



west virginia department of environmental protection

**West Virginia CAA §111(d) Partial Plan for Greenhouse
Gas Emissions from Existing Electric Utility Generating
Units (EGUs)**

PROPOSED

West Virginia Division of Air Quality
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Acronyms, Abbreviations, and Symbols

>	Greater Than
≥	Greater Than or Equal To
x 10 ⁶	Million
°F	Degrees Fahrenheit
ACE	Affordable Clean Energy
BSER	Best System of Emission Reduction
Btu	British Thermal Unit
CAA	Clean Air Act
CEMS	Continuous Emissions Monitoring System
C.F.R.	Code of Federal Regulations
CO	Carbon Monoxide
CO ₂	Carbon Dioxide
C.S.R.	Code of State Rules
DAQ	(West Virginia) Division of Air Quality
DEP	(West Virginia) Department of Environmental Protection
EGs	Emission Guidelines
EGU	Electric Utility Generating Unit
EPA	Environmental Protection Agency
FD	Forced Draft
GHG	Greenhouse Gas
gpm	Gallons per Minute
h	Hour
HHV	Higher Heating Value
HR	Heat Rate
HRI	Heat Rate Improvement
ID	Induced Draft
LVP	Longview Power LLC
kW	Kilowatt
kWh	Kilowatt-hour
lb(s)	Pound(s)
MW	Mega Watt
MWG	Mega Watt Gross
MWh	Mega Watt Hour
NAAQS	National Ambient Air Quality Standards
NSPS	New Source Performance Standard
O&M	Operations and Maintenance
RATA	Relative Accuracy Test Audit
SCR	Selective Catalytic Reduction
SO ₂	Sulfur Dioxide
tph	Tons per Hour
U.S.	United States
VFD	Variable Frequency Drive
WV	West Virginia
y	Year

West Virginia CAA §111(d) Partial Plan for Greenhouse Gas Emissions from Existing Electric Utility Generating Units (EGUs)

1.0. Executive Summary

On July 8, 2019, the United States Environmental Protection Agency (U.S. EPA) published the Affordable Clean Energy rule (ACE) consisting of emission guidelines for greenhouse gas (GHG) emissions from existing electric utility generating units (EGUs) under the Clean Air Act (CAA), section 111(d) at 84 Fed. Reg. 32520. In this rulemaking, the U.S. EPA also finalized new implementing regulations that apply to ACE and any future emission guidelines promulgated under CAA § 111(d). The U.S. EPA promulgated the ACE regulation under 40 C.F.R. Part 60, Subpart UUUUa, *Emission Guidelines for Greenhouse Gas Emissions from Existing Electric Utility Generating Units* and the implementing regulations under 40 C.F.R. Part 60, Subpart Ba, *Adoption and Submittal of State Plans for Designated Facilities*.

The federal emission guidelines inform states on the development, submittal, and implementation of State Plans to establish performance standards for GHG emissions from certain coal fired EGUs. The U.S. EPA determined that heat rate improvement (HRI) is the best system of emission reduction (BSER) for reducing GHG, specifically carbon dioxide (CO₂) emissions from existing coal fired EGUs meeting the applicability criteria.

Any State with one or more designated facilities that commenced construction on or before January 8, 2014 is subject to ACE and is required to submit a State Plan to the U.S. EPA that implements the emission guidelines of 40 C.F.R. Part 60, Subpart UUUUa. West Virginia has one or more designated facilities that meet the applicability criteria and therefore must develop and submit a State Plan to the U.S. EPA.

This document serves as a partial State Plan, hereafter referred to as the “State Plan,” for one designated coal fired EGU in West Virginia. The State Plan addresses the final action by the U.S. EPA, *Repeal of the Clean Power Plan; Emission Guidelines for Greenhouse Gas Emissions from Existing Electric Utility Generating Units; Revisions to Emission Guidelines Implementing Regulations* at 84 Fed. Reg. 32520 (July 8, 2019) as it applies to Longview Power LLC (LVP) located in Madsville, West Virginia. As discussed in Section 4.9 below, this State Plan relies upon existing West Virginia DEP legal authority.

The State Plan contained herein meets fully the State Plan requirements for the emission guidelines provided under 40 C.F.R. Part 60, Subpart UUUUa and the implementation requirements provided under 40 C.F.R. Part 60, Subpart Ba for LVP. The WV DEP intends to submit the State Plan addressing the implementation of the ACE emission guidelines at the remaining West Virginia designated facilities to the U.S. EPA as required by 40 C.F.R. § 60.5745a.

2.0. Request

Section 111(d)(1) of the CAA requires each state submit to the U.S. EPA a plan which establishes standards of performance for any existing source in response to the issuance of emission guidelines by the U.S. EPA and provide for the implementation and enforcement of such standards. The plan shall be at least as protective as the emission guidelines promulgated by the U.S. EPA.

Senate Bill 810, passed by the West Virginia Legislature during the 2020 Regular Session, requires the West Virginia DEP to submit a complete or partial State Plan in the event one or more EGU facilities are voluntarily prepared to move forward with a compliance plan for one or more of their EGUs. The West

Virginia DEP DAQ received a permit application from LVP on June 1, 2020 voluntarily requesting a carbon dioxide standard of performance and associated program requirements associated with the implementation of 40 C.F.R. Part 60, Subpart UUUUa and 40 C.F.R. Part 60, Subpart Ba.

As discussed in Section 4.9 below, this State Plan relies upon existing West Virginia DEP legal authority including Permit R13-3495 issued under 45 C.S.R. 13, *Permits for Construction, Modification, Relocation and Operation of Stationary Sources of Air Pollutants, Notification Requirements, Administrative Updates, Temporary Permits, General Permits, Permission to Commence Construction, and Procedures for Evaluation*, that is state and federally enforceable¹.

The West Virginia DEP requests the U.S. EPA approve the *West Virginia CAA §111(d) Partial Plan for Greenhouse Gas Emissions from Existing Electric Utility Generating Units (EGUs)* submitted in accordance with 40 C.F.R. § 60.5745a to fulfill the State's obligations under CAA § 111(d) and the West Virginia DEP's obligations under West Virginia Senate Bill 810 in regard to the Longview Power Plant, located in Maidsville, West Virginia. The State Plan submitted herein demonstrates the implementation of the emission guidelines of 40 C.F.R. Part 60, Subpart UUUUa, *Emission Guidelines from Existing Electric Utility Generating Units* in accordance with the implementation regulations of 40 C.F.R. Part 60, Subpart Ba, *Adoption and Submittal of State Plans for Designated Facilities*.

As stated in 40 C.F.R. § 60.24a(f)(2), the State is not precluded from adopting or enforcing compliance schedules requiring final compliance at earlier times than those specified in the applicable emission guidelines. West Virginia exercises this allowance by submitting this State Plan.

West Virginia intends to submit a future State Plan addressing the remaining West Virginia designated facilities to the U.S. EPA as required by 40 C.F.R. Part 60, Subpart UUUUa, *Emission Guidelines for Greenhouse Gas Emissions from Existing Electric Utility Generating Units*, and 40 C.F.R. Part 60, Subpart Ba, *Adoption and Submittal of State Plans for Designated Facilities*, published at 84 Fed. Reg. 32520 (July 8, 2019).

West Virginia is not requesting U.S. EPA approval of proposed rule 45 C.S.R. 44, *Control of Greenhouse Gas Emissions from Existing Coal-Fired Electric Utility Generating Units*, as part of this State Plan submittal and a state rule is not required to implement the ACE emission guidelines. References made to proposed West Virginia legislative rule 45 C.S.R. 44 are provided solely to communicate the future intention of the West Virginia DEP to require remaining designated facilities located in West Virginia to obtain permits to limit CO₂ emissions.

3.0. Background

This is a new State Plan being submitted by the West Virginia DEP in response to the final rule *Repeal of the Clean Power Plan; Emission Guidelines for Greenhouse Gas Emissions from Existing Electric Utility Generating Units; Revisions to Emission Guidelines Implementing Regulations* published by the U.S. EPA at 84 Fed. Reg. 32520 (July 8, 2019) as it applies to Longview Power LLC's existing designated facility located in Maidsville, West Virginia. The State Plan was developed in response to a permit application received by Longview Power LLC on June 1, 2020 and in response to Senate Bill 810 passed by the West Virginia Legislature during the 2020 Regular Session that requires the West Virginia DEP to submit a complete or partial State Plan in the event one or more EGU facilities are voluntarily prepared to move forward with a compliance plan for one or more of their EGUs. Longview Power LLC voluntarily requested

¹ WV SIP Approval published at 83 Fed. Reg. 50266 (October 5, 2018).

a permit, identified as R13-3495², to operate the stationary source under enforceable terms as allowed under the ACE rule and 45 C.S.R. 13 § 5.5.

4.0. State Plan Requirements

Provided herein is a demonstration that the State Plan satisfies the requirements for Longview Power LLC in accordance with 40 C.F.R. Part 60, Subpart UUUUa and 40 C.F.R. Part 60, Subpart Ba. As discussed in Section 4.9 below, this State Plan relies upon existing West Virginia DEP legal authority.

The West Virginia DEP intends to submit a future State Plan for the remaining designated facilities in West Virginia to the U.S. EPA in accordance with 40 C.F.R. § 60.5745a and § 60.23a(a). West Virginia DEP proposed legislative rule 45 C.S.R. 44, *Control of Greenhouse Gas Emissions from Existing Coal-Fired Electric Utility Generating Units*, was submitted to the Secretary of State for consideration during the 2021 legislative session to codify the emission guideline requirements identified in 40 C.F.R. Part 60, Subpart UUUUa and requires the remaining designated facilities to obtain a permit to limit CO₂ emissions. West Virginia intends to submit 45 C.S.R. 44 to the U.S. EPA as a component of a future State Plan for the remaining designated facilities in West Virginia. References to proposed legislative rule 45 C.S.R. 44 are provided solely to communicate the intention of the West Virginia DEP DAQ for the remaining designated facilities.

4.1. Source Inventory

Subpart Ba [40 C.F.R. § 60.25a(a)]

- The plan shall include an inventory of all designated facilities.

Subpart UUUUa - Identification of Designated Facilities [40 C.F.R. §§ 60.5735a(a)(1), 60.5770a, 60.5775a, 60.5780a, and 60.5780a]

The State must identify the designated facilities covered by its plan and all designated facilities in the State that meet the applicability criteria in §60.5775a. Designated facility owners or operators must comply with the plan that a State develops to implement the emission guidelines contained in 40 C.F.R. Part 60, Subpart UUUUa.

LVP Source Specific Demonstration

LVP operates a 700 MW (net) supercritical pulverized coal fired steam generating boiler (PC Boiler). The steam is used to drive the steam turbines to generate electricity. The EGU includes a 6,114 MMBtu/hr steam generator and a natural gas fired auxiliary boiler, with associated equipment. Air pollution control equipment is installed to reduce other permitted pollutants.

The PC Boiler is a Foster Wheeler-BENSON vertical once-through, supercritical steam generating unit consisting of a vertical tube water wall furnace, primary superheater, platen superheater, finishing superheater, single stage reheater, and economizer.

In accordance with 40 C.F.R. §§ 60.5735a(a)(1) and 60.25a(a), the West Virginia source inventory of designated facilities for the State Plan is provided in the table below. LVP meets the applicability

² The WV DEP acknowledges that Permit R13-3495 is currently out for public notice. The WV DEP intends to submit this State Plan to the U.S. EPA after the permit is finalized, effective, and issued to LVP.

requirements of 40 C.F.R. § 60.5775a(a) and chose to submit a voluntary application under 45 C.S.R. 13 requesting a CO₂ standard in accordance with the ACE emission guidelines. Permit R13-3495 for Longview Power LLC went to public notice on October 9, 2020. The permit specifies the standards of performance and implements the applicable emission guidelines for the designated facility. In accordance with 40 C.F.R. § 60.5770a(a), LVP becomes subject to the State Plan provided herein upon U.S. EPA approval of the State Plan.

West Virginia intends to submit the inventory of the remaining designated facilities located within West Virginia when the future State Plan is submitted to the U.S. EPA in accordance with 40 C.F.R. § 60.5745a.

