EARTHJUSTICE

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NORTHWEST ROCKY MOUNTAIN WASHINGTON, DC INTERNATIONAL

July 14, 2015

Submitted via electronic mail

Balaji Vaidyanathan
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Arizona Department of Environmental Quality
1110 West Washington Street, 3415A-1
Phoenix, AZ 85007

Re: Arizona Regional Haze Plan Revision for Cholla Power Plant

Dear Mr. Vaidyanathan:

On behalf of National Parks Conservation Association and Sierra Club (collectively, the "Conservation Organizations"), Earthjustice respectfully submits the following comments regarding the Arizona Department of Environmental Quality's (ADEQ) proposed Best Available Retrofit Technology (BART) "reassessment" for the Cholla Power Plant.

Cholla is one of the worst visibility-impairing coal plants in the nation, and the Conservation Organizations strongly support Arizona Public Service Company (APS) and PacifiCorp's commitment to stop burning coal at Cholla. Unfortunately, compared to Cholla's existing BART requirements, ADEQ's proposal would result in greater air pollution and worse visibility impairment at Arizona's national parks and wilderness areas for nearly two decades after the BART compliance deadline. The proposal thus weakens Cholla's existing BART determination in violation of the Clean Air Act's anti-backsliding provision. *See* 42 U.S.C. § 7410(*l*). Fortunately, ADEQ's analysis shows it would be cost effective to install updated pollution controls that would substantially reduce Cholla Unit 3 and 4's pollution before they stop burning coal in 2025. At a minimum, Selective Non-Catalytic Reduction (SNCR) controls should be BART. Moreover, a proper analysis shows that highly-effective Selective Catalytic Reduction (SCR) controls are the "best available" controls and should be BART. Accordingly, in order to ensure the BART "reassessment" complies with the Act, ADEQ should revise its BART determination and require Units 3 and 4 to install these updated, cost-effective pollution controls by the BART compliance deadline.

BACKGROUND

I. The Clean Air Act's Regional Haze Program

Americans have long valued our nation's diverse and stunning natural scenery. John Copeland Nagle, *The Scenic Protections of the Clean Air Act*, 87 N.D. L. Rev. 571, 576 (2011). In what has been lauded as "America's best idea," Congress first set aside national parks in the 19th century to preserve and celebrate some of the nation's most spectacular scenery. *Id.* With

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the nation's rapid industrialization, however, these remarkable scenic views have become increasingly marred by air pollution. *See id.* at 573. Today, air pollution is "perhaps the greatest threat to national parks," and pollution all too often degrades visibility in these iconic scenic areas. *Id.*

To reduce this threat to national parks and other treasured public lands, Congress amended the Clean Air Act in 1977. 42 U.S.C. § 7491. Congress determined that national parks, wilderness areas, and other "Class I" federal areas should enjoy the highest level of air quality, and it set a national goal of eliminating all human-caused visibility impairment at these areas. *Id.* § 7491(a)(1). After concluding that the states and the U.S. Environmental Protection Agency (EPA) had not made adequate progress toward reducing visibility impairment caused by regional haze, Congress again amended the Clean Air Act in 1990 to spur regional haze reductions. *Id.* § 7492.

One of the primary mechanisms to reduce regional haze is the Clean Air Act's requirement that certain disproportionately-dirty sources install Best Available Retrofit Technology (BART) pollution controls. 42 U.S.C. § 7491(b)(2)(A); 40 C.F.R. § 51.308(e). A source is "BART-eligible" if it is within one of 26 source categories, it was built between 1962 and 1977, and it has the potential to emit 250 tons per year (tpy) or more of any air pollutant. 42 U.S.C. § 7491(b)(2)(A), (g)(7); 40 C.F.R. § 51.301. EPA's regulations define BART as "an emission limitation based on the degree of reduction achievable through the application of the *best* system of continuous emission reduction." 40 C.F.R. § 51.301 (emphasis added). States and EPA must consider five factors when making BART determinations: (1) the costs of compliance, (2) the energy and non-air quality environmental impacts, (3) existing pollution controls in use at the source, (4) the source's remaining useful life, and (5) the reasonably anticipated visibility improvements. 42 U.S.C. § 7491(g)(2); 40 C.F.R. § 51.308(e)(1)(ii)(A).

