

**BEFORE THE ADMINISTRATOR
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY**

IN THE MATTER OF:)
) PETITION FOR OBJECTION
The Clean Air Act Title V)
Operating Permit for the) PERMIT #V20690.R02
Arizona Public Service)
Company’s Sundance Power)
Plant, Pinal County, Arizona)

**PETITION FOR OBJECTION TO THE TITLE V OPERATING
PERMIT V20690.R2 FOR ARIZONA PUBLIC SERVICE
COMPANY’S SUNDANCE POWER PLANT FINALIZED ON
MAY 9, 2024**

Pursuant to section 505(b)(2) of the Clean Air Act, 42 U.S.C. § 7661d(b)(2), and 40 C.F.R. § 70.8(d), Sierra Club hereby petitions the Administrator of the United States Environmental Protection Agency (“EPA”) to object to the Title V Operating Permit issued by Pinal County, State of Arizona, authorizing Arizona Public Service Company’s (“APS” or “Applicant”) construction of an expansion of the Sundance Power Plant (“Sundance”), issued as final on May 9, 2024, Permit Revision #V20690.R02 (“Permit” or “Final Permit”).¹ Sierra Club described the deficiencies with the draft permit² in detailed written comments filed with Pinal County Air Quality Control District (“PCAQCD”) on January 29, 2024.³

The Final Permit falls short of satisfying applicable Clean Air Act regulations, including those established by PCAQCD and the State of

¹ Pinal County Final Permit No. V20690.R02 (“Final Permit”), attached as Exhibit 1 hereto.

² Pinal County Draft Permit No. V20690.R02 (“Draft Permit”), attached as Exhibit 2 hereto.

³ Sierra Club comment letter on Draft Permit dated January 29, 2024, attached as Exhibit 3 hereto.

Arizona. Importantly, the Final Permit fails to ensure enforceability, or practical enforceability, of PM2.5 emission limitations. For the reasons stated herein, EPA should issue an order objecting to the Final Permit.

Factual Background

APS owns and operates the Sundance Power Plant, a natural gas-fired electrical generating facility located in Casa Grande, Arizona. The existing facility consists of ten simple cycle combustion turbines (CT1-CT10), each with a nameplate generating capacity of 45 megawatts, and the plant currently has a combined nominal generating capacity of 450 MW. APS has proposed to construct two new simple cycle combustion turbines at the existing Sundance Plant. Specifically, the modification will consist of two new natural gas-fired aeroderivative General Electric (“GE”) LM6000PC combustion turbines (CT11 and CT12) with spray intercooling (“SPRINT”) performance augmentation and a maximum nominal output of 49.6 megawatts (“MW”) each. The Sundance Plant is located in a part of West Pinal County that is designated as a serious nonattainment area for PM10, and the area is designated as attainment or unclassifiable for all other criteria pollutants. PCAQCD has issued a significant revision to the Sundance Plant Title V permit to construct and operate these two new simple cycle turbines.⁴

The Final Permit is for a facility that is defined as a “major source” under Arizona’s rules because the Sundance facility has the potential to emit several pollutants – in this case, carbon monoxide (“CO”), particulate matter with an aerodynamic diameter equal to or less than 10 micrometers (“PM10”), and nitrogen oxides (“NOx”) – in excess of 100 tons per year (“tpy”).⁵ Accordingly, Arizona’s permitting regulations apply except to the extent the Pinal County rules are more stringent, in which case the Pinal County rules would apply, pursuant to a delegation agreement between the State of Arizona and PCAQCD.⁶

⁴ Exhibit 1 (Final Permit)

⁵ See Arizona Administrative Code (A.A.C.) R18-2-101(75). See also Exhibit 1, Final Permit at 4.

⁶ See EPA, Order Responding to Petition Requesting Objection to the Issuance of Title V Operating Permit, In the Matter of Salt River Project Agricultural Improvement and Power District, Desert Basin Generating Station, Pinal County Arizona, Permit No. V20678.R02, Petition No. IX-

For the following reasons, Sierra Club requests that EPA object to the Final Permit and related documentation for failure to comply with the requirements of the Clean Air Act, federal regulations, and Arizona/Pinal County regulations.

PETITION CLAIM 1

The Administrator Must Object to the Final Permit Because PCAQCD Failed to Impose Adequate Terms and Conditions to Create Enforceable Limitations on the New Turbines' Potential to Emit.

Sierra Club's comment letter establishes that Pinal County's Final Permit failed to impose the required terms and conditions to create legally enforceable limitations on the new turbine's potential to emit regulated air pollutants.⁷

Rationale Provided by Pinal County as to Why the Final Permit Creates Enforceable Limitations on the New Turbines' Potential to Emit.