Table 4.1 - Source Inventory

Existing Designated Facility Source Inventory				
Company and Site Name	West Virginia Source ID#	Unit ID#	Emission Point ID#	Mailing Address
Longview Power LLC	061-00134	SB1	EA1	1375 Fort Martin Rd. Maidsville, WV 26541

West Virginia Plan (Remaining Designated Facilities)³

Section 3 of proposed West Virginia rule 45 C.S.R. 44 provides the applicability criteria that meets the requirements of 40 C.F.R. §§ 60.5775a and 60.5780a. Section 4.1 of proposed West Virginia rule, 45 C.S.R. 44 requires the owner or operator of any affected EGU to limit CO₂ emissions pursuant to a permit issued by the Secretary pursuant to 45 C.S.R. 44 and the procedural requirements of the minor source permitting rule, 45 C.S.R. 13. Section 5.1 of the proposed West Virginia rule, 45 C.S.R. 44 requires that after the U.S. EPA’s approval of a comprehensive West Virginia State Plan, no person may operate any affected EGU without obtaining a permit in accordance with 45 C.S.R. 44 and the procedural requirements of the West Virginia SIP approved minor new source review permitting rule, 45 C.S.R. 13.

4.2. Emissions Inventory

Subpart Ba [40 C.F.R. § 60.25a(a)]

The plan shall include emissions data for the designated pollutants and information related to the emissions as specified in 40 C.F.R. Part 60, Appendix D. Data must be summarized, and the emission rates of designated pollutants must be correlated with applicable emission standards.

Subpart UUUUa [40 C.F.R. § 60.5765a]

The State must demonstrate the designated facilities are complying with their standards of performance.

West Virginia Plan

Facility emissions are entered into the current State and Local Emissions Inventory System (SLEIS) that are uploaded to the U.S. EPA’s Emissions Inventory System (EIS); however, stationary sources in West

³ References made to WV proposed rule 45 C.S.R. 44 are provided solely to communicate the future intentions of the WV DEP.

Virginia are not required to report GHG emissions to the State. West Virginia Code §22-5-19, *Inventory of Greenhouse Gases*, specifies that the Secretary shall obtain available emissions data directly from the appropriate federal entity, including the U.S. EPA for major sources that are subject to mandatory federal GHG reporting requirements. The U.S. EPA's *Mandatory Reporting of Greenhouse Gases* promulgated on October 30, 2009 satisfies the greenhouse gas reporting requirements in West Virginia. The GHG data reported by West Virginia sources to the U.S. EPA via the Facility Level Information on Greenhouse Gases Tool (FLIGHT) reports data in metric tons of carbon dioxide equivalents and cannot be correlated with the standards of performance required by the ACE emission guidelines.

West Virginia intends to submit the emission inventory data to the U.S. EPA in accordance with the annual progress report as required by 40 C.F.R. § 60.25a(e)(4). Additional detail on the annual report can be found in section 4.7 of this State Plan.

LVP Source Specific Demonstration

Table 4.2 below compares the CO₂ emission rates for LVP (WV ID# 061-00134) from calendar year 2019 to the emission limits (standards of performance) established in section 4.1.1 of Permit R13-3495 and calculated with the CO₂ weighted average limit for 2019 in accordance with sections 4.4.4 and 4.4.5 of Permit R13-3495. The testing, monitoring, recordkeeping, and reporting requirements in the permit are consistent with 40 C.F.R. Part 60, Subpart TTTT, *Standards of Performance for Greenhouse Gas Emissions for Electric Generating Units*, published at 80 Fed. Reg. 64648 (October 23, 2015) with the exception of the substitute data requirements that follow the alternative method provided in Appendix G to 40 C.F.R. Part 75, *Determination of CO₂ Emissions*, for any missing data below the 95% monitor availability requirement.

The CO₂ emissions data is from the LVP Continuous Emission Monitoring System (CEMS). The SB1 unit at LVP had its last Relative Accuracy Test Audits (RATAs) conducted November 4-5, 2019. The West Virginia DAQ received the 2019 annual RATA reports from LVP on January 2, 2020 for the certification testing of the 40 C.F.R. Part 60 and Part 75 CEMS. The testing was performed by Weston Solutions, Inc. of West Chester, PA. All monitors passed their respective annual audits.

The CO₂ emission rate data shown in Table 4.2 below is the CO₂ Weighted Average from 2019 emissions at LVP compared to the Level 1 standards of performance for normal operations established in section 4.1.1 of Permit R13-3495. The data demonstrates LVP is in compliance with the standard of performance at the time of permit issuance and State Plan submittal. The Level 2 standards of performance for impaired operation would not have been triggered in 2019 and therefore are not provided in Table 4.2.

In accordance with section 4.4.5 of Permit R13-3495, the initial compliance period for LVP begins January 1, 2021 and ends December 31, 2021. Subsequent compliance periods follow thereafter.

West Virginia intends to submit the emissions inventory for the remaining designated facilities located within West Virginia when the future State Plan for the remaining facilities is submitted to the U.S. EPA as required by 40 C.F.R. § 60.5745a.

Table 4.2 - Emissions Inventory

Existing Designated Facility - Longview Power LLC Emissions Inventory Table					
Permit ID#	Unit ID# / Emission Point ID#	Load Bin	Level 1 Load Bin Standard (lbs CO ₂ /MWh ¹)	Level 1 2019 Weighted Average Limit (lbs CO ₂ /MWh ¹)	2019 Emissions Rate (Actual)
R13-3495 (Draft)	SB1 / EA1	LB-0	9,864	9,864	6,115
		LB-1	2,230	1,964	1,895
		LB-2	2,108		
		LB-3	2,050		
		LB-4	2,002		
		LB-5	1,958		

¹ Based on net generation for LB1 - LB5 and based on gross generation for LB-0.

West Virginia Plan (Remaining Designated Facilities)⁴

Section 6.1 of proposed West Virginia rule, 45 C.S.R. 44 requires the Secretary to establish reporting requirements for each affected EGU in a permit issued pursuant to 45 C.S.R. 13 and 45 C.S.R. 44.

4.3. Compliance Schedules and Increments of Progress

Subpart Ba [40 C.F.R. §§ 60.24a(a), (c), and (d)]

Each plan shall include compliance schedules. Final compliance shall be as expeditiously as practicable, but no later than the compliance times specified in the applicable Subpart of 40 C.F.R. Part 60. Any compliance schedule extending more than twenty-four (24) months from the date required for submittal of the plan must include legally enforceable increments of progress to achieve compliance for each designated facility or category of facilities. Increments of progress must include, where practicable, each increment of progress specified in 40 C.F.R. § 60.21a(h) and must include such additional increments of progress as may be necessary to permit close and effective supervision of progress toward final compliance.

Compliance schedule means a legally enforceable schedule specifying a date or dates by which a source or category of sources must comply with specific emission standards contained in a plan or with any increments of progress to achieve such compliance.

Increments of progress means steps to achieve compliance which must be taken by an owner or operator of a designated facility, including: (1) submittal of a final control plan for the designated facility; (2) awarding of contracts for emission control systems or for process modifications, or issuance of orders for the purchase of component parts to accomplish emission control or process modification; (3) initiation of on-site construction or installation of emission control equipment or process change; (4) completion of on-site construction or installation of emission control equipment or process change; and (5) final compliance.

⁴ *Ibid.*

Subpart UUUUa - Compliance Periods [40 C.F.R. §§ 60.5735a(a)(2) and 60.5750a]

The Plan must specify compliance periods for each standard of performance according to 40 C.F.R. § 60.5750a.

Each standard of performance for designated facilities regulated under the plan must include a compliance period that ensures the standard of performance reflects the degree of emission limitation achievable through application of the heat rate improvements used to calculate the standard. The schedules and compliance periods included in a plan must follow the requirements of 40 C.F.R. § 60.24a.

LVP Source Specific Demonstration

The initial compliance period for LVP begins January 1, 2021 and ends on December 31, 2021 in accordance with condition 4.4.5 of Permit R13-3495. LVP is required to submit its initial compliance report to the West Virginia DAQ no later than March 1, 2022 in accordance with condition 4.5.1 of Permit R13-3495.

West Virginia Plan (Remaining Designated Facilities)⁵

Section 4.7 of the proposed West Virginia rule, 45 C.S.R. 44, requires the owner or operator of an affected steam generating unit to submit a compliance schedule with the permit application if they request a compliance date beyond July 8, 2024.

Section 4.11. of the proposed West Virginia rule, 45 C.S.R. 44, requires that each proposed standard of performance must include a proposed compliance period that ensures the standard of performance reflects the degree of emission limitation achievable through application of the heat rate improvements used to calculate the standard. Any compliance schedule extending past July 8, 2024 must include legally enforceable increments of progress to achieve compliance for each affected steam generating unit or category of affected steam generating units.

Section 5.6 of the proposed West Virginia rule, 45 C.S.R. 44 requires the Secretary to establish requirements for compliance periods in a permit issued pursuant to the West Virginia state rule and the procedural requirements of 45 C.S.R. 13. The compliance period must reflect the degree of emission limitation achievable through application of the heat rate improvements used to calculate the standard of performance. The compliance period must include the averaging period and a compliance date. If the compliance date for any affected steam generating unit is later than July 8, 2024, the Secretary must establish legally enforceable increments of progress to monitor progress toward final compliance. West Virginia intends to submit the compliance times and any increments of progress for the remaining designated facilities located within the state when the future State Plan for the remaining facilities is submitted to the U.S. EPA in accordance with 40 C.F.R. § 60.5745a.

4.4. Standards of Performance

4.4.a. Standards of Performance - General

Subpart Ba [40 C.F.R. §§ 60.24a(a), (b)(2), and (e)]

Each plan shall include standards of performance. Standards of performance shall either be based on an allowable rate or emissions limit, except when it is not feasible to prescribe or enforce a standard of

⁵*Ibid.*

performance and the U.S. EPA identifies such cases in the emission guidelines. The standards shall apply to all designated facilities within the state. Section 60.20a(a)(1) of 40 C.F.R., Subpart Ba states that specific provisions of Subpart Ba may be superseded by the requirements of the emission guidelines or that the emission guideline may include specific provisions in addition to 40 C.F.R. 60, Subpart Ba, provided the emission guideline explicitly identifies any provision of the subpart that is superseded. In this instance, the emission guideline (40 C.F.R. § 60.5755a(a)(1)) requires the standard of performance to be in the form of an emission performance rate relating mass of CO₂ emitted per unit of energy (e.g. pounds of CO₂ emitted per MWh).

In applying a standard of performance to a particular source, the State may take into consideration factors, such as the remaining useful life of such source, provided that the State demonstrates with respect to each such facility (or class of such facilities): (1) unreasonable cost of control resulting from plant age, location, or basic process design; (2) physical impossibility of installing necessary control equipment; or (3) other factors specific to the facility (or class of facilities) that make application of a less stringent standard or final compliance time significantly more reasonable.

Subpart UUUUa [40 C.F.R. §§ 60.5735a (a)(2) and 60.5755a(a)(1)]

A State must provide a standard of performance for each designated facility according to 40 C.F.R. § 60.5755a. Each standard of performance must reflect the degree of emission limitation achievable through application of the heat rate improvements described in 40 C.F.R. § 60.5740a. In applying the heat rate improvements described in 40 C.F.R. § 60.5740a, a State may consider remaining useful life and other factors, as provided for in 40 C.F.R. § 60.24a(e).

The standard of performance must be an emission performance rate relating mass of CO₂ emitted per unit of energy (e.g. pounds of CO₂ emitted per MWh).

LVP Source Specific Demonstration

LVP submitted a voluntary permit application to the West Virginia DAQ for the purpose of obtaining a carbon dioxide emission limit in accordance with the emission guidelines of 40 C.F.R. Part 60, Subpart UUUUa.

Voluntary permits are allowed under section 5.5 of 45 C.S.R. 13 which states:

Any person who owns or operates an existing stationary source may voluntarily request a permit to operate the stationary source under enforceable terms established in an existing stationary source operating permit issued pursuant to this rule. The owner or operator shall submit a complete permit application requesting coverage under the terms and conditions of an existing source operating permit issued in accordance with the permit application and all applicable rules of the Secretary. The issuance of existing stationary source operating permits by the Secretary shall be in accordance with all provisions of this rule including public participation provisions under section 8.

Greenhouse gases meet the definition of a regulated air pollutant under §45-13-2.20.e because greenhouse gases are subject to a new source performance standard promulgated under CAA § 111 (including section 111(d)), in the form of CO₂.