BART is an essential component of the regional haze program because Congress largely grandfathered the antiquated sources subject to BART into many of the Clean Air Act's requirements. *See* 2005 Regional Haze Rule, 70 Fed. Reg. 39,104, 39,111 (July 6, 2005). Consequently, many of these older sources have insufficient pollution controls. BART compels these disproportionately-polluting sources to promptly install up-to-date and cost-effective pollution controls. 42 U.S.C. § 7491(b)(2)(A), (g)(4) (sources must install BART controls "as expeditiously as practicable but in no event later than five years").

On December 5, 2012, EPA finalized the BART determination for the Cholla Power Plant. Final BART Rule, 77 Fed. Reg. 72,512 (Dec. 5, 2012). For nitrogen oxides (NOx) pollution, EPA's BART determination requires Cholla Units 2-4 to meet a 0.055 lb/MMBtu emission limit, determined on a 30-day rolling average across all three units. *Id.* at 72,514–15. EPA found that Cholla can cost-effectively achieve this BART emission limit by installing SCR controls on all three units. *See, e.g., id.* at 72,543–46. EPA set a five-year compliance deadline for its BART determination, which requires Cholla to comply with the BART emission limits by December 5, 2017. *Id.* at 72,578.[1]

[1] On April 9, 2013, EPA granted APS's and PacifiCorp's petitions for reconsideration on a discrete compliance methodology issue regarding whether the BART emission limit should be averaged across

II. Cholla's Visibility, Economic, and Public Health Impacts

Arizona is home to a wealth of iconic national parks and wilderness areas, such as Grand Canyon, Saguaro, and Petrified Forest National Parks. Cholla emits large amounts of air pollution that obscures the renowned scenic views at these Class I areas. *See, e.g.*, Proposed BART Rule, 77 Fed. Reg. 42,834, 42,860 (July 20, 2012) (Cholla Units 2-4 collectively emit over 9,400 tpy of NOx pollution). According to the National Park Service, Cholla's visibility impacts "rank among [the] highest of any facility we have evaluated under the BART program."[2] In total, Cholla Units 2-4 cause an 18.3 deciview (dv) cumulative visibility impact across 13 Class I areas in Arizona and nearby states. Proposed BART Rule, 77 Fed. Reg. at 42,861. These substantial visibility impacts include a 4.53 dv impact at Petrified Forest National Park, a 2.22 dv impact at Grand Canyon National Park, and a 1.46 dv impact at Capitol Reef National Park. *Id.*

The national parks and wilderness areas impacted by Cholla's air pollution preserve the region's most inspiring landscapes, rare geological formations, and diverse flora and fauna. Each of these Class I areas is entitled to the highest level of air quality under the Clean Air Act. *See, e.g.*, 42 U.S.C. §§ 7470(2), 7475(a)(5), (d)(2), 7491, 7492. EPA's BART determination complies with this Clean Air Act mandate by significantly decreasing the visibility impairment caused by Cholla. For example, EPA's BART determination for Cholla will improve visibility by approximately 1.34 dv at Petrified Forest and by 1.06 dv at the Grand Canyon. Proposed BART Rule, 77 Fed. Reg. at 42,861. In total, EPA's BART determination for Cholla will result in a cumulative visibility improvement of over 7 dv across the 13 impacted Class I areas. *Id.*

Arizona's renowned national parks and wilderness areas are important components of the state's economy. In 2014, more than 4.7 million people visited the Grand Canyon, and this tourism supported more than 7,840 jobs and more than $509 million in visitor spending.[3] More than 836,000 people visited Petrified Forest last year, which supported more than 715 jobs and $51 million in visitor spending.[4] Studies show that national park visitors prioritize enjoying beautiful scenery when visiting national parks and will visit parks less during hazy conditions.[5] EPA's BART determination for Cholla will noticeably improve visibility at Arizona's national parks and wilderness areas, and thereby increase revenue to the parks and surrounding communities.

Reducing air pollution from Cholla will also improve public health. The same pollutants that mar scenic views at national parks and wilderness areas also cause significant public health

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Cholla's three BART units. The BART determination remains in place, and EPA has not yet taken any further action to implement a new compliance methodology.

