutants from Mobile Sources, February 26, 2007. [17]

iii. Non-Road Emission Reduction

- Clean Air Non-road Diesel Final Rule; Tier 4, June 29, 2004;[18]
- Control of Emissions from Non-road Large Spark-Ignition Engines, and Recreational Engines (Marine and Land-Based), November 8, 2002;[19]
- Small Engine Spark Ignition ("Bond") Rule, October 8, 2008.[20]

iv. CSAPR Implementation

On May 12, 2005, the EPA promulgated the Clean Air Interstate Rule (CAIR). CAIR required 27 eastern states, as well as the District of Columbia, to achieve SO_2 and NO_x emission reductions for new and existing Electric Generating Units (EGUs). CAIR utilized a cap and trade system to reduce SO_2 and NO_x emissions. The CAIR NO_x ozone season and annual trading programs began in 2009, while the CAIR SO_2 annual trading program began in 2010.

On July 6, 2011, the EPA issued the Cross-State Air Pollution Rule (CSAPR) as a replacement for CAIR. CSAPR requires 28 states in the eastern half of the U.S. to significantly improve air quality by reducing NO_x and SO_2 emissions from power plants that contribute to ozone and fine particle pollution in downwind states. CSAPR was stayed by the D.C. Circuit Court prior to implementation in 2012. On April 29, 2014, the U.S. Supreme Court reversed the D.C. Circuit's vacatur, and on October 23, 2014, the D.C. Circuit ordered that EPA's motion to lift the stay of CSAPR to be granted. On November 21, 2014, the EPA issued a rule aligning the dates in the CSAPR rule text with the revised court-ordered schedule, including implementation of Phase 1 on January 1, 2015 and implementation of Phase II on January 1, 2017. EPA published the CSAPR Update rule on October 26, 2016 and modified the NO_x ozone season

[13] 77 FR 62624
[14] 75 FR 25324
[15] 81 FR 73478
[16] 76 FR 57106
[17] 72 FR 8428
[18] 69 FR 38958
[19] 67 FR 68242
[20] 73 FR 59033

allowance-trading program established under the original CSAPR rule. The updated rule became effective on December 27, 2016.

The CSAPR trading program and the CSAPR Update were developed to address the CAA section 110(a)(2)(D)(i)(I) obligations for the 1997 annual $PM_{2.5}$, 2006 24-hour $PM_{2.5}$, 1997 8-hour ozone, and the 2008 8-hour ozone NAAQS. However, the application of the program has yielded residual NO_x emission reductions. The implementation of CSAPR required fossil fuel-fired EGUs to reduce emissions to help downwind areas attain and maintain fine particle and/or ozone NAAQS. EPA allocated a set emissions budget for each state covered by CSAPR. In 2015 and 2016, Kentucky was allotted an EGU NO_x ozone season budget of 36,167 tons through CSAPR.[21] Kentucky's 2017 EGU NO_x budget was reduced to 21,115 tons through the CSAPR Update rule.[22] As seen in Table 3 below, Kentucky has not only reduced NO_x emissions at EGU sources to meet the budgets allotted by CSAPR and the CSAPR Update Rule, but actual ozone season NO_x emissions are significantly lower than the allotted budgets. Table 3 demonstrates that the implementation of CSAPR and the CSAPR Update have successfully reduced ozone NO_x emissions within Kentucky from contributing significantly to another state's nonattainment areas or interfering with another state's maintenance areas.

Table 3: 2015 - 2017 EGU Point Sources Ozone Season NO_x emissions (tons)

	2015	2016	2017
Allocations	**36,167**	**36,167**	**21,115**
NO_x Actual Emission Totals (tons)[23]	**27,790.75**	**25,473.99**	**20,053.01**

Currently, the owner and operator of each source located in Kentucky, and subject to CSAPR, must comply with the CSAPR NO_x Ozone Season Budget as required by 40 CFR 52.940(b)(1) and (b)(2). The owner and operator of each source and each unit located in Kentucky must comply with the requirements set forth under the CSAPR NO_x Ozone Season Group 2 Trading Program in 40 CFR 97 Subpart EEEEE with regard to emissions occurring in 2017 and in each subsequent year. These applicable requirements are federally-enforceable and can be relied upon to satisfy the Good Neighbor provision.