After reviewing the permit application and following the procedural requirements for a construction permit application required under 45 C.S.R. 13, including the public notice requirements, the West Virginia DAQ went to public notice on LVP Permit R13-3495 on October 9, 2020. Section 4.1.1 of Permit R13-3495

establishes the rate-based standards of performance to limit CO₂ emissions that reflect the degree of emission limitation achievable through the application of heat rate improvement (HRI) identified as BSER in the ACE rule. There was not any consideration of remaining useful life when establishing the standard. Consideration was given to other source specific factors when determining the standard of performance, including factors related to the variable frequency drive (VFD) candidate technology, reapplication of a candidate technology or an equivalent technology already implemented at the designated facility, inclusion of a degradation factor, and other factors more fully described in Appendices C and F to this State Plan.

The Engineering Evaluation to Permit R13-3495 discusses the HRI analysis based on the candidate technologies identified as BSER by the U.S. EPA and the development of the standard of performance. The Engineering Evaluation is the basis for the information provided in Appendix C of this State Plan.

The West Virginia DAQ followed the ACE emission guidelines and implementing regulations for the review of the permit application and development of the LVP Permit R13-3495.

Additional detail is provided in sections 4.4.b and 4.4.c of this State Plan.

West Virginia Plan (Remaining Designated Facilities)⁶

Sections 4.1, 4.2 and 5.1 of proposed West Virginia rule, 45 C.S.R. 44, requires each designated facility in the state to obtain a permit issued under the procedural requirements of 45 C.S.R. 13 to limit CO₂ emissions. Section 5.3 of proposed 45 C.S.R. 44, requires the Secretary to establish a rate based standard of performance reflecting the degree of emission limitation achievable through the application of heat rate improvement (HRI) for each affected steam generating unit in a permit. Section 5.4 of proposed 45 C.S.R. 44, allows for the consideration of remaining useful life and other source-specific factors when determining the standard of performance.

4.4.b. Determination of each Standard of Performance

Subpart Ba [40 C.F.R. § 60.24a(e)]

In applying a standard of performance to a particular source, the State may take into consideration factors, such as the remaining useful life of such source, provided that the State demonstrates with respect to each such facility (or class of such facilities): (1) unreasonable cost of control resulting from plant age, location, or basic process design; (2) physical impossibility of installing necessary control equipment; or (3) other factors specific to the facility (or class of facilities) that make application of a less stringent standard or final compliance time significantly more reasonable.

Subpart UUUUa - [40 C.F.R. § 60.5740a (a)(1), (a)(2), (a)(3), and (a)(4)]

A State must include a summary of how it determined each standard of performance for each designated facility according to 40 C.F.R. § 60.5755a(a). The standard of performance must be an emission performance rate relating mass of CO₂ emitted per unit of energy (e.g. pounds of CO₂ emitted per MWh). In establishing any standard of performance, the State must consider the applicability of each of the HRIs and associated degree of emission limitation achievable included in 40 C.F.R. § 60.5740a(a)(1) and (2) to the designated facility. The State must include a demonstration in the plan submission for how the State considered each HRI and associated degree of emission limitation achievable in calculating each standard of performance. In applying a standard of performance to any designated facility, the State may consider

Ibid.

the source-specific factors included in 40 C.F.R. § 60.24a(e). If the State considers source-specific factors in establishing a standard of performance, the State must include a demonstration in the plan submission for how such factors were considered.

The State must include in the summary an evaluation of the applicability of each of the following HRI to each designated facility: (i) neural network/intelligent sootblowers; (ii) boiler feed pumps; (iii) air heater and duct leakage control; (iv) variable frequency drives; (v) blade path upgrades for steam turbines; (vi) redesign or replacement of economizer; and (vii) improved operating and maintenance practices.

As part of the summary regarding HRI applicability to each designated facility, a State must include an evaluation of the degree of emission limitation achievable through application of the HRI according to Table 1 to Paragraph (a)(2)(i) of 40 C.F.R. § 60.5740a. If a State considers remaining useful life and other factors for a designated facility as provided in 40 C.F.R. § 60.24a(e) when applying a standard of performance, it must include a summary of the application of the relevant factors in deriving a standard of performance.

The State Plan must include a demonstration that each designated facility's standard of performance is quantifiable, permanent, verifiable, and enforceable according to 40 C.F.R. § 60.5755a.

The State Plan demonstration must include, as applicable, a summary of each designated facility's anticipated future operation characteristics included in 40 C.F.R. § 60.5740(a)(4)(i), a timeline for implementation, all wholesale electricity prices, a time period of analysis through 2035, and a demonstration that each standard of performance meets the requirements of 40 C.F.R. § 60.5755a.

LVP Source Specific Demonstration

The standards of performance for the SB1 unit at LVP are established in section 4.1.1 of Permit R13-3495. Compliance is demonstrated in accordance with the CO₂ Weighted Average limit on a calendar year basis in accordance with the requirements and equations provided under conditions 4.4.4 and 4.4.5 of Permit R13-3495.

The initial Level 1 standards of performance for LVP are provided in requirement 4.1.1.a of Permit R13-3495 and summarized in Table 4.4.b-2 below. The standards of performance were developed for multiple operational load ranges beginning with the start-up / shutdown / minimum load operation identified as LB-0 through the baseload operating conditions identified as LB-5.

The standards of performance for LVP consists of an initial Level 1 emission rate for normal operations that was established for each of the load bins. There is also a defined standard of performance, identified as Level 2, for impaired operations if the conditions established in requirement 4.1.1.b of Permit R13-3495 are triggered and would only apply to load bins LB-1 through LB-5 and only approved for a specified duration of time. Impaired operation means the unit can operate below normal efficiency due to unavoidable equipment failure. If the Level 2 limit is triggered, it is calculated as the Level 1 limit multiplied by 1.10 (ten percent above the Level 1 limit) in accordance with the requirements established as condition 4.1.1.b of Permit R13-3495.

Table 4.4.b-2. LVP Load Bin Standards.

Load Bin	Load Bin Range (MWHG)	Normal Operation Level 1 Limit¹ (lbs CO₂/MWh)	Impaired Operation Level 2 Limit (lbs CO₂/MWh Net)
LB-0	< 313	9,864	n/a
LB-1	>313 - 407	2,230	2,453
LB-2	>407 - 501	2,108	2,319
LB-3	>501 - 595	2,050	2,255
LB-4	>595 - 689	2,002	2,202
LB-5	>689	1,958	2,154

¹. Based on net generation for LB1 - LB5 and based on gross electricity generation for LB-0.

Permit condition 4.1.1.c of Permit R13-3495 provides for a unit degradation adjustment factor (UDAF) that is applied to the standards of performance annually following the initial compliance period. The standard is increased annually by 0.4% and once every five years is decreased 0.7% to reflect some efficiency recovery. Both adjustments are applied to the individual load bin CO₂ limits. The UDAF is applied up to and including calendar year 2046. Thereafter, the CO₂ load bin limits remain at the 2046 levels. Table 4.4.b-3 below provides the standards of performance with the degradation and recovery rates calculated in accordance with condition 4.1.1.c through calendar year 2046.

Permit condition 4.1.1.d specifies the requirements and the conditions under which a coal adjustment factor (CAF) may be applied to the Level 1 and Level 2 CO₂ standards of performance in the event the source of coal changes in the future for LVP. The CAF is the ratio of future CO₂ emissions divided by the baseline CO₂ emissions as determined in accordance with Permit R13-3495 condition 4.3.1. The CAF is only applicable if LVP requires a fuel switch that results in a different source of coal that LVP has determined has an impact on the carbon dioxide emissions. Changes (variability) of measured coal properties from the same source of coal on a monthly basis do not constitute a CAF. The CAF, not to exceed 3.0% for each instance for which it is determined, increases or decreases the Level 1 and Level 2 CO₂ limits based on the calculated ratio as described above. If a CAF is applied, any subsequent required fuel switch that the permittee has determined has an impact on the CO₂ emissions (whether an increase or decrease) follows the aforementioned requirements and testing using the most recent previously adjusted CO₂ emissions and coal supply as the baseline to develop a new CAF ratio.

Compliance with the standards of performance is demonstrated using a weighted average formula based on the operating time spent in each load bin during the compliance period, as established in conditions 4.4.4 and 4.4.5 of Permit R13-3495.

Remaining useful life was not taken into consideration for LVP; however, there were other source specific factors taken into consideration when the standard of performance was determined for the source. Please refer to Appendices C and F to this State Plan for the demonstration of how other source specific factors were applied to comply with 40 C.F.R. § 60.24a(e).

Please refer to Appendix C to this State Plan for the detailed analysis of how the standards of performance were established and the justification for these standards of performance for LVP. Please refer to Appendix D to this State Plan for the demonstration that the standards of performance are quantifiable, permanent, verifiable, and enforceable. The discussion regarding the corresponding data and calculations used to determine the standards of performance for LVP are provided in Appendix F to this State Plan. The detailed

analysis demonstrates the applicable requirements of 40 C.F.R. §§ 60.5740a (a)(1), (a)(2), (a)(3), and (a)(4) were met.

The information provided in Appendices C, D, and F to this State Plan is for the sole purpose of submitting a complete State Plan. In accordance with 40 C.F.R. § 60.5740a(a), this information shall not be codified as part of the federally enforceable plan upon approval by the U.S. EPA.

Table 4.4.b-3. LVP CO₂ Emission Rate Degradation Table

Starting Year		2021											
Degradation	0.4%	annually											
Recovery	0.7%	per 5 years											
Year	0	1	2	3	4	5	6	7	8	9	10	11	12
Year	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Degradation	0.0%	0.4%	0.4%	0.4%	0.4%	0.4%	0.4%	0.4%	0.4%	0.4%	0.4%	0.4%	0.4%
Recovery	0.0%	0.0%	0.0%	0.0%	0.7%	0.0%	0.0%	0.0%	0.0%	0.7%	0.0%	0.0%	0.0%
Year	13	14	15	16	17	18	19	20	21	22	23	24	25
Year	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046
Degradation	0.4%	0.4%	0.4%	0.4%	0.4%	0.4%	0.4%	0.4%	0.4%	0.4%	0.4%	0.4%	0.4%
Recovery	0.0%	0.7%	0.0%	0.0%	0.0%	0.0%	0.7%	0.0%	0.0%	0.0%	0.0%	0.7%	0.0%
Level 1 - Annual CO ₂ Standard of Performance (lbs/MWHG)													
Year	0	1	2	3	4	5	6	7	8	9	10	11	12
Year	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Bin													
0	9,864	9,903	9,943	9,983	9,953	9,992	10,032	10,073	10,113	10,082	10,123	10,163	10,204
Level 1 - Annual CO ₂ Standard of Performance (lbs/MWHG) Continued													
Year	13	14	15	16	17	18	19	20	21	22	23	24	25
Year	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046
Bin													
0	10,244	10,213	10,254	10,295	10,337	10,378	10,346	10,388	10,429	10,471	10,513	10,481	10,523
Level 1 - Annual CO ₂ Standard of Performance (lbs/MWHN)													
Year	0	1	2	3	4	5	6	7	8	9	10	11	12
Year	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Bin													
1	2,230	2,239	2,248	2,257	2,250	2,259	2,268	2,277	2,286	2,279	2,288	2,298	2,307
2	2,108	2,116	2,125	2,133	2,127	2,135	2,144	2,153	2,161	2,155	2,163	2,172	2,181
3	2,050	2,058	2,066	2,075	2,068	2,077	2,085	2,093	2,102	2,095	2,104	2,112	2,121
4	2,002	2,010	2,018	2,026	2,020	2,028	2,036	2,044	2,052	2,046	2,054	2,063	2,071
5	1,958	1,966	1,974	1,982	1,976	1,983	1,991	1,999	2,007	2,001	2,009	2,017	2,025
Level 1 - Annual CO ₂ Standard of Performance (lbs/MWHN) Continued													
Year	13	14	15	16	17	18	19	20	21	22	23	24	25
Year	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046
Bin													
1	2,316	2,309	2,318	2,328	2,337	2,346	2,339	2,348	2,358	2,367	2,377	2,370	2,379
2	2,189	2,183	2,191	2,200	2,209	2,218	2,211	2,220	2,229	2,238	2,247	2,240	2,249
3	2,129	2,123	2,131	2,140	2,148	2,157	2,150	2,159	2,167	2,176	2,185	2,178	2,187
4	2,079	2,073	2,081	2,090	2,098	2,106	2,100	2,108	2,117	2,125	2,134	2,127	2,136
5	2,034	2,027	2,035	2,044	2,052	2,060	2,054	2,062	2,070	2,079	2,087	2,081	2,089
Level 2 - Annual CO ₂ Standard of Performance (lbs/MWHN)													
Year	0	1	2	3	4	5	6	7	8	9	10	11	12
Year	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Bin													
1	2,453	2,463	2,473	2,483	2,475	2,485	2,495	2,505	2,515	2,507	2,517	2,527	2,537
2	2,319	2,328	2,337	2,347	2,340	2,349	2,358	2,368	2,377	2,370	2,380	2,389	2,399
3	2,255	2,264	2,273	2,282	2,275	2,284	2,293	2,303	2,312	2,305	2,314	2,323	2,333
4	2,202	2,211	2,220	2,229	2,222	2,231	2,240	2,249	2,258	2,251	2,260	2,269	2,278
5	2,154	2,162	2,171	2,180	2,173	2,182	2,191	2,199	2,208	2,201	2,210	2,219	2,228
Level 2 - Annual CO ₂ Standard of Performance (lbs/MWHN) Continued													
Year	13	14	15	16	17	18	19	20	21	22	23	24	25
Year	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046
Bin													
1	2,548	2,540	2,550	2,560	2,571	2,581	2,573	2,583	2,594	2,604	2,614	2,606	2,617
2	2,408	2,401	2,411	2,420	2,430	2,440	2,432	2,442	2,452	2,462	2,471	2,464	2,474
3	2,342	2,335	2,344	2,354	2,363	2,372	2,365	2,375	2,384	2,394	2,403	2,396	2,406
4	2,287	2,280	2,289	2,298	2,308	2,317	2,310	2,319	2,328	2,338	2,347	2,340	2,349
5	2,237	2,230	2,239	2,248	2,257	2,266	2,259	2,268	2,277	2,286	2,296	2,289	2,298