[2] ADEQ Regional Haze SIP at App. E, pdf page 43 (NPS Comments on Cholla BART Analysis and Determination at page 1).

[3] Catherine Cullinane Thomas et al., Nat'l Park Serv., *2014 National Park Visitor Spending Effects* 19 (2015) (Ex. 1), *available at* http://www.nature.nps.gov/socialscience/economics.cfm.

[4] *Id.* at 23.

[5] Abt Assocs. Inc., *Out of Sight: The Science and Economics of Visibility Impairment* 32–34 (2000) (Ex.2), *available at* http://www.catf.us/resources/publications/files/Out_of_Sight2.pdf.

impacts. For example, NOx pollution is a precursor to ground level ozone, which is associated with respiratory diseases, asthma attacks, and decreased lung function. In addition, NOx reacts with ammonia, moisture, and other compounds to form particulates that can cause and worsen respiratory diseases, aggravate heart disease, and lead to premature death.[6] The Clean Air Task Force estimates that Cholla's overall air pollution causes 10 deaths, 16 heart attacks, and 190 asthma attacks every year.[7] The NOx reductions required by EPA's BART determination will reduce the serious public health toll Cholla imposes on Arizonans.[8]

DISCUSSION

On December 5, 2012, EPA issued the final BART determination for Cholla Power Plant. EPA's BART determination requires Cholla Units 2-4 to install and operate SCR controls by December 5, 2017. APS and PacifiCorp have concluded that installing SCR to comply with the BART determination would not be cost effective.[9] Instead, the utilities have determined that it would be more cost effective to comply with BART by retiring Units 2-4 by the December 2017 compliance deadline.[10] The utilities' analysis shows that retiring Cholla by December 2017 is more cost effective than installing SCR, even though the utilities' current coal contract contains a liquidated damages provision if Cholla stops burning coal before the contract ends in 2024.[11]

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6 EPA, Health – Nitrogen Dioxide, http://www.epa.gov/air/nitrogenoxides/health.html (last visited July 13, 2015) (Ex. 3).

7 Clean Air Task Force, Death and Disease From Power Plants, http://www.catf.us/fossil/problems/power_plants/ (last visited July 13, 2015) (Ex. 4).

8 Dr. George Thurston, Professor of Environmental Medicine at New York University School of Medicine, prepared an expert report on the significant public health benefits that would result from installing SCR at the nearby Navajo Generating Station (NGS) under the haze program. Dr. George D. Thurston, *Written Report Regarding the Proposed Navajo Generating Plant EPA Rulemaking* (Dec. 12, 2013) (Ex. 5). As just one example of the haze program's public health benefits, Dr. Thurston concluded that installing SCR at NGS would save between 2 to 5 lives every year, with total public health-based economic benefits of between $14 million and $34 million annually. *Id.* at 21.

9 *See, e.g.*, PacifiCorp, *2015 Integrated Resource Plan* (*IRP*) *Vol. III*, at 44 (2015) (Ex. 6) ("PacifiCorp's financial analysis shows that installation of SCR by an assumed compliance date of December 5, 2017, is not a cost effective solution for customers when evaluated against a range of compliance alternatives."), *available at* http://www.pacificorp.com/es/irp.html; *see also* Ariz. Pub. Serv. Co., *2014 Integrated Resource Plan* (*IRP*) 71 (2014) (Ex. 7) ("[I]t may be beneficial to retire the Cholla Power Plant or convert it to natural gas operation."), *available at* http://www.aps.com/en/ourcompany/ratesregulationsresources/resourceplanning/Pages/resource-planning.aspx; *id.* at 62 ("While continued operation of Cholla in the Base Portfolio would require $360 million in pollution control upgrades, conversion of the plant to natural gas is expected to cost $199 million including a new natural gas pipeline.").

10 *See, e.g.*, PacifiCorp, *2015 IRP Vol. III*, at 41 ("[T]he updated 2017 early retirement case is lower cost than installing SCR.").