2.3 NO_2 Emissions

Based on EPA's 2014 NEI emissions data, the major contributor of NO_x emissions in Kentucky are from the mobile, point, and nonpoint sectors, with point sources being the largest contributor. The majority of point source NO_x emissions in Kentucky are from EGUs, which have already decreased significantly since the implementation of CAIR and CSAPR. NO_x emissions from EGUs will continue to decrease with the implementation of the CSAPR Update, and the retirement of several EGUs located in Kentucky.

[21] 40 CFR 97.510(a)(8)(i)
[22] 40 CFR 97.810(a)(8)(i)
[23] Ozone Season NO_x emissions data obtained from EPA's Air Markets Program Data https://ampd.epa.gov/ampd/

Kentucky Utilities Company's (KU) Green River Station retired its last two coal units in 2015. Also, East Kentucky Power Cooperative's (EKPC) Dale Station retired all of its coal burning units in 2015 and is now closed. It should be noted that American Electric Power's (AEP) Big Sandy Plant converted Unit 1 from coal-fired to natural gas in 2016, and removed Unit 2. Louisville Gas & Electric Company's (LG&E) Cane Run Station constructed and began operating a natural gas combined cycle unit (CR7) in 2015 and retired all remaining coal-fired units the same year.

Two other EGU facilities have made significant changes to their coal boilers. Big Rivers Electric Corporation's (Big Rivers) Robert Reid Station idled one of their boilers in 2016 and has submitted a permit revision requesting to switch this boiler from coal to natural gas. Tennessee Valley Authority's (TVA) Paradise Fossil Plant retired two of their three coal boilers in June 2017 and replaced them with a combined cycle system that has already significantly decreased their NO_x emissions.

Further NO_x emissions reductions are expected with the planned retirement of units at two facilities. KU plans to retire two older coal-fired units, each operating more than 50 years, at the E.W. Brown Generating Station in February 2019.[24] Owensboro Municipal Utilities (OMU) announced in 2015 their plans to retire Unit 1 at the Elmer Smith Plant by 2019.[25] In March 2017, OMU announced that they will also retire Unit 2 which will effectively close the Elmer Smith Plant in its entirety before 2023.

As demonstrated in Table 4, NO_x emissions in Kentucky have significantly decreased since 2008, and are expected to continue to decline. NO_x emissions will continue to decrease with the implementation of the CSAPR Update, federal programs intended to reduce mobile emissions, and the retirement of several EGUs located in Kentucky.

Table 4: Kentucky Point Source Annual NO_x Emissions under CSAPR (tpy)

	2008	2009	2010	2011	2012	2013	2014	2015	2016
NO_x	167,427	91,203	105,081	102,680	90,952	91,527	92,323	75,798	71,442

3. Conclusion

The information provided in this supplement to the infrastructure SIP submitted April 26, 2013, for the 2010 1-hour NO_2 NAAQS, demonstrates that the Kentucky SIP contains adequate provisions to prevent sources and other types of emissions activities within the state from contributing significantly to nonattainment in any other state with respect to the 2010 1-hour NO_2 NAAQS (prong 1). Further, this submittal demonstrates that the Kentucky SIP contains adequate provisions to prevent sources and other types of emissions activities within the state from interfering with maintenance in any other state with respect to the 2010 1-hour NO_2

[24] https://lge-ku.com/newsroom/press-releases/2017/11/14/kentucky-utilities-announces-upcoming-retirement-two-coal-fired
[25] https://omu.org/_uploads/20171019_CCR-Ash-Pond-Initial-and-Post-Closure-Plan.pdf

NAAQS (prong 2). There are no areas in the United States that are designated as nonattainment or maintenance for the 2010 1-hour NO_2 NAAQS. Emissions have significantly declined in Kentucky and, with the implementation of federal programs and the shutdown of facilities located within Kentucky, are expected to continue declining.