West Virginia Plan (Remaining Designated Facilities)⁷

Sections 4.5 and 5.4 of proposed 45 C.S.R. 44 correspond to the remaining useful life and other factors specified in 40 C.F.R. § 60.24a(e).

Please refer to Table 4.4.b-1 below that identifies the corresponding sections of the proposed 45 C.S.R. 44 to required elements in a State Plan.

Table 4.4.b -1. Standards of Performance Determination.

40 C.F.R. § 60.5740a State Plan Requirement	Proposed WV ACE rule, 45CSR44 Section	Brief Summary
§ 60.5740a(a)(1)	4.3 and 4.4.b.1	Requirement to justify the proposed standard
§ 60.5740a(a)(1)	4.3.a	Requirement to evaluate each candidate technology
§ 60.5740a(a)(2)(i)	4.3.b and 5.3.c	Degree of emission limitation achievable
§ 60.5740a(a)(2)(ii)	4.5, 4.6 and 5.4	Remaining useful life & other factors
§ 60.5740a(a)(3)	4.8	Quantifiable, permanent, verifiable, and enforceable
§60.5740a(a)(4)	4.9	Items to include in plan demonstration (as applicable)
§ 60.5740a(a)(4)(i)	4.9.a	Future operation characteristics
§ 60.5740a(a)(4)(ii)	4.9.b	Implementation Timeline
§ 60.5740a(a)(4)(iii)	4.9.c	Wholesale electricity prices
§ 60.5740a(a)(4)(iv)	4.9.d	Analysis time period
§ 60.5740a(a)(4)(v)	n/a	Plan Demonstration

4.4.c. What standards of performance must be included in the State Plan?

[Subpart UUUUa - [40 C.F.R. §§ 60.5755a (a) - (f) and 60.5740a(a)(6)(ii)]

The State must set a standard of performance for each designated facility within the state. The standard of performance must be an emission performance rate relating mass of CO₂ emitted per unit of energy (e.g. pounds of CO₂ emitted per MWh). In establishing any standard of performance, the State must consider the applicability of each of the heat rate improvements and associated degree of emission limitation achievable included in 40 C.F.R. § 60.5740a(a)(1) and (2) to the designated facility. The State must include a demonstration in the plan submission for how it considered each heat rate improvement and associated degree of emission limitation achievable in calculating each standard of performance. If a State considers source-specific factors (per § 60.24a(e)) when applying a standard of performance, it must include a demonstration in the plan how it considered such factors.

Standards of performance for designated facilities included under the plan must be demonstrated to be quantifiable, verifiable, permanent, and enforceable with respect to each designated facility. The plan submittal must include the methods by which each standard of performance meets each of the requirements in 40 C.F.R. §§ 60.5755a(c) through (f).

⁷*Ibid.*

The State Plan must include materials supporting the calculations used in establishing a designated facility’s standards of performance according to 40 C.F.R. § 60.5755a.

LVP Source Specific Demonstration:

The standards of performance for SB1 at LVP are provided in section 4.1.1 of Permit R13-3495 that went to public notice on October 9, 2020. The standard of performance is an emission performance rate relating mass of CO₂ emitted per unit of energy (e.g. pounds of CO₂ emitted per MWh).

In establishing the standard of performance, West Virginia considered the applicability of each of the heat rate improvements and associated degree of emission limitation achievable included in 40 C.F.R. § 60.5740a(a)(1) and (2) to the designated facility. The demonstration for how West Virginia considered each heat rate improvement and associated degree of emission limitation achievable in calculating each standard of performance is provided in Appendix C to this State Plan. The demonstration also includes how West Virginia considered source-specific factors per 40 C.F.R. § 60.24a(e) when establishing the standards of performance for LVP.

The demonstration that the standards of performance are quantifiable, verifiable, permanent, and enforceable is provided in Appendix D to this State Plan.

In accordance with 40 C.F.R. § 60.5740a(a)(6)(ii), materials supporting the calculations used to determine the standards of performance for SB1 at LVP can be found in Appendix F to the State Plan.

West Virginia Plan (Remaining Designated Facilities)⁸

Please refer to Table 4.4.c below which identifies the corresponding sections of the proposed 45CSR44, to the required elements in a State Plan.

Table 4.4.c - Standards of Performance

40 C.F.R § 60.5755a State Plan Requirement	Proposed WV ACE rule, 45CSR44 Section	Brief Summary
§ 60.5755a(a)	4.1 and 5.1	Standard for each facility in the state
§ 60.5755a(a)(1)	4.4.a.1 and 5.3	rate standard
§ 60.5755a(a)(2)	4.3 and 5.3.c	applicability & degree of HRI
§ 60.5755a(a)(2)(i)	4.5 and 5.4	source specific factors - (60.24a(e)(1,2,3)) such as remaining useful life
§ 60.5755a(a)(2)(ii)	4.5 and 5.4	Include demonstration for source-specific factors
§ 60.5755a(b)	4.8, 5.3.b, 5.3.d, 5.5 5.6, and 6.1	standards - quantifiable, verifiable, permanent, & enforceable demonstration (c-f)
§ 60.5755a(c)	4.8.a	quantifiable
§ 60.5755a(d)	4.8.b	verifiable
§ 60.5755a(e)	4.8.c	permanent

⁸*Ibid.*

§ 60.5755a(f)(1-4)	4.8.d	enforceable
§ 60.5755a(f)(5)	n/a	Plan only demonstration

4.5. Monitoring, Recordkeeping, Reporting, and Testing

4.5.a. General

Subpart UUUUa [40 C.F.R. §§ 60.5735a(a)(3) and 60.5785a(a)]

The State Plan must include all applicable monitoring, reporting and recordkeeping requirements for each designated facility. To satisfy this requirement, the Plan may of either: (1) specify that sources must report emission and electricity generation data according to 40 C.F.R. Part 75; or (2) include an alternative monitoring, recordkeeping, and reporting program that requires the following program elements: (i) monitoring plans that specify the monitoring methods, systems, and formulas that will be used to measure CO₂ emissions; (ii) monitoring methods to continuously and accurately measure all CO₂ emissions, CO₂ emission rates, and other data necessary to determine compliance or assure data quality; (iii) quality assurance test requirements to ensure monitoring systems provide reliable and accurate data for assessing and verifying compliance; (iv) recordkeeping requirements; (v) electronic reporting procedures and systems; and (vi) data validation procedures for ensuring data are complete and calculated consistent with program rules, including procedures for determining substitute data in instances where required data would otherwise be incomplete.

LVP Source Specific Demonstration:

The monitoring, recordkeeping, and reporting requirements provided in Permit R13-3495 were satisfied with the option identified under 40 C.F.R. § 60.5785a(a)(2).

Please refer to Table 4.5.a below for a list of the monitoring, recordkeeping, and reporting requirements included in the LVP Permit R13-3495 that went to public notice October 9, 2020. Please refer to section 4.5.b of this State Plan for a more detailed monitoring discussion, section 4.5.c of this State Plan for a more detailed recordkeeping and reporting discussion, and section 4.5.d of this State Plan for a more detailed testing discussion.

Table 4.5.a - Monitoring, Recordkeeping, & Reporting.

Permit R13-3495 Section(s)	Description
4.2. and 4.4.5.	Monitoring Requirements and Compliance Demonstrations
3.3, 4.2. and 4.3.	Testing Requirements
3.4, 4.2.1., 4.2.2., 4.2.3., 4.3.1., 4.4., and 4.5.1.	Recordkeeping Requirements
3.5, 4.1.1., 4.2.1., 4.3., and 4.5.	Reporting Requirements

West Virginia Plan (Remaining Designated Facilities)⁹

Section 4.12 of the proposed 45 C.S.R. 44 specifies the requirements of 40 C.F.R. § 60.5785a(a) must be provided in the permit application; section 5.5 of the proposed 45 C.S.R. 44 requires the Secretary to establish monitoring, recordkeeping, and reporting requirements, and establish compliance requirements in a permit issued pursuant to 45 C.S.R. 44 and 45 C.S.R. 13, in accordance with 40 C.F.R. § 60.5735a(a)(3); and section 6.1 of the proposed 45 C.S.R. 44, requires the Secretary to include the requirements of 40 C.F.R. § 60.5785a(a) in a permit issued pursuant to 45 C.S.R. 13.

4.5.b. Monitoring

Subpart Ba [40 C.F.R. §§ 60.25a(b), (c), and (d)]

Each plan shall provide for monitoring the compliance status with applicable standards of performance. Each plan shall provide that information obtained by the state under 40 C.F.R. § 60.25a(b) shall be correlated with applicable emission standards and made available to the general public. The provisions referred to shall be specifically identified and copies of such provisions shall be submitted with the plan.

Subpart UUUUa - [40 C.F.R. §§ 60.5735a(a)(3) and 60.5785a(a)]

A State must include in its plan all applicable monitoring requirements for each designated facility and the requirements must be consistent with or no less stringent than the requirements specified in 40 C.F.R. § 60.5785a.

A State Plan must include monitoring requirements for designated facilities. To satisfy this requirement, a State has the option of either: (1) specifying that sources must report emission and electricity generation data according to 40 C.F.R. Part 75; or (2) including an alternative monitoring program that requires: (i) monitoring plans that specify the monitoring methods, systems, and formulas that will be used to measure CO₂ emissions; (ii) monitoring methods to continuously and accurately measure all CO₂ emissions, CO₂ emission rates, and other data necessary to determine compliance or assure data quality; (iii) quality assurance test requirements to ensure monitoring systems provide reliable and accurate data for assessing and verifying compliance; (iv) recordkeeping requirements; (v) electronic reporting procedures and systems; and (vi) data validation procedures for ensuring data are complete and calculated consistent with program rules, including procedures for determining substitute data in instances where required data would otherwise be incomplete.

West Virginia Plan

The authority to require the use of monitors and require emission reports is discussed under the legal authority section (4.9) of the State Plan. The legal authority section also describes West Virginia's authority to make emission data from existing facilities available to the public and discusses the state's Freedom of Information Act. Additional information regarding enforceable mechanisms for implementation is found in section 4.8 of this State Plan.

A copy of the West Virginia SIP approved 45 C.S.R. 13 is provided in Appendix A. 83 Fed. Reg. 50266 (October 5, 2018).