11 *See, e.g.*, *id.* at 31 (discussing coal contract liquidated damages); APS, *2014 IRP* at 57 (discussing "coal reduction portfolio" scenario where Cholla Units 1 and 3 "would retire December 31, 2024 at the end of their coal contract").

The utilities have concluded that the cheapest course of action overall is to retire Cholla Unit 2 by April 2016, and then continue operating Units 3 and 4 without additional pollution controls until the current coal contract ends in 2024.[12] Then, by April 30, 2025, the utilities would cease burning coal at the remaining Cholla units and either retire the units or switch them to gas.

ADEQ acknowledges that the utilities' preferred course of action would not comply with the existing BART determination for Units 3 and 4, which requires the units to either install SCR or shut down by December 5, 2017.[13] The utilities' solution is to propose an entirely new BART determination for Cholla. This new BART determination, which ADEQ refers to as a BART "reassessment," would supersede the existing BART requirements and allow the utilities to continue burning coal at Cholla Units 3 and 4 for the next ten years without installing any additional pollution controls.

The Conservation Organizations strongly support the utilities' retirement plan to stop burning coal at Cholla. However, ADEQ's proposed BART "reassessment" violates the Clean Air Act because it would allow Units 3 and 4 to continue emitting large levels of pollution long after the BART compliance deadline without installing updated pollution controls. The BART "reassessment" thus violates the Clean Air Act's anti-backsliding provision, as it would result in more pollution and worse visibility impairment than the existing BART determination. 42 U.S.C. § 7410(*l*). In addition, ADEQ's BART analysis is flawed because it rejects SCR and SNCR controls as BART, even though both controls would cost-effectively reduce Unit 3 and 4's NOx pollution before they stop burning coal in 2025.

I. The Cholla BART "Reassessment" Violates The Clean Air Act's Anti-Backsliding Provision By Weakening the Existing BART Determination.

Clean Air Act section 110(*l*) prohibits states and EPA from revising an implementation plan if the revision would weaken the existing plan's requirements. Section 110(*l*) states: "The Administrator shall not approve a revision of a plan *if the revision would interfere with* any applicable requirement concerning attainment and reasonable further progress . . . or *any other applicable requirement of this chapter*." 42 U.S.C. § 7410(*l*) (emphases added). The Ninth Circuit has explained that section 110(*l*) is the Act's "anti-backsliding" provision. *El Comite Para el Bienestar de Earlimart v. EPA*, 786 F.3d 688, 692 (9th Cir. 2015). This anti-backsliding provision applies to existing BART determinations, as the Act's "applicable requirement[s]" include the regional haze program's BART requirements. *See Oklahoma v. EPA*, 723 F.3d 1201, 1204, 1207 (10th Cir. 2013) (BART determinations and other regional haze provisions are "applicable requirement[s]" of the Act).

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[12] *See, e.g.*, PacifiCorp, *2015 IRP Vol. III*, at 44 (PacifiCorp's "preferred compliance alternative" is an "alternate compliance scenario in which Cholla Unit 4 continues operating through early 2025 without the installation of SCR, followed by conversion of the unit to natural gas fueling.").

[13] *See* ADEQ SIP Revision at 4 ("Since the proposed conversion to natural gas-firing at Units 3 and 4 is beyond the five-year window for BART mandated by the CAA and Regional Haze Rule ('RHR'), this control strategy does not directly satisfy the BART option timing requirements for imposing BART.").