The Cabinet concludes that the CAA 110(a)(2)(D)(i)(I) submittal demonstrates that Kentucky is meeting the good neighbor provision regarding the 2010 1- hour NO_2 standard and requests EPA's approval that the demonstration satisfies all of the requirements of CAA 110(a)(2)(D)(i)(I), in order for Kentucky to fully implement the 2010 1-hour NO_2 NAAQS.

4. Public Hearing

In accordance with 40 CFR 51.102, the Cabinet made the proposed plan available for public inspection and provided the opportunity for comments. The public hearing was scheduled for September 18, 2018 at 10:00 a.m. (EDT) at the Division for Air Quality offices located at 300 Sower Boulevard, Frankfort, Kentucky. The Cabinet did not receive any request for the public hearing to be held; therefore, the hearing was cancelled.

The Cabinet received one written comment during the public comment period. The Cabinet's response to the comment is provided in Appendix A, along with a copy of the public hearing notice.

Appendix A

Public Hearing

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Statement of Consideration

Appendix A-1

Public Hearing

KENTUCKY DIVISION FOR AIR QUALITY
NOTICE OF PUBLIC HEARING
TO REVISE KENTUCKY'S STATE IMPLEMENTATION PLAN

The Kentucky Energy and Environment Cabinet will conduct a public hearing on September 18, 2018, at 10:00 a.m. (EDT) in Conference Room 216 located at 300 Sower Boulevard, Frankfort, Kentucky 40601. This hearing is being held to receive comments on a proposed revision to Kentucky's State Implementation Plan (SIP) pertaining to the Proposed 110(a)(2)(D)(i)(I), "Good Neighbor" Provision, Demonstration for the 2010 1-hour Nitrogen Dioxide National Ambient Air Quality Standard.

This hearing is open to the public and all interested persons will be given the opportunity to present testimony. The hearing will be held, if requested, at the date, time and place given above. It is not necessary that the hearing be held or attended in order for persons to comment on the proposed submittal to EPA. To assure that all comments are accurately recorded, the Division requests that oral comments presented at the hearing also be provided in written form, if possible. To be considered part of the hearing record, written comments must be received by the close of the hearing. Written comments should be sent to the contact person. If no request for a public hearing is received, the hearing will be cancelled, and notice of the cancellation will be posted at the website listed below. Request for a public hearing must be received no later than September 12, 2018 while all comments must be submitted no later than September 18, 2018.

The full text of the proposed SIP revision is available for public inspection and copying during regular business hours (8:00 a.m. to 4:30 p.m.) at the following locations: Division for Air Quality, 300 Sower Boulevard, Frankfort, Kentucky 40601. Any individual requiring copies may submit a request to the Division for Air Quality in writing, by telephone or by fax. Requests for copies should be directed to the contact person. In addition, an electronic version of the proposed SIP revision document and relevant attachments can be downloaded from the Division for Air Quality's website at: **http://air.ky.gov/Pages/PublicNoticesandHearings.aspx**.

The hearing facility is accessible to people with disabilities. An interpreter or other auxiliary aid or service will be provided upon request. Please direct these requests to the contact person.

CONTACT PERSON: Anna Bowman, Environmental Scientist II, Evaluation Section, Division for Air Quality, 300 Sower Boulevard, Frankfort, Kentucky 40601. Phone: (502) 782-6563; E-mail: anna.bowman@ky.gov.

The Energy and Environment Cabinet does not discriminate on the basis of race, color, national origin, sex, age, religion or disability and provides, upon request, reasonable accommodation including auxiliary aids and services necessary to afford an individual with a disability an equal opportunity to participate in all services, programs and activities.

Appendix A-2

Public Comments

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 4
ATLANTA FEDERAL CENTER
61 FORSYTH STREET
ATLANTA, GEORGIA 30303-8960

SEP 14 2018

Sean Alteri, Acting Director
Kentucky Energy and Environment Cabinet
Department for Environmental Protection
300 Sower Blvd, 2nd Floor
Frankfort, Kentucky 40601

Dear Mr. Alteri:

Thank you for your letter dated August 10, 2018, transmitting a prehearing package of Kentucky's demonstration related to 110(a)(2)(D)(i)(I) for the 2010 1-hour NO_2 primary National Ambient Air Quality Standard. This demonstration is the subject of a public hearing scheduled for September 18, 2018, with written comments also due by September 18, 2018. We have completed our preliminary review of the prehearing package and have no comments at this time.