⁹*Ibid.*

LVP Source Specific demonstration:

The demonstration pertaining to 40 C.F.R. §§ 60.25a(b)(1) and (2) for LVP are provided in sections 4.5.c and 4.5.d of this State Plan. In accordance with 40 C.F.R. §§ 60.25a(d), provisions referred to in paragraphs 40 C.F.R. §§ 60.25a(b) and (c) are specifically identified in Table 4.5.b for the monitoring provisions. A copy of LVP Permit R13-3495 and the corresponding Engineering Evaluation are provided in Appendix I.

Permit R13-3495 is federally enforceable. The enforceable state mechanisms are further described in section 4.8 and the legal authority is further described in section 4.9 of this State Plan. West Virginia DAQ intends to submit the compliance monitoring results, correlated with the applicable emission standards established in Permit R13-3495, when the West Virginia DAQ submits its annual progress report to the U.S. EPA. Additional detail about the annual progress report is provided in section 4.7 of this State Plan. Information is made available to the public as described in the legal authority section of this plan.

Please refer to the table below for the relevant section of Permit R13-3495 that corresponds with the compliance monitoring requirements and the alternative monitoring requirements of 40 C.F.R. § 60.5785a(a)(2).

Table 4.5.b. Monitoring Demonstration.

Section of 40 C.F.R. 60.5785a(a)(2)	40 C.F.R. 60.5785a(a)(2) Requirement	Permit R13-3495 Section(s)	Permit Requirement Description
(§60.25a(b))	Monitoring compliance status	4.2., 4.4, and 4.5	Monitoring, recordkeeping, and reporting requirements.
(i)	Monitoring plans that specify the monitoring methods, systems, and formulas that will be used to measure CO ₂ emissions:	4.2.1.	Hourly CO ₂ mass emissions in pounds from EA1.
		4.2.1.a.	CO ₂ CEMS to directly measure hourly average CO ₂ concentrations and a flow monitoring system to measure hourly average stack gas flow rates.
		4.2.1.c.	Unadjusted exhaust gas volumetric flow rates and no bias adjustment factors to determine CO ₂ mass emissions.
		4.2.1.e.	Calculate hourly CO ₂ mass emissions (lbs) only for valid operating hours,
		4.2.1.f.	Record length of time operated within each load bin.
		4.2.2.	Watt meters to continuously measure the hourly gross and net electric output.
		4.2.3.	Heat rate monitoring system to calculate the unit heat rate (Btu/kWh).
(ii)	Monitoring methods to continuously and accurately measure all CO ₂ emissions, CO ₂ emission rates, and other data necessary to determine compliance or assure data quality:	4.2.1.a.	Install, certify, operate, maintain, and calibrate CO ₂ CEMS and flow monitoring system.
		4.2.1.b.	Certification and quality assurance procedures in 40 C.F.R. § 75.20 and Appendices A and B to 40 C.F.R. Part 75.

		4.2.1.c.	Unadjusted exhaust gas volumetric flow rates and no bias adjustment factors to determine CO ₂ mass emissions.
		4.2.1.d.	Reference method to characterize the flow monitor and perform on-going RATAs in accordance with 40 C.F.R. Part 75.
		4.2.2.	0.2 class electricity metering instrumentation and calibration procedures as specified under ANSI Standards No. C12.20 for watt meters.
		4.2.3.	Heat rate system using a Rankine cycle model per latest ASME PTC PM-2010 or future ASME test methods to measure heat rate.
		4.2.4.	Valid data requirements.
(iii)	Quality assurance test requirements to ensure monitoring systems provide reliable and accurate data for assessing and verifying compliance	4.2.1.d.	RATAs in accordance with 40 C.F.R. Part 75.
(vi)	Data validation procedures for ensuring data are complete and calculated consistent with program rules, including procedures for determining substitute data in instances where required data would otherwise be incomplete.	4.2.4.e.	Valid data required for a minimum of 95% of operating hours in the compliance period. At times when emissions data falls below 95% threshold, procedures from Appendix G to 40 C.F.R. 75 followed to determine CO ₂ emissions when CO ₂ emissions data is missing.

The requirements of 40 C.F.R. §§ 60.25a(b), (c), (d), 60.5735a(a)(3), and 60.5785a(a) relating to monitoring have been satisfied.

West Virginia Plan (Remaining Designated Facilities)¹⁰

Sections 5.5, 6.1, and 6.2 of proposed rule 45 C.S.R. 44 identify the monitoring and compliance requirements that must be established in a permit issued in accordance with 45 C.S.R. 13.

4.5.c. Recordkeeping and Reporting

Subpart Ba [40 C.F.R. §§ 60.25a(b)(1), (c), and (d)]

The plan shall, at a minimum, provide for: legally enforceable procedures requiring owners or operators of designated facilities to maintain records and periodically report to the State information on the nature and amount of emissions from such facilities, and/or such other information as may be necessary to enable the State to determine whether such facilities are in compliance with applicable portions of the plan. Each

¹⁰*Ibid.*

plan shall provide that information obtained by the state under 40 C.F.R. § 60.25a(b) shall be correlated with applicable emission standards and made available to the general public. The provisions referred to shall be specifically identified and copies of such provisions shall be submitted with the plan.

Subpart UUUUa - [40 C.F.R. §§ 60.5735a(a)(3), 60.5785a(a), 60.5790a, and 60.5795a]

A State must include in its plan all applicable reporting and recordkeeping requirements for each designated facility and the requirements must be consistent with or no less stringent than the requirements specified in 40 C.F.R. § 60.5785a. A State Plan must include recordkeeping and reporting requirements for designated facilities. To satisfy this requirement, a State has the option of either: (1) specifying that sources must report emission and electricity generation data according to 40 C.F.R. Part 75; or (2) including an alternative recordkeeping and reporting program that specifies recordkeeping requirements and electronic reporting procedures and systems.

A State must keep records of all information relied upon in support of any demonstration of plan components, plan requirements, supporting documentation, and the status of meeting the plan requirements defined in the plan. After the effective date of the plan, States must keep records of all information relied upon in support of any continued demonstration that the final standards of performance are being achieved.

A State must keep records of all data submitted by the owner or operator of each designated facility that is used to determine compliance with each designated facility emissions standard or requirements in an approved State plan, consistent with the designated facility requirements listed in 40 C.F.R. § 60.5785a. If a State requires all hourly CO₂ emissions and generation information to be used to calculate compliance with an annual emissions standard for designated facilities, any information that is submitted by the owners or operators of designated facilities to the EPA electronically pursuant to requirements in 40 C.F.R. Part 75 meets the recordkeeping requirement of this section and the State is not required to keep records that would be duplicative with 40 C.F.R. § 60.5790a(b).

The State must keep records a minimum of five (5) years from the date the record is used to determine compliance with a standard of performance or plan requirement. Each record must be in a form suitable and readily available for expeditious review.

West Virginia Plan

The identification of enforceable state mechanisms for implementation is provided in section 4.8 of this State Plan. The authority to require the use of monitors, require sources to maintain records, and require sources to provide emission reports is discussed under the legal authority section (4.9) of this State Plan. The legal authority section also describes West Virginia's authority to make emission data from existing facilities available to the public and discusses the state's Freedom of Information Act. Permits issued under 45 C.S.R. 13 are federally enforceable¹¹ procedures. Please refer to the legal authority (section 4.9) of the State Plan for additional detail.

West Virginia DEP uses a document management system to electronically store 45 C.S.R. 13 permit applications, including supplemental documents received, engineering evaluations, and the issued permit. The West Virginia DAQ also uses a database system to electronically store compliance records and reports received.

¹¹ West Virginia SIP approved at 83 Fed. Reg. 50266 (October 5, 2018).

West Virginia state rules, such as 45 C.S.R. 13, are publicly available from the office of the Secretary of State, starting with the proposed rule stage and including all stages of the legislative rulemaking process through the final filing and promulgation.

West Virginia intends to keep records of information relied upon in support any demonstration of plan components, plan requirements, supporting documentation, and the status of meeting the plan requirements defined in the State Plan. West Virginia further intends to keep records of all information relied upon in support of any continued demonstration that the final standards of performance are being achieved, after the effective date of the State Plan in accordance with 40 C.F.R. § 60.5790a(a).

In accordance with 40 C.F.R. § 60.5790a(b), West Virginia intends to maintain records of data submitted by the owner or operator of each designated facility used to determine compliance with each designated facility emissions standard or requirements in an approved State plan, consistent with the designated facility requirements listed in 40 C.F.R. § 60.5785a, recognizing that any hourly CO₂ emissions and generation information pursuant to 40 C.F.R. Part 75 that would be considered duplicative is not required to be maintained in duplicate.

In accordance with 40 C.F.R. § 60.5790a(d), West Virginia intends to keep said records a minimum of five years from the date the record is used to determine compliance with a standard of performance or plan requirement. Each record is intended to be in a form suitable and readily available for expeditious review.

A copy of 45 C.S.R. 13 is provided in Appendix A.

LVP Source Specific Demonstration

In accordance with 40 C.F.R. §§ 60.25a(d), provisions referred to in paragraphs 40 C.F.R. §§ 60.25a(b) and (c) are specifically identified in Table 4.5.c for the recordkeeping and reporting provisions. A copy of LVP Permit R13-3495 and the corresponding Engineering Evaluation are provided in Appendix I of this State Plan.

Permit R13-3495 is federally enforceable. The enforceable state mechanisms for implementation are further described in section 4.8 and the legal authority is further described in section 4.9, of this State Plan. West Virginia DAQ intends to submit the compliance monitoring results, correlated with the applicable emission standards established in Permit R13-3495, when the West Virginia DAQ submits its annual progress report to the U.S. EPA. Additional detail about the annual progress report is provided in section 4.7 of this State Plan. Information is made available to the public as described in the legal authority section of this plan.

The 40 C.F.R. Part 75 recordkeeping and reporting option under 40 C.F.R. § 60.5785a(a)(1) was not chosen for LVP; instead, an alternative recordkeeping and reporting program was chosen that includes specifications for recordkeeping requirements and electronic reporting procedures and systems, as allowed under 40 C.F.R. § 60.5785a(a)(2). The recordkeeping and reporting requirements in Permit R13-3495 were developed primarily from 40 C.F.R. Part 60, Subpart TTTT, *Standards of Performance for Greenhouse Gas Emissions for Electric Generating Units*, a flexibility allowed under the ACE emission guidelines and 40 C.F.R. Part 60, Subpart Ba.

The recordkeeping requirements are provided in sections 3.4.1, 4.1.1.b., 4.2.1., 4.2.2., 4.2.3., 4.3.1.e., 4.4., and 4.5.1. and the reporting requirements are provided in sections 3.5, 4.1.1.b., 4.2.1.e., 4.3.1.d., and 4.5. of Permit R13-3495, additional specificity is provided in Table 4.5.c below:

Table 4.5.c. Recordkeeping and Reporting Demonstration.

Section of 40 C.F.R. Part 60	40 C.F.R. § 60.5785a(a)(2) Requirement	Permit R13-3495 Section(s)	Permit Requirement Description
60.5785a(a)(2) (iv)	Specifications for recordkeeping requirements	3.4.1.	Record retention requirements.
		4.2.1.f.	Length of time operated within each load bin.
		4.2.1.g.	Maintenance performed, calibrations, performance evaluations, and CEMS data.
		4.2.2.	Record hourly gross and net electric output. Maintenance performed, calibrations, performance evaluations, and data within a data collection system.
		4.2.3.	Records of the calculated heat rate reduced to hourly values and maintenance performed on the system.
		4.3.1	Coal adjustment factor records.
		4.4.1.	Monitoring records.
		4.4.2.	Records of maintenance of air pollution control equipment.
		4.4.3.	Record of malfunction of air pollution control equipment.
		4.4.4.	Records of all CO ₂ weighted average limit calculations.
		4.4.5.	Compliance demonstration records.
		4.4.6.	List of specific records to be maintained.
		4.5.1.	Records of annual compliance reports.
60.5785a(a)(2) (v)	Specifications for electronic reporting procedures and systems	3.5.3.	Specifications for electronic format of reports.
		4.2.1.e.	Hourly CO ₂ values (lbs/hr) and operating times electronic reporting under 40 C.F.R. § 75.64(a)(6).
		4.5.1.	Annual compliance report.
		4.5.2.	Reports under 40 C.F.R. Part 75, Subpart G, as applicable.