EPA has long interpreted section 110(*l*) as preventing implementation plan revisions that would increase overall air pollution or worsen air quality. For example, in *Kentucky Resources Council, Inc. v. EPA*, 467 F.3d 986 (6th Cir. 2006), EPA interpreted section 110(*l*) as allowing the agency to approve a plan revision that weakened some existing control measures while strengthening others, but only "[a]s long as *actual emissions in the air are not increased*." *Id.* at 995 (quoting 70 Fed. Reg. 28,429, 28,430 (May 18, 2005)) (emphasis added). The court upheld EPA's interpretation, which "allow[ed] the agency to approve a SIP *revision unless the agency finds it will make the air quality worse*." *Id.* (emphasis added). The Eleventh Circuit has similarly upheld an EPA interpretation of section 110(*l*) prohibiting plan revisions that would increase emissions or worsen air quality. *Ala. Envtl. Council v. EPA*, 711 F.3d 1277, 1293 (11th Cir. 2013) (EPA interpreted section 110(*l*) to "permit approval of the SIP revision 'unless the agency finds it will make air quality worse'" (quoting 73 Fed. Reg. 60,957, 60,960 (Oct. 15, 2008)); *see also id.* at 1296 (Molloy, J., concurring in part and dissenting in part) (EPA properly concluded a plan revision did not comply with section 110(*l*) when the agency could not rationally determine whether the revision would increase particulate emissions). Moreover, in a short discussion regarding a challenge to the Nevada regional haze plan, the Ninth Circuit indicated that a haze plan that "weakens or removes any pollution controls" would run afoul of section 110(*l*). *WildEarth Guardians v. EPA*, 759 F.3d 1064, 1074 (9th Cir. 2014) (EPA did not err when it failed to make an express finding of non-interference under section 110(*l*), because "nothing in Nevada's SIP . . . weakens or removes any pollution controls").

ADEQ's proposed BART "reassessment" violates section 110(*l*) because it weakens the existing BART determination for Cholla. The proposal would do so by eliminating the requirement that Units 2-4 install highly-effective SCR controls by December 5, 2017. Instead, Unit 2 would retire by April 2016, but Units 3 and 4 would continue operating without any additional pollution controls for the next ten years. As discussed below, the net effect of these new measures is an increase in Cholla's air pollution and an increase in Cholla's visibility impairment for nearly two decades after the BART compliance deadline.

First, the record shows the Cholla BART "reassessment" would increase Cholla's NOx pollution compared to the existing BART determination.[14] Under the BART "reassessment," between 2018 and 2025, Cholla would emit *4,161 tons per year more NOx pollution* than it would under the existing BART determination.[15] In addition, the BART "reassessment" would result in greater cumulative NOx pollution for eighteen years after the BART compliance deadline.[16] Figure 3 from ADEQ's proposal illustrates how the BART "reassessment" would increase Cholla's NOx pollution by allowing Units 3 and 4 to continue operating for the next ten years without installing additional pollution controls.[17]

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14 *See* ADEQ State Implementation Plan (SIP) Revision at 17–20.

15 *Id.* at 18–19.

16 *Id.* at 19.

17 *Id.*

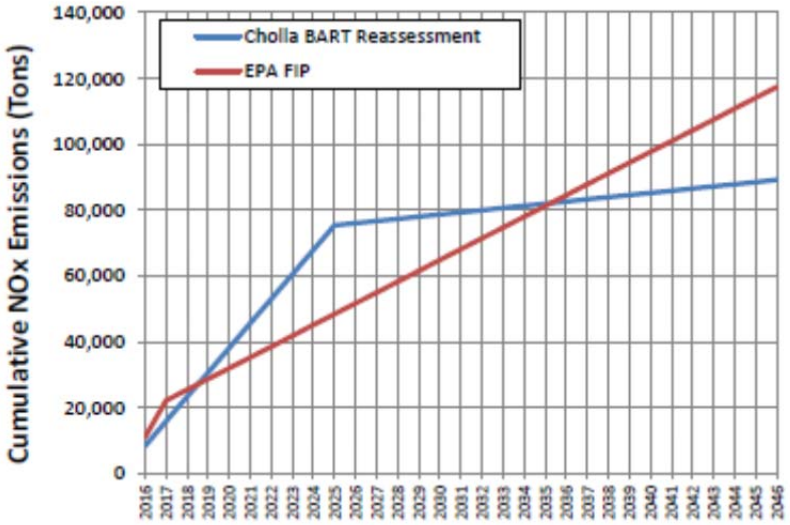

Figure 3 Cumulative NOx Emissions Associated with EPA's FIP vs. Cholla BART Reassessment over 2016-2046

As the Ninth Circuit recently stated, it would not be "difficult[]" to show a section 110(*l*) violation if an existing implementation plan unambiguously required a certain level of pollution reductions, and a plan revision would result in more pollution. *El Comite Para el Bienestar de Earlimart*, 786 F.3d at 696 ("The difficulty with [the] argument" that a revision weakened an existing plan's 20% pollution reduction requirement, is that the existing plan "is ambiguous, because it refers to both a 12% reduction and a 20% reduction."). But this is exactly what would occur under the BART "reassessment," as Arizona's new BART determination would result in an additional 4,161 tpy of NOx pollution for more than seven years after the BART compliance deadline. Moreover, when Cholla's cumulative NOx emissions are considered, the BART "reassessment" would result in increased pollution levels until 2035, which is nearly two decades after the BART deadline.