Pinal County's Responsiveness Summary on this issue states in relevant part:

e. Performance Testing

Sierra Club requested that the draft permit require performance testing during SU/SD events. Sierra Club also requested that the permit include additional testing for PM and VOC emissions after the initial compliance test. With respect to SU/SD emissions, any NO_x and CO emissions during SU/SD will be captured by the required continuous emissions monitoring systems (CEMs). With

2022-3, July 29, 2022, at 15; *see also* Delegation Agreement labeled as Pinal County Air Quality Management, Appendix C at 3 § D(1)(a) (attached as Exhibit 4 hereto).

⁷ Exhibit 3 at 2-9 (Sierra Club comments on Draft Permit).

respect to PM and VOC emissions during SU/SD, these emissions are generally unaffected by SU/SD events and the emissions testing data collected during normal operations will adequately characterize SU/SD emissions for PM and VOCs.

Section § 6.B.6 of the permit has been amended to require recurring testing for VOC and PM10 for all the units, CT01-CT-12.

Section §6.A.4 of the draft permit has been amended to require that the test reports for the listed pollutants are expressed in the same units as the emission limitation imposed under the permit for that specific pollutant.⁸

Relevant Conditions in the Final Permit

The relevant conditions in the Final Permit are: Sections 4.C.4 through 6.

Detailed Demonstration of Permit Deficiency and PSD Applicability

I. The Final Permit Fails to Contain Adequate Terms and Conditions to Create Enforceable Limitations on the New Turbines' Potential to Emit.

PCAQCD claims that the Final Permit imposes emissions limits and operating limits below the thresholds that would trigger major new source review (“NSR”) including prevention of significant deterioration (“PSD”) and nonattainment NSR.⁹ PCAQCD also states that, based on the proposed limits, the only pollutants that exceed the minor NSR permitting exemption thresholds in Arizona Administrative Code (A.A.C.) R18-2-101(101) are NOx, PM10, and particulate matter less than 2.5 microns (“PM2.5”).¹⁰

⁸ Response to Public Comments for Pinal County Final Permit No. V20690.R02, at 4-5, attached as Exhibit 5 hereto.

⁹ Technical Support Document for Pinal County Final Permit No. V20690.R02 at 2, attached as Exhibit 6 hereto.

¹⁰ *Id.*

The applicable rules for creating federally enforceable limits on the potential to emit of a source are found in A.A.C. R18-2-306.01 and PCAQCD Regulation §3-1-084. PCAQCD Regulation §3-1-084 provides as follows:

A permit may, for the purpose of creating federally enforceable conditions that limit the potential emissions of a source, designate as a “federally enforceable provision” (“FEP Limit”) any emission limit in conjunction with a production limit and/or operational limit expressed in the permit. A FEP Limit must be permanent, quantifiable and enforceable as a practical matter, and shall be at least as stringent as otherwise applicable limitations and requirements under either the SIP or pertinent provision of the Clean Air Act (1990), and shall not operate to relieve any other legal restriction on emissions.¹¹

A.A.C. R18-2-306.01 defines “enforceable as a practical matter” to mean that “specific means to assess compliance with an emissions limitation, control, or other requirement are provided for in the permit in a manner that allows compliance to be readily determined by an inspection of records and reports.”¹²

EPA has stated the following regarding the criteria for limits to be enforceable as a practical matter:

In general, practical enforceability for a source-specific permit term means that the provision must specify (1) a technically accurate limitation and the portions of the source subject to the limitation; (2) the time period for the limitation (hourly, daily, monthly, annually); and (3) the method to determine compliance including appropriate monitoring, record keeping and reporting.¹³

¹¹ PCAQD Reg. § 3-1-084(1) (emphasis added).

¹² A.A.C. R18-2-306.01

¹³ See Memorandum from Kathie Stein, Director, EPA Air Enforcement Div. on Guidance and Enforceability Requirements for Limiting the

PCAQCD has proposed the following FEP limits for the two new simple cycle turbines at the Sundance Plant (CT11 and CT12):¹⁴

Table 1. PCAQCD’s Voluntary Emission Limits Intended to Limit Potential to Emit from the Two New Combustion Turbines (CT11 and CT12) at the Sundance Plant.

Pollutant	Short Term Limit (excluding startup, shutdown, or malfunction)	Long Term Limit (applies to all periods of operation including startup and shutdown)
PM10/PM2.5	7.0 lb/hr	9.3 tons/12-month rolling total sum
PM	7.0 lb/hr	NA
NOx	5.0 parts per million dry volume (ppmvd) at 15% oxygen (O2), 24-operating hour average	24.7 tons/12-month rolling total sum
CO	15 ppmvd at 15% O2	44.3 tons/12-month rolling total sum
VOC	4.5 lb/hr	7.9 tons/12-month rolling total sum

There are several deficiencies in the emissions and operational limits that PCAQCD imposed that are intended to create limits that are enforceable as a practical matter in order to allow the new combustion turbines at the Sundance plant to avoid major NSR requirements for all pollutants and minor NSR review for all pollutants other than NOx, PM10, and PM2.5. Indeed, the terms and conditions of the Final Permit fail to create adequate or practically enforceable limits on the potential to emit of the new combustion turbines. These issues are discussed in detail below.