The LVP permit application, supplemental information, engineering evaluation, draft permit, response to comment document, final permit determination, and final Permit R13-3495 permit is available through the West Virginia DEP document management system that can be accessed through the West Virginia DAQ website. Additionally, compliance and enforcement records relating to this permit are available to the public directly through the West Virginia DEP document management system using LVP facility ID number 061-00134.

West Virginia intends to keep records of information relied upon in support any source specific demonstration of plan components, plan requirements, supporting documentation, and the status of meeting the plan requirements defined in the State Plan. West Virginia further intends to keep records of information relied upon in support of any continued demonstration that the final standards of performance are being achieved, after the effective date of the State Plan in accordance with 40 C.F.R. § 60.5790a(a).

In accordance with 40 C.F.R. § 60.5790a(b), West Virginia intends to maintain records of data submitted by LVP used to determine compliance with each designated facility emissions standard or requirements in an approved State Plan, consistent with the designated facility requirements listed in 40 C.F.R. § 60.5785a, recognizing that any hourly CO₂ emissions and generation information pursuant to 40 C.F.R. Part 75 that would be considered duplicative is not required to be maintained in duplicate.

In accordance with 40 C.F.R. § 60.5790a(d), West Virginia intends to keep said records a minimum of five years from the date the record is used to determine compliance by LVP with a standard of performance or State Plan requirement. Each record is intended to be in a form suitable and readily available for expeditious review.

West Virginia intends to submit an annual reports on progress to the U.S. EPA as required by 40 C.F.R. § 60.25a(e) commencing with the first full report period after approval of the State Plan for LVP and is intended to include the following information required under 40 C.F.R. § 60.25a(f):

1. Enforcement actions initiated against designated facilities during the reporting period, under any standard of performance or compliance schedule of the plan.
2. Identification of the achievement of any increment of progress required by the applicable plan during the reporting period.
3. Identification of designated facilities that have ceased operation during the reporting period.
4. Submission of emission inventory data as described in 40 C.F.R. § 60.25a(a) for designated facilities that were not in operation at the time of plan development but began operation during the reporting period.
5. Submission of additional data as necessary to update the information submitted under 40 C.F.R. § 60.25a(a) or in previous progress reports.
6. Submission of copies of technical reports on all performance testing on designated facilities conducted under 40 C.F.R. § 60.25a(b)(2), complete with concurrently recorded process data.

The requirements of 40 C.F.R. §§ 60.25a(b)(1), (c), (d), 60.5735a(a)(3), 60.5785a(a), 60.5790a, and 60.5795a relating to recordkeeping and reporting, have been satisfied.

West Virginia Plan (Remaining Designated Facilities)¹²

Section 4.13 of proposed 45 C.S.R. 44, requires all information relied upon in support of any aspect of the permit application be retained by the owner or operator of the affected source for a minimum of five years. Each record must be in a form suitable and readily available for expeditious review. Sections 5.5 and 6.1 of the proposed 45 C.S.R. 44, requires the Secretary to establish recordkeeping, and reporting requirements in accordance with the requirements of 40 C.F.R. §§ 60.5735a(a)(3) and 60.5785a(a) in a permit issued pursuant to proposed 45 C.S.R. 44 and the procedural requirements of 45 C.S.R. 13.

¹² References made to WV proposed rule 45 C.S.R. 44 are provided solely to communicate the future intentions of the WV DEP.

4.5.d. Testing

Subpart Ba [40 C.F.R. §§ 60.24a(b)(1), 60.25a(b)(2), and (d)]

Test methods and procedures for determining compliance with the emission standards shall be specified in the State Plan. Methods other than those specified in 40 C.F.R. Part 60, Appendix A or an applicable Subpart of Part 60 may be specified in the plan if shown to be equivalent or alternative methods as defined in 40 C.F.R. § 60.2.

The plan shall, at a minimum, provide for periodic inspection and, when applicable, testing of designated facilities. The provisions referred to shall be specifically identified and copies of such provisions shall be submitted with the plan.

Subpart UUUUa [40 C.F.R. § 60.5785a(a)(2)(iii)]

The plan shall include an alternative monitoring, recordkeeping, and reporting program that includes specifications for quality assurance test requirements to ensure monitoring systems provide reliable and accurate data for assessing and verifying compliance.

West Virginia Plan

Periodic inspections of the facility are addressed in the legal authority section (4.9), of this State Plan.

LVP Source Specific Demonstration:

In accordance with 40 C.F.R. §§ 60.25a(d), provisions referred to in paragraphs 40 C.F.R. §§ 60.25a(b) and (c) are specifically identified in Table 4.5.d for the testing provisions. A copy of LVP Permit R13-3495 and the corresponding Engineering Evaluation are provided in Appendix I.

Permit R13-3495 is state and federally legally enforceable, as further described in the enforceable state mechanisms for implementation, section 4.8, of this plan and the legal authority, section 4.9, of this State Plan. West Virginia DAQ intends to submit the compliance monitoring results, correlated with the applicable emission standards established in Permit R13-3495, when the West Virginia DAQ submits its annual progress report to the U.S. EPA. Additional detail about the annual progress report is provided in section 4.7 of this State Plan. Information is made available to the public as described in the legal authority section of this plan.

The 40 C.F.R. Part 75 recordkeeping and reporting option under 40 C.F.R. § 60.5785a(a)(1) was not chosen for LVP; instead, an alternative recordkeeping and reporting program was chosen that includes specifications for recordkeeping requirements and electronic reporting procedures and systems, as allowed under 40 C.F.R. § 60.5785a(a)(2). The recordkeeping and reporting requirements in Permit R13-3495 were developed from 40 C.F.R. Part 60, Subpart TTTT, *Standards of Performance for Greenhouse Gas Emissions for Electric Generating Units*, a flexibility allowed under the ACE emission guidelines and 40 C.F.R. Part 60, Subpart Ba.

Table 4.5.d. Testing Demonstration.

Section of 40 C.F.R. Part 60	40 C.F.R. Part 60 Requirement	Permit R13-3495 Section(s)	Permit Requirement Description
60.24a(b)(1)	Test methods and procedures for determining compliance with the standards of performance.	4.4.4.	CO ₂ weighted average limit equations for compliance.
		4.4.5.	Compliance demonstration requirements.
60.25a(b)(2)	Periodic inspection and when applicable testing of designated facilities	3.3.1	Stack testing requirements.
60.5785a(a)(2) (iii)	Quality assurance test requirements to ensure monitoring systems provide reliable and accurate data for assessing and verifying compliance.	4.2.1.b., 4.2.1.d., 4.2.2., 4.2.3., and 4.2.4.	See narrative in paragraph below.
		4.3.1.	Coal adjustment factor testing requirements.
		4.4.4.	CO ₂ weighted average limit equations for compliance.
		4.4.5.	Compliance demonstration requirements.

Section 4.2.1.b of Permit R13-3495 specifies the requirements LVP must use to determine the hourly CO₂ mass emissions from emission point EA1 including the applicable certification and quality assurance procedures for each CEMS in accordance with 40 C.F.R. § 75.20 and Appendices A and B to 40 C.F.R. Part 75. The ongoing RATAs are required to be performed in accordance with 40 C.F.R. Part 75, as specified in section 4.2.1.d. Section 4.2.2 specifies the requirements for the watt meters to be calibrated as specified under ANSI Standards No. C12.20. Section 4.2.3 specifies that the system that calculates the unit heat rate be done so in accordance with the latest version of the ASME Performance Test Code Performance Monitoring Guidelines for Power Plant (ASME PTC PM-2010) or future test method developed by ASME to measure heat rate. Section 4.2.4 specifies the requirements to determine valid data for each compliance period. The permit conditions identified in this paragraph were developed primarily from 40 C.F.R. Part 60, Subpart TTTT, *Standards of Performance for Greenhouse Gas Emissions for Electric Generating Units*. The substitute data procedure in section 4.2.1.e for missing data below the required 95% monitor availability requirement requires data to be substituted in accordance with Appendix G to 40 C.F.R. Part 75.

The requirements of 40 C.F.R. §§ 60.24a(b)(1), 60.25a(b)(2), and (d) and 60.5785a(a)(2) (iii) have been satisfied.

West Virginia Plan (Remaining Designated Facilities)¹³

Proposed 45 C.S.R. 44, section 5.5 requires the Secretary to establish compliance requirements in a permit issued pursuant to this rule and the procedural requirements of 45 C.S.R. 13. Proposed 45 C.S.R. 44, section 6.1.b.3 requires that if an alternative monitoring, recordkeeping, and reporting program is selected in lieu of 40 C.F.R. Part 75, it must include quality assurance test requirements to ensure monitoring systems provide reliable and accurate data for assessing and verifying compliance. Proposed 45 C.S.R. 44, section

¹³ *Ibid.*

6.2 requires the Secretary to establish test methods and compliance requirements in a permit issued pursuant to this rule and the procedural requirements of 45 C.S.R. 13. Proposed 45 C.S.R. 44, section 6.3 prohibits averaging emission rates across multiple EGUs, trading programs, and bio-mass cofiring as means to comply with the standard.

4.6. Public Participation

Subpart Ba [40 C.F.R. §§ 60.23a(c) - (g)]

The State is required to conduct one or more public hearings on the plan. Notice for the public hearing must be given at least 30 days prior to the date of such hearing and shall include: (1) notification to the public by prominently advertising the date, time, and place of such hearing in each region affected. This requirement may be satisfied by advertisement on the internet; and (2) availability, at the time of public announcement, of each proposed plan for public inspection in at least one location in each region to which it will apply. This requirement may be satisfied by posting each proposed plan on the internet; (3) notification to the Administrator; (4) notification to each local air pollution control agency in each region to which the plan or revision will apply; and (5) in the case of an interstate region, notification to any other State included in the region. The State may cancel the public hearing through a method it identifies if no request for a public hearing is received during the 30-day notification period. The state shall prepare and retain, for a minimum of two years, a record of each hearing for inspection by any interested party. The record, at a minimum, shall contain a list of witnesses together with the text of each presentation. Certification that each hearing was held in accordance with 40 C.F.R. § 60.23a(c) with the notice required by 40 C.F.R. § 60.23a(d) must be submitted with each State Plan along with the list of witnesses and their organizational affiliations appearing at the hearing and a brief written summary of each presentation or written submission.

Subpart UUUUa - [40 C.F.R. § 60.5740a(a)(5)]

The State Plan submittal must include certification that a hearing required under 40 C.F.R. § 60.23a(c) on the State Plan was held, a list of witnesses and their organizational affiliations, if any, appearing at the hearing, and a brief written summary of each presentation or written submission, pursuant to the requirements of 40 C.F.R. § 60.23a(g).

West Virginia Plan

Prior to submitting this State Plan and in accordance with 40 C.F.R. §§ 60.23a(c) and (d), the West Virginia DEP allowed opportunity for public comment, held a public hearing on the plan, and provided notification to the EPA Region 3 Administrator and Air Director in letters to Cristina Fernandez and Cosmo Servidio dated October 29, 2020. The notice of the public hearing was published on October 30, 2020 as a Class 1 legal advertisement in the Charleston Newspapers, the Dominion Post, and in the West Virginia State Register, providing at least 30-day notice prior to the hearing held December 1, 2020. The public notice, provided in Appendix E, includes the date, time, and location of the hearing. West Virginia chose to conduct the public hearing, even if it was not requested; therefore, no cancellation information is provided.

In addition to the publications identified in the preceding paragraph, notification was also provided on the West Virginia DAQ website. As noted in the public notice, the proposed State Plan was made available for public inspection on the DAQ website at the time of public notice.

Public notice was also provided to West Virginia's neighboring states of Kentucky, Maryland, Pennsylvania, Ohio, and Virginia via e-mail communication on October 29, 2020 to their respective Air Quality Directors: Melissa Duff (KY), Tad Aburn (MD), Krish Ramamurthy (PA), Bob Hodanbosi (OH), and Michael Dowd (VA).

The public hearing was held at 6:00 p.m. on December 1, 2020. The public hearing was held virtually to prevent the spread of COVID-19 in accordance with the West Virginia DEP COVID-19 Policy.

The West Virginia DEP certified in the final State Plan transmittal letter to EPA Region 3 Administrator Cosmo Servidio that the public hearing was held in accordance with the notice requirements of 40 C.F.R. § 60.23a(d). West Virginia DEP intends to maintain records of the hearing in accordance with 40 C.F.R. §§ 60.23a(f) and (g)(2) for at least two years.