Second, the record also shows the BART "reassessment" would worsen air quality because it would result in worse visibility conditions than the existing BART determination. The existing BART determination will provide significant visibility benefits beginning immediately after the December 2017 compliance deadline. But for several years after that compliance deadline, the BART "reassessment" would result in worse visibility conditions at Class I areas compared to the existing BART determination.[18] For example, Cholla's air pollution causes the greatest visibility impairment at Petrified Forest National Park, which is the closest Class I area. As Figure 6 to ADEQ's proposal shows, Cholla's visibility impacts at Petrified Forest would be worse under the BART "reassessment" for fifteen years after the BART compliance deadline.[19]

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[18] ADEQ SIP Revision at 22.

[19] *Id.* at 24.

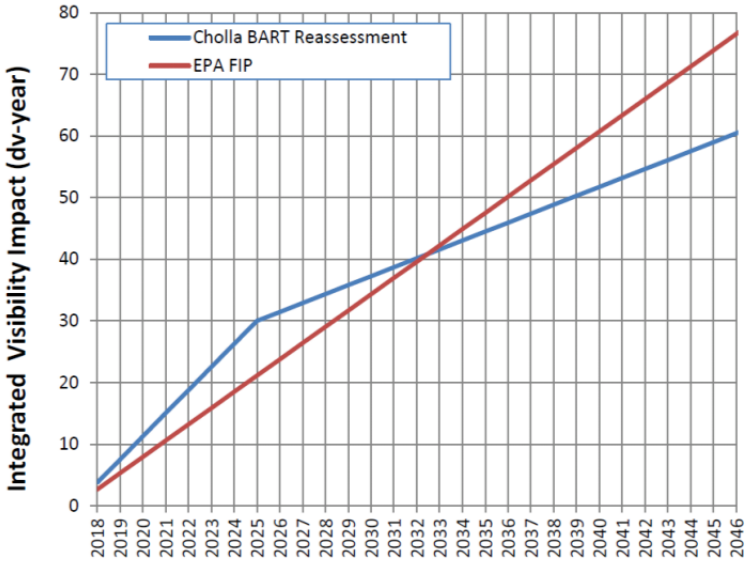

Figure 6 Comparison of Integrated Visibility Impacts at Petrified Forest National Park Associated with EPA FIP vs. Cholla BART Reassessment

The situation is similar at the Grand Canyon. As Figure E-2 to ADEQ's proposal shows, Cholla's visibility impacts at the Grand Canyon would be worse under the BART "reassessment" for twelve years after the BART compliance deadline.[20] Furthermore, ADEQ acknowledges that this same "general pattern" of worse visibility impacts under the reassessment holds true at the other Class I areas impacted by Cholla's air pollution.[21]