We look forward to continuing to work with you and your staff. If you have any questions, please contact Lynorae Benjamin, Chief, Air Regulatory Management Section at (404) 562-9040, or have your staff contact Brad Akers at (404) 562- 9089.

Sincerely,

R. Scott Davis
Chief
Air Planning and Implementation Branch

PPL companies

LG&E and KU Energy LLC
Environmental Affairs
220 West Main Street
Louisville, KY 40202
www.lge-ku.com

Brandan Burfict
Environmental Engineer III
T 502-627-2791
F 502-627-2550
brandan.burfict@lge-ku.com

CERTIFIED MAIL
CERTIFIED NUMBER 7013 1710 0002 2385 1939
RETURN RECEIPT REQUESTED

Ms. Anna Bowman
Environmental Scientist II
Evaluation Section, Kentucky Division for Air Quality
300 Sower Blvd
Frankfort, KY 40601

August 23, 2018

Comments on Kentucky's Proposed State Implementation Plan Revision for Demonstration in Satisfying the "Good Neighbor" Provision

Dear Ms. Bowman:

Please find attached LG&E and KU Energy LLC comments on Kentucky's proposed state implementation plan revision for demonstration satisfying the "Good neighbor" provision. If you have any questions, please feel free to contact me at (502) 627-2791.

Proposed 2010 NO2 "Good Neighbor" SIP

1. Page 9, Section 2.3, NO2 Emissions: The second paragraph in this section makes reference that the "Louisville Gas & Electric Company's (LG&E) Cane Run Station converted Unit 7 to natural gas…" Revisions should be made to correctly state "Louisville Gas & Electric Company's (LG&E) Cane Run Station constructed and began operating a natural gas combined cycle unit (CR7) in 2015 and retired all remaining coal-fired units the same year".

Sincerely,

Brandan Burfict
Environmental Engineer III
Environmental Affairs

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Appendix A-3

Statement of Consideration

STATEMENT OF CONSIDERATION
Relating to Proposed SIP Revision for the 2010 NO_2 Good Neighbor State Implementation Plan

Energy and Environment Cabinet
Kentucky Department for Environmental Protection
Division for Air Quality

Response to Comments for Kentucky's proposed SIP submittal to address Clean Air Act Section 110(a)(2)(D)(i)(I) demonstration of the "Good Neighbor" provision for the 2010 nitrogen dioxide NAAQS.

Beginning August 13, 2018, until September 18, 2018, the Cabinet provided an opportunity for the public to review and comment on the proposed SIP revision addressing section 110(a)(2)(D)(i)(I) for the 2010 NO_2 NAAQS. A request for a public hearing was to be received by September 12, 2018 or it would be cancelled. The public hearing, scheduled for September 21, 2018, at 10:00 a.m. at 300 Sower Boulevard in Frankfort, Kentucky was cancelled due to lack of request.

The Cabinet made available the public notice of the comment period and public hearing on the Division for Air Quality's website, and mailed the public notice to interested individuals registered on the regulatory mailing lists maintained by the Cabinet.

The following person submitted a written statement during the public comment period:

Name	Title/Agency/Organization/Entity/Other
Scott Davis.....	U.S. EPA
Brandon Burfict.....	Environmental Engineer, LG&E and KU Energy, LLC

Summary of Comment and Response

1. Comment: Page 9, Section 2.3, NO_2 Emissions: The second paragraph in this section makes reference that the "Louisville Gas & Electric Company's (LG&E) Cane Run Station converted Unit 7 to natural gas…" Revisions should be made to correctly state "Louisville Gas & Electric Company's (LG&E) Cane Run Station constructed and began operating a natural gas combined cycle unit (CR7) in 2015 and retired all remaining coal-fired units the same year."
(*Brandon Burfict, LG&E and KU Energy*)

Response: The Cabinet acknowledges the comment and made the necessary correction.