Notices of the public hearing including the EPA transmittal letter with the hearing certification, the list of hearing attendees including their organizational affiliations, the transcript from the public hearing, a summary of the public comments received during the notice period and the response to comment document, are included in Appendix E of this plan.

The public participation requirements for this State Plan revision meet the state plan requirements of 40 C.F.R. Part 60, Subparts Ba.

4.7. Annual Reports

Subpart Ba [§§ 60.25a(e) and (f)]

The State is required to submit progress reports on plan enforcement to the U.S. EPA on an annual (calendar year) basis, commencing with the first full report period after approval of a plan or after promulgation of a plan by the Administrator. Information required under this paragraph must be included in the annual report required by 40 C.F.R. § 51.321. The annual progress report must include the following information: (i) enforcement actions initiated against designated facilities during the reporting period, under any standard of performance or compliance schedule of the plan; (ii) identification of the achievement of any increment of progress required by the applicable plan during the reporting period; (iii) identification of designated facilities that have ceased operation during the reporting period; (iv) submission of emission inventory data as described in 40 C.F.R. § 60.25a(a) for designated facilities that were not in operation at the time of plan development but began operation during the reporting period; (v) submission of additional data as necessary to update the information submitted under 40 C.F.R. § 60.25a(a) or in previous progress reports; and (vi) submission of copies of technical reports on all performance testing on designated facilities conducted under 40 C.F.R. § 60.25a(b)(2), complete with concurrently recorded process data.

Subpart UUUUa - [40 C.F.R. §§ 60.5735a(a)(4) and 60.5795a]

A State Plan must include a description of the process, contents, and schedule for State reporting to the U.S. EPA about plan implementation and progress, including information required under 40 C.F.R. § 60.5795a. The annual report must be submitted as required under 40 C.F.R. §§ 60.25a(e) and (f).

West Virginia Plan

West Virginia intends to submit an annual (calendar year) progress report for existing EGUs to the U.S. EPA Region 3 Regional Administrator in accordance with the requirements of 40 C.F.R. §§ 60.25a(e) and (f), 60.5735a(a)(4), and 60.5795a, commencing with the first full report period after approval of the State Plan or after promulgation of a plan by the Administrator.

4.8. Identification of State Mechanisms to Implement Each State Plan Component

Subpart UUUUa - [40 C.F.R. §§ 60.5740a(a)(6)(i - iii)]

The State Plan must include supporting material demonstrating the State's legal authority to implement and enforce each component of its plan, including standards of performance, pursuant to the requirements of 40 C.F.R. §§ 60.26a and 60.5740a(a)(6). The State Plan must include materials supporting calculations for the development of the designated facility's standards of performance according to 40 C.F.R. § 60.5755a. The State Plan must include any other materials necessary to support evaluation of the plan by the U.S. EPA.

West Virginia State Plan

Senate Bill 810 was passed during the West Virginia Legislature's 2020 Regular Session and became effective June 2, 2020. It amended § 22-5-20 of the West Virginia State Code relating to adoption of a State Plan implementing the federal ACE rule. The West Virginia DEP is required to propose a legislative rule to implement the ACE rule, consisting of emission guidelines for GHG emissions from existing EGUs pursuant to the federal Clean Air Act, section 111(d). The proposed West Virginia rule is required to be filed with the Secretary of State in time for consideration during the 2021 legislative session. Further, it requires the West Virginia DEP to submit a complete or partial state plan to the U.S. EPA if one or more EGU facilities are voluntarily prepared to move forward with a compliance plan for one or more of their EGUs.

LVP submitted a voluntary permit application for the purposes of obtaining an enforceable permit to establish a carbon dioxide standard of performance in accordance with 40 C.F.R. Part 60, Subpart UUUUa. The new source review permitting program under 45 C.S.R. 13 is part of the West Virginia State Implementation Plan. 83 Fed. Reg. 50266 (October 5, 2018). Greenhouse gases in the form of CO₂ meets the definition of a regulated air pollutant under §45-13-2.20.e because greenhouse gases in the form of CO₂ is subject to a new source performance standard promulgated under CAA §111 (including section 111(d)).

Voluntary permits are allowed under section 5.5 of 45 C.S.R. 13 which states:

Any person who owns or operates an existing stationary source may voluntarily request a permit to operate the stationary source under enforceable terms established in an existing stationary source operating permit issued pursuant to this rule. The owner or operator shall submit a complete permit application requesting coverage under the terms and conditions of an existing source operating permit issued in accordance with the permit application and all applicable rules of the Secretary. The issuance of existing stationary source operating permits by the Secretary shall be in accordance with all provisions of this rule including public participation provisions under section 8.

Please refer to section 4.9 of this State Plan for additional legal authority discussion. Please refer to Appendix F for materials supporting the calculations for LVP standards of performance according to 40

C.F.R. § 60.5755a. Please refer to following appendices for other materials necessary to support evaluation of the plan by the EPA:

Appendix A	West Virginia Legislative Rule 45 C.S.R. 13
Appendix B	Proposed West Virginia ACE rule 45 C.S.R. 44 (Modified version)
Appendix C	Standards of Performance Demonstration
Appendix D	Quantifiable, Verifiable, Permanent, and Enforceable Demonstration
Appendix E	Public Hearing Documents
Appendix F	Supporting Calculations for LVP Standards of Performance
Appendix G	Senate Bill 810, 2020 Regular Session
Appendix H	W. Va. State Code 22-5-1, et. seq. and 29B-1-1, et. seq.
Appendix I	LVP Permit R13-3495 and Engineering Evaluation
Appendix J	Black & Veach “Longview Unit 1 Heat Rate Study”

4.8.a. Implementation of Emission Guidelines for Greenhouse Gas Emissions from Existing Electric Utility Generating Units

West Virginia Plan

45 C.S.R. 13 is the minor new source review permitting rule. 45 C.S.R. 13, *Permits for Construction, Modification, Relocation and Operation of Stationary Sources of Air Pollutants, Notification Requirements, Administrative Updates, Temporary Permits, General Permits, Permission to Commence Construction, and Procedures for Evaluation*, has a state effective date of June 1, 2017. The current version of 45 C.S.R. 13 is part of West Virginia’s State Implementation Plan and has a federal effective date of November 5, 2018. 83 Fed. Reg. 50266. (October 5, 2018).

LVP Source Specific Demonstration

45 C.S.R. 13 was approved into the West Virginia SIP on October 5, 2018 at 83 Fed. Reg. 50266; therefore, permits issued under this new source review permitting program have federally enforceable permit conditions.

Existing stationary sources are allowed under section 5.5 of 45 C.S.R. 13 to voluntarily request emission limits and other enforceable terms, as stated below:

Any person who owns or operates an existing stationary source may voluntarily request a permit to operate the stationary source under enforceable terms established in an existing stationary source operating permit issued pursuant to this rule. The owner or operator shall submit a complete permit application requesting coverage under the terms and conditions of an existing source operating permit issued in accordance with the permit application and all applicable rules of the Secretary. The issuance of existing stationary source operating permits by the Secretary shall be in accordance with all provisions of this rule including public participation provisions under section 8.

Section 2.20.e of 45 C.S.R. 13 defines "Regulated air pollutant" to mean the following:

. . . Any air pollutant subject to a new source performance standard (NSPS) promulgated under section 111 of the Clean Air Act (including section 111(d)), which requires new and modified sources to satisfy emissions standards, work practice standards and other requirements; . . .

LVP submitted a permit application to the West Virginia DAQ on June 1, 2020 and requested a voluntary permit to include a CO₂ standard of performance and associated program requirements consistent with 40 C.F.R. Part 60, Subpart UUUUa and 40 C.F.R. Part 60, Subpart Ba. West Virginia DAQ went to public notice for Permit R13-3495 on October 9, 2020. Permit R13-3495 is provided in Appendix I of this State Plan.

In accordance with Senate Bill 810 passed during the West Virginia Legislature's 2020 Regular Session, and West Virginia State Code § 22-5-20, the West Virginia DEP is submitting herein this State Plan to the U.S. EPA.

West Virginia Plan (Remaining Designated Facilities)¹⁴

Proposed 45 C.S.R. 44, *Control of Greenhouse Gas Emissions from Existing Coal-Fired Electric Utility Generating Units*, was filed June 24, 2020 with the Secretary of State in time for consideration during the upcoming 2021 legislative session. The agency approved version of 45 C.S.R. 44 was filed on August 26, 2020 following the public comment period, and the modified version of 45 C.S.R. 44 was filed on September 28, 2020 following action taken by Legislative Rulemaking Review Committee meeting. West Virginia intends to submit the final rule to the U.S. EPA as a component of the State Plan for the remaining designated facilities in West Virginia in accordance with 40 C.F.R. § 60.5745a.

Under the authority of sections 22-5-4 and 22-5-20 of the West Virginia Code, this rule regulates greenhouse gas emissions, in the form of CO₂, from existing coal-fired electric generating units that commenced construction on or before January 8, 2014 meeting the definition of a designated facility. The rule establishes the applicability criteria, permit application requirements, permit requirements, standards of performance requirements, and monitoring, recordkeeping and reporting requirements for designated facilities to control carbon dioxide emission rates based on the heat rate improvements analysis that can be applied to or at the affected steam generating unit. The rule implements the federal emission guidelines established at 40 C.F.R. Part 60, Subpart UUUUa in accordance with 40 C.F.R. Part 60, Subpart Ba.

The rule requires any owner or operator of any affected steam generating unit in existence on the effective date of this rule submit a complete permit application in accordance with the procedural requirements for a construction or modification permit set forth in 45 C.S.R. 13 to the Secretary within 120 days of the effective date of this rule. The application shall contain enough information that, in the judgment of the Secretary, enables the Secretary to determine the appropriate standard of performance and applicable monitoring, reporting and recordkeeping requirements for each affected steam generating unit. The permit application shall at a minimum include the information required by section 4 of 45 C.S.R. 44, as applicable.

Section 5.1 of 45 C.S.R. 44 forbids any person to operate any affected steam generating unit meeting the applicability requirements set forth in section 3 of 45 C.S.R. 44 without obtaining a permit in accordance with this rule and the procedural requirements of 45 C.S.R. 13. Section 5.3 of 45 C.S.R. 44 requires the Secretary to establish a standard of performance for each affected steam generating unit in a permit issued pursuant to the procedural requirements of 45 C.S.R. 13. Section 5.5 of 45 C.S.R. 44 requires the Secretary to establish monitoring, recordkeeping, and reporting requirements and establish compliance requirements in a permit issued pursuant to the procedural requirements of 45 C.S.R. 13. Section 5.6 of 45 C.S.R. 44 requires the Secretary to establish a compliance period for each standard of performance in a permit issued pursuant to the procedural requirements of 45 C.S.R. 13.

¹⁴*Ibid.*

4.9. Legal Authority [40 C.F.R. § 60.26a]

Pursuant to 40 C.F.R. § 60.26a(a), State Plans must show that states have legal authority to carry out the plan including the authority to adopt standards of performance and compliance schedules applicable to designated facilities and to enforce applicable laws, regulations, standards, compliance schedules and seek injunctive relief. Pursuant to 40 C.F.R. § 60.26a(b), the provisions of law or regulations which the state determines provide the authorities required by this section shall be specifically identified. Copies of such laws or regulations shall be submitted with the plan unless they have been approved as portions of a preceding plan submitted under this subpart or as portions of an implementation plan submitted under section 110 of the Act; and the State demonstrates that the laws or regulations are applicable to the designated pollutant(s) for which the plan is submitted.

The DAQ has the statutory and regulatory authority under West Virginia Code §§ 22-5-1 et seq. (see Appendix H) to adopt and enforce rules and regulations to implement the West Virginia State Plan. West Virginia Code § 22-5-4(a)(4) authorizes the Director to promulgate legislative rules relating to the control of air pollution. The authority for 45 C.S.R. 13 is provided under West Virginia Code §§ 22-5-11, *Construction, modification or relocation permits required for stationary sources of air pollutants*. Section 5.7 of 45 C.S.R. 13 states:

The Secretary shall issue such permit or registration unless he or she determines that the proposed construction, modification, registration or relocation will violate applicable emission standards, will interfere with attainment or maintenance of an applicable ambient air quality standard, cause or contribute to a violation of an applicable air quality increment, or be inconsistent with the intent and purpose of this rule or W. Va. Code § 22-5-1, et seq., in which case the Secretary shall issue an order denying such construction, modification, relocation and operation.

Senate Bill 810 which was passed during the West Virginia Legislature's 2020 Regular Session (see Appendix G) and became effective June 2, 2020 amended § 22-5-20 of the West Virginia State Code relating to the development of a State Plan to implement the federal ACE rule. It requires the West Virginia DEP to submit a complete or partial State Plan to the U.S. EPA if one or more EGU facilities are voluntarily prepared to move forward with a compliance plan for one or more of their EGUs.

Under West Virginia Code § 22-5-4(a)(7), the Director is authorized to encourage voluntary cooperation by municipalities, counties, industries, and others in preserving the purity of the air within the state.

LVP voluntarily requested a permit to operate the stationary source under enforceable terms, as allowed under 45 C.S.R. 13 § 5.5 (see Appendix A). The Longview Power LLC Permit R13-3495 went to public notice on October 9, 2020. Section 4.1.1 of the Permit R13-3495 establishes the standards of performance with compliance demonstration requirements provided in sections 4.4.4 and 4.4.5. The LVP Permit R13-3495 and corresponding engineering evaluation are provided in Appendix I of this State Plan. Under West Virginia Code § 22-5-6, the violation of a permit is subject to the same enforcement remedies as the violation of a rule.

For the remaining coal fired EGUs in West Virginia that are designated facilities, the DAQ intends to implement the federal ACE emission guidelines in accordance with proposed legislative rule 45 C.S.R. 44¹⁵ upon finalization and promulgation. The requirement for a designated facility to obtain a permit is established in §§ 4.1, 4.2, and 5.1; for the Secretary to establish a standard of performance for each designated facility in §5.3; and to establish compliance schedules in § 5.6 of legislative rule 45 C.S.R. 44.

¹⁵*Ibid.*

State Plans must also demonstrate the State has authority to obtain information necessary to determine compliance with applicable laws, regulations, standards, and compliance schedules, including authority to require recordkeeping and to make inspections and conduct tests of designated facilities.

Regarding the enforcement of applicable laws, regulations, standards, and compliance schedules, the West Virginia DEP has several enforcement mechanisms available under state law, including permits, administrative orders, civil and criminal penalties, and injunctive relief, detailed below.

The standards of performance and compliance schedules for LVP included in the State Plan are both state and federally enforceable under Permit R13-3495. Any violation of such standards or schedules constitutes a violation of a West Virginia permit and is subject to civil penalties of up to \$10,000 for each day of violation and criminal penalties of up to \$25,000 for each day of violation and/or imprisonment for up to one year in jail. W.Va. Code § 22-5-6. In addition to civil and criminal penalties, the West Virginia DEP may seek injunctive relief against any person in violation of any permit or rule. West Virginia Code § 22-5-7.

Under West Virginia Code §§ 22-5-4(a)(5) and (6) and 22-5-5, the West Virginia DEP may issue administrative orders including cease and desist orders and orders suspending, modifying, or revoking permits. Such administrative orders may be appealed to the Air Quality Board, an administrative board with quasi-judicial powers. The West Virginia DEP may also collect administrative penalties from a source in violation of a rule under an administrative consent order. W. Va. Code § 22-5-4(a)(18).

Permit R13-3495 was issued to LVP under the authority of West Virginia Code § 22-5-11 by the West Virginia DAQ and ensures compliance with all applicable requirements, including the standards of performance and compliance schedules that are enforceable permit conditions. Under West Virginia Code § 22-5-6, the violation of a permit is subject to the same enforcement remedies as the violation of a rule.

In addition to the authority to adopt and enforce the applicable emission standards and compliance schedules, the West Virginia DEP has authority to obtain information necessary to determine the compliance status of existing facilities, including requiring facilities to maintain compliance records:

(a) The director is authorized:

(14) To require any and all persons who are directly or indirectly discharging air pollutants into the air to file with the director such information as the director may require in a form or manner prescribed by him or her for such purpose, including, but not limited to, location, size and height of discharge outlets, processes employed, fuels used and the nature and time periods of duration of discharges. Such information shall be filed with the director, when and in such reasonable time, and in such manner as the director may prescribe.

W.Va. Code § 22-5-4(a)(14).

The West Virginia DEP also has the authority to conduct inspections and tests of existing facilities:

(a) The director is authorized:

(6) To consider complaints, subpoena witnesses, administer oaths, make investigations, and hold hearings relevant to the promulgation of rules and the entry of compliance orders hereunder; and

(9) To enter and inspect any property, premise, or place on or at which a source of air pollutants is located or is being constructed, installed or established at any reasonable time for the purpose of ascertaining the state of compliance with this article and rules promulgated under the provisions of this article. No person shall refuse entry or access to any authorized representative of the director who requests entry for purposes of inspection, and who presents appropriate credentials; nor shall any person obstruct, hamper or interfere with any such inspection: Provided, that nothing contained in this article eliminates any obligation to follow any process that may be required by law.

Id. at (a)(6) and (9).

An additional authority which must be demonstrated in the plan is the agency's authority to require the use of monitors and require emission reports of existing facilities:

(15) To require the owner or operator of any stationary source discharging air pollutants to install such monitoring equipment or devices as the director may prescribe and to submit periodic reports on the nature and amount of such discharges to the director.

Id. at (a)(15).

The West Virginia DEP has authority to include conditions in any administrative orders or permits issued to existing facilities to ensure compliance with such conditions. W.Va. Code §§ 22-5-4(a)(5), 22-5-5, 22-5-11, and 22-5-12.

The state must have authority to make emission data from existing facilities available to the public. The West Virginia DEP has such authority:

All air quality data, emission data, permits, compliance schedules, . . . shall be available to the public, except that upon a showing satisfactory to the director . . . that records, reports, data, or information . . . would divulge methods or processes entitled to protection as trade secrets . . . the director shall consider such records . . . confidential: Provided, that such confidentiality does not apply to the types and amounts of air pollutants discharged and that such records . . . may be disclosed to other officers, employees or authorized representatives of the state or of the federal environmental protection agency . . . Provided, however, That such officers, employees or authorized representatives . . . protect such records . . . to the same degree required of the director by this section. . . .

W. Va. Code § 22-5-10. See also, 45 C.S.R. 31 § 2.4 for the definition of the term "types and amounts of pollutants discharged."

In addition to W.Va. Code § 22-5-10, the state's Freedom of Information Act requires the West Virginia DEP to make records available to the public upon request, unless such records specifically fall under one of the exemptions contained in the Act (one of which is an exemption for "trade secrets"). See, W.Va. Code §§ 29B-1-1 et seq (Appendix H).

Lastly and in accordance with 40 C.F.R. § 60.26a(c), the plan must show that the legal authorities specified in this section are available to the State at the time of submission of the plan. Permit R13-3495 was issued to Longview Power LLC prior to West Virginia submitting this State Plan to the U.S. EPA for approval. All references in this section to West Virginia Code §§ 22-5-1 et seq. and 29B-1-1 et seq. are in effect at the time of submission of this State Plan. The effective date for each referenced section of the West Virginia Code §§ 22-5-1 et seq. and 29B-1-1 et seq are provided in Table 4.9 below:

Table 4.9 - W. Va. Code Effective Dates

Chapter 22. Environmental Resources. Article 5. Air Pollution Control.	Title:	Effective Date:
§ 22-5-1.	Declaration of policy and purpose	June 7, 2008
§ 22-5-2.	Definitions	1994
§ 22-5-3.	Causing statutory pollution unlawful; article not to provide persons with additional legal remedies	1994
§ 22-5-4.	Powers and duties of director; and legal services; rules	1994
§ 22-5-5.	Issuance of cease and desist orders by director; service; permit suspension, modification and revocation; appeals to board	1999
§ 22-5-6.	Penalties; recovery and disposition; duties of prosecuting attorneys	1999
§ 22-5-7.	Applications for injunctive relief	1994
§ 22-5-8.	Emergencies	1994
§ 22-5-9.	Powers reserved to secretary of the department of health and human resources, commissioner of bureau of public health, local health boards and political subdivisions; conflicting statutes repealed	1994
§ 22-5-10.	Records, reports, data or information; confidentiality; proceedings upon request to inspect or copy	2003
§ 22-5-11.	Construction, modification or relocation permits required for stationary sources of air pollutants	June 7, 2008
§ 22-5-11a.	Activities authorized in advance of permit issuance	June 7, 2008
§ 22-5-12.	Operating permits required for stationary sources of air pollution	1994
§ 22-5-13.	Consolidation of permits	1994
§ 22-5-14.	Administrative review of permit actions	June 7, 2008
§ 22-5-15.	Motor vehicle pollution, inspection and maintenance	1999
§ 22-5-16.	Small business environmental compliance assistance program, compliance advisory panel	1994
§ 22-5-17.	Interstate ozone transport	1996
§ 22-5-18.	Market-based banking and trading programs, emissions credits; director to promulgate rules	2000
§ 22-5-19.	Inventory of greenhouse gases	June 8, 2012
§ 22-5-20.	Development of a state plan relating to carbon dioxide emissions from existing fossil fuel-fired electric generating units	June 2, 2020
Chapter 29B. Freedom of Information Article 1. Public Records	Title:	Effective Date:
§ 29B-1-1.	Declaration of policy	1977
§ 29B-1-2.	Definitions	June 1, 2016
§ 29B-1-3.	Inspection and copying of public record; requests of Freedom of Information Act requests registry	June 12, 2015
§ 29B-1-3a.	Reports to Secretary of State by public bodies	June 12, 2015
§ 29B-1-4.	Exemptions	June 5, 2018
§ 29B-1-5.	Enforcement	1977
§ 29B-1-6.	Violation of article; penalties	2001
§ 29B-1-7.	Attorney fees and costs	1992

Senate Bill 810 was passed during the 2020 West Virginia Legislature's Regular Session and became effective June 2, 2020. Senate Bill 810 is an act to amend and reenact § 22-5-20 of the West Virginia State Code relating to adoption of a state plan implementing the federal Affordable Clean Energy rule.

All references to the proposed legislative rule 45 C.S.R. 44 are provided solely to communicate West Virginia DEP's intentions when the final rule is promulgated for inclusion in a future State Plan for the remaining designated facilities that West Virginia intends to submit to the U.S. EPA in accordance with 40 C.F.R. § 60.5710a.

In conclusion, the West Virginia DEP possesses the requisite authority to adopt, implement, and enforce all necessary elements of the West Virginia § 111(d) plan for the existing coal fired EGU owned and operated by LVP located in Madsville, West Virginia.

The West Virginia DEP has satisfied the legal authority requirements of 40 C.F.R. Part 60, Subparts Ba.

5.0. Conclusion

West Virginia has one or more existing coal fired EGUs meeting the definition of a designated facility that commenced construction on or before January 8, 2014 and herein submits this State Plan to implement the emission guidelines of 40 C.F.R. Part 60, Subpart UUUUa, *Emission Guidelines for Greenhouse Gas Emissions from Existing Electric Utility Generating Units*, at Longview Power LLC.

As discussed in Section 4.9, this State Plan relies upon existing West Virginia DEP legal authority. Having herein demonstrated that all required elements for the GHG emissions from the existing designated EGU (SB1) at LVP have been satisfied in this State Plan submittal and having provided the mechanisms to implement and enforce such standards, the West Virginia DEP respectfully requests that the U.S. EPA approve this *West Virginia CAA §111(d) Partial Plan for Greenhouse Gas Emissions from Existing Electric Utility Generating Units (EGUs)*. The West Virginia State Plan implements the emission guidelines of 40 C.F.R. Part 60, Subpart UUUUa, *Emission Guidelines for Greenhouse Gas Emissions from Existing Electric Utility Generating Units*, at the LVP facility located in Madsville, West Virginia and fulfills the state's obligations under § 111(d)(1) of the CAA in regard to this designated facility.

West Virginia intends to submit a future State Plan for the remaining designated facilities in West Virginia to the U.S. EPA for approval as required by 40 C.F.R. §§ 60.5710a and 60.5745a. West Virginia intends to satisfy its full obligation when the State Plan for all remaining designated facilities located within West Virginia is submitted to the U.S. EPA for approval, thus demonstrating the implementation of said emission guidelines for all designated facilities located in West Virginia.