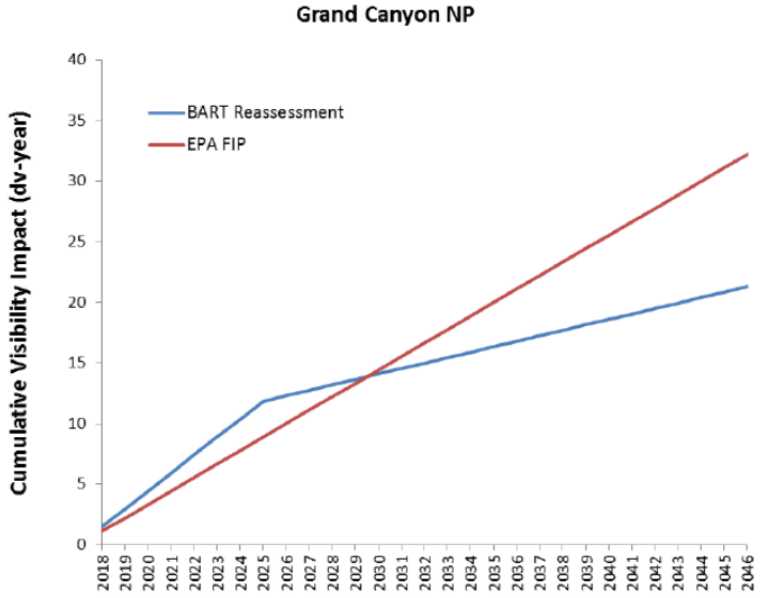

Figure E-2: Plot of Predicted Cumulative Visibility Impacts at Grand Canyon National Park Associated with EPA FIP (red) vs. Proposed BART Reassessment (blue)

20 *Id.* at 83.

21 *Id.* at 23.

ADEQ does not dispute these facts and it acknowledges that compared to the existing BART determination, the BART "reassessment" would cause increased pollution and worse visibility impairment for years after the December 2017 BART compliance deadline.[22] ADEQ attempts to justify the BART "reassessment," however, by pointing to greater long-run visibility and pollution reduction benefits that would materialize in the 2030s and beyond.[23] For example, as Figure 3 above shows, while the BART "reassessment" results in greater cumulative NOx pollution for eighteen years after the BART deadline, beginning in 2035 the proposal would result in less cumulative NOx pollution. *See supra* at 7. ADEQ's conclusion that the BART "reassessment" complies with section 110(*l*) because it will eventually outperform the existing BART determination decades into the future is unreasonable and flawed.

Most fundamentally, ADEQ's conclusion is unreasonable because it inappropriately discounts the timing of pollution reductions and the importance of promptly reducing pollution and improving visibility. The timing of pollution reductions matters under the regional haze program, and pollution reductions that occur far in the future are not equivalent to pollution reductions that occur today. Section 169A's text reflects this common-sense principle, as it requires sources to install BART controls "as expeditiously as practicable but in no event later than five years." 42 U.S.C. § 7491(b)(2)(A), (g)(4). Congress thus unambiguously directed BART sources to reduce their pollution promptly, and it did not allow BART sources to delay pollution reductions until decades in the future. The Cholla BART "reassessment," however, would allow Units 3 and 4 to continue operating without any new pollution controls for more than seven years after the mandatory five-year compliance deadline.[24]

This statutory five-year deadline to install BART reflects a core purpose of the Clean Air Act's regional haze requirements. Congress distinguished BART sources from other sources and required BART sources to promptly reduce their pollution because Congress intended BART to pick the "low hanging fruit" of haze reductions. BART does this by requiring older, disproportionately-dirty sources to quickly install updated pollution controls. *See* 2005 Regional Haze Rule, 70 Fed. Reg. at 39,111. Accordingly, while Congress designed the overall regional haze program to eliminate human-caused visibility impairment over several decades, BART is a distinct requirement designed to secure immediate large-scale pollution reductions from the largest and dirtiest sources. *See* Final BART Rule, 77 Fed. Reg. at 72,534 ("While the goal of the regional haze program is to achieve natural visibility conditions in all mandatory Class I Federal areas by 2064, the requirement for states to implement BART applies only during the

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22 *See, e.g., id.* at 19, 23.

23 *See, e.g., id.*

24 EPA's brief defending its regional haze plan for Navajo Generating Station confirms the mandatory nature of the Clean Air Act's five-year BART compliance deadline. In that case, EPA has argued that if the agency issues a BART alternative under the Tribal Authority Rule, rather than a BART determination, it can set a compliance deadline longer than five years. Brief for Respondents at 25–28, *Yazzie v. EPA*, No. 14-73100 (9th Cir. May 29, 2015) (Ex. 8). But EPA's briefing makes clear that the five-year statutory deadline for BART does not provide this flexibility. As EPA stated, "It is not surprising . . . that EPA's previous BART determinations mandated five-year deadlines, because that is what the statute requires when *BART* is adopted by states." *Id.* at 28 (internal quotation marks and citations omitted).

first planning period ending in 2018."). The timing of these pollution reductions is critical, as the need to quickly curtail emissions from large and disproportionately-polluting BART sources was "a major concern motivating the adoption of the [Clean Air Act's] visibility provisions." 1999 Regional Haze Rule, 64 Fed. Reg. 35,714, 35,737 (July 1, 1999) (quoting H.R. Rep. No. 564, 95th Cong., 1st Sess. at 155 (1977)).

Contrary to ADEQ's claims, the BART "reassessment" weakens the existing BART determination by ignoring the Clean Air Act's timing requirements for BART. Under the BART "reassessment," national park and wilderness area visitors would suffer worse air quality and worse visibility conditions for nearly two decades longer than they will under the existing BART determination. ADEQ's conclusion that the BART "reassessment" does not weaken the existing BART determination because it will eventually outperform the existing plan decades in the future is unreasonable because it conflicts with Congress's intention that Cholla promptly reduce its pollution.

In addition, ADEQ's conclusion is unreasonable because the BART "reassessment's" purported long-term benefits rest on the assumption that after the utilities install SCR in 2017, Cholla's pollution would remain at those levels indefinitely. That assumption, however, is unfounded and is contrary to the regional haze program's purpose and structure. The regional haze program's goal is the elimination of all human-caused visibility impairment at Class I areas by 2064. 42 U.S.C. § 7491(a)(1); 40 C.F.R. § 51.308(d)(1)(i)(B), (d)(1)(ii). As discussed above, BART is a critically-important first step in reducing haze pollution from the largest and dirtiest sources. However, after a source installs BART controls it is not forever exempt from further pollution reductions under the regional haze program. Instead, in order to eliminate all human-caused visibility impairment by 2064, the haze program will necessarily require additional emission reductions from BART sources if they continue to operate decades after their initial BART determinations. Thus, ADEQ's reliance on the BART "reassessment's" long-term benefits is flawed because if Cholla was still operating under the existing BART determination when those benefits would finally materialize in the 2030s and beyond, the haze program would likely require Cholla to further reduce its pollution. Accordingly, ADEQ's justification for the BART "reassessment" is based on arbitrary assumptions and relies on long-term benefits that would likely be illusory.

In sum, when EPA issued the final BART determination for Cholla in December 2012, the Clean Air Act mandated that APS and PacifiCorp comply with the BART determination within five years. Two-and-a-half years have passed since the final BART determination, and the utilities would now prefer to comply with the regional haze program's BART requirements in a different, more flexible manner. While the Conservation Organizations strongly support APS's and PacifiCorp's commitment to stop burning coal at Cholla, the Clean Air Act's anti-backsliding provision places critical limits on the utilities' attempts to issue a new BART determination years after EPA finalized the existing BART determination. *See* 42 U.S.C. § 7410(*l*). ADEQ and EPA cannot now "re-do" or "reassess" the existing BART determination in a manner that results in more pollution and more visibility impairment. But ADEQ's analysis shows that this is exactly what would happen under the proposed BART "reassessment," as it would increase Cholla's cumulative NOx pollution and visibility impacts for nearly two decades after the BART compliance deadline. Moreover, ADEQ's attempts to justify the BART

"reassessment" based on long-term benefits that would not arise until decades after the BART deadline are unreasonable and contrary to the Clean Air Act's text and purpose. Because the BART "reassessment" would be a significant step backwards from the existing BART determination, section 110(*l*) prohibits EPA from approving the reassessment. Fortunately, as discussed below, APS and PacifiCorp can stop burning coal at Cholla Units 3 and 4 in 2025 while also complying with the haze program's BART requirements by installing updated, cost-effective pollution controls at both units by the December 2017 compliance deadline.

II. Updated Pollution Controls for Units 3 and 4 are Cost Effective and Should Be Selected as BART.

ADEQ's five-factor BART analysis for Cholla Units 3 and 4 rejected additional pollution controls as BART because ADEQ concluded that both SNCR and SCR controls would result in "excessive cost[s]" and moderate to insubstantial visibility improvements.[25] ADEQ's BART determination is unreasonable, as the record shows that installing SNCR and SCR at Units 3 and 4 is cost effective and would result in significant pollution reductions and visibility benefits. Accordingly, ADEQ should revise its BART "reassessment