Potential to Emit through SIP and §112 Rules and General Permits at 6 (Jan. 25, 1995), available at <https://www.epa.gov/sites/default/files/2015-08/documents/potoem.pdf>, attached as Exhibit 7 hereto.

¹⁴ Exhibit 1, Final Permit #V20690.R02 at 9, Condition 4.C.

A. The PM2.5 Limits Are Not Practically Enforceable Because They Lack Periodic Testing Under the Terms of the Final Permit.

The Final Permit fails to require sufficient periodic testing of PM2.5 from CT11 and CT12 to show compliance with the 7.0 lb/hr PM2.5 limit. Specifically, the Final Permit requires an initial performance test for PM10, PM2.5, and VOC emissions within 60 days of startup of the new combustion turbines, but it does not require any additional, recurring stack testing at CT11 or CT12 for PM2.5. PCAQCD has not justified only requiring stack testing for PM2.5 once in the lifetime of CT11 or CT 12, and has not shown that such infrequent testing is adequate to ensure compliance with the ton per rolling 12-month period limits on this pollutant.

Emissions of PM2.5 from combustion turbines can vary greatly. In a 2010 memo, GE Energy explained the various ways that PM emissions could vary from the GE LM6000 combustion turbines.¹⁵ GE explained that the main sources of PM from the gas turbines are:

- Formation of sulfur trioxide (SO₃) from sulfur in the fuel;
- Formation of ammonium sulfates from trace ammonia in the selective catalytic reduction (SCR) system and trace sulfur in the fuel;
- Particulate matter in the ambient air that gets past the inlet filtration systems;
- Contaminants in the water used for NO_x control;
- Contaminants in tempering air and other bypass air used for after treatment purposes; and
- Uncertainties in measurement system contributing to positive bias and variance.¹⁶

The GE analysis for a similar turbine as that planned for CT11 and CT 12 at the Sundance Plant shows that particulate emissions can have

¹⁵ GE Energy, “PM10 Emissions from LM6000 for Mariposa Energy, LLC,” attached as Exhibit 8 hereto.

¹⁶ *Id.* at 2.

“significant variation,” with the main sources of variation being due to ambient air quality conditions, the fuel quality (i.e., sulfur content in the natural gas), the water quality, and measurement uncertainty.¹⁷ In addition, GE pointed out that its analysis of emissions variability did not account for “additional contributions due to natural deterioration in site conditions and decline in the effectiveness of SCR catalysts with time, which may lead to additional PM10 formation from trace ammonia.”¹⁸

Further, PCAQCD recently required recurring periodic testing of PM2.5 in a Title V permit. Specifically, PCAQCD’s most recent Final Title V Permit for the Desert Basin Generating Station requires PM2.5 subsequent and recurring performance testing.¹⁹ Like the Sundance Station, Desert Basin is also located in Casa Grande, Arizona. Maricopa County also recently required recurring performance testing for PM2.5 in its Final Title V Permit for the Agua Fria Generating Station.²⁰

Thus, the one-time test requirement for PM2.5, emissions under the Final Permit is not sufficient to demonstrate that CT11 and CT12 are complying with the 7.0 lb/hr PM2.5 limit on a continuous basis. Further, if these performance test results were to be used to assess compliance with the ton per rolling 12-month period limits on PM2.5, such infrequent testing will not ensure accurate compliance assessments with 12-month total PM2.5 emission limits from CT11 and CT12.

For all of these reasons, the terms and conditions of the Final Permit do not adequately ensure practical enforceability of limitations on emissions of PM2.5 from the two new combustion turbines (CT11 and CT12) at the Sundance Plant.

CONCLUSION

In summary, for the reasons stated above, we request that EPA object to Pinal County’s Sundance Title V Operating Permit.

¹⁷ *Id.* at 7.

¹⁸ *Id.*

¹⁹ Desert Basin Title V Permit V20678.R02 at 21-23, attached as Exhibit 9 hereto.

²⁰ Agua Fria Title V Permit P00009346 at 17, attached as Exhibit 10 hereto.

DATED: June 27, 2024

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EXHIBITS TO PETITION

- Exhibit 1: Final Permit No. V20690.R02
- Exhibit 2: Draft Permit No. V20690.R02
- Exhibit 3: Sierra Club Comments on Draft Permit, January 29, 2024
- Exhibit 4: Pinal County Air Quality Management Delegation Agreement
- Exhibit 5: Response to Public Comments for Final Permit No. V20690.R02
- Exhibit 6: Technical Support Document for Final Permit No. V20690.R02
- Exhibit 7: Memorandum from Kathie Stein, Director, EPA Air Enforcement Div. on Guidance and Enforceability Requirements for Limiting the Potential to Emit through SIP and §112 Rules and General Permits (Jan. 25, 1995)
- Exhibit 8: GE Energy, PM10 Emissions from LM6000 for Mariposa Energy, LLC
- Exhibit 9: Desert Basin Title V Permit V20678.R02
- Exhibit 10: Agua Fria Title V Permit P00009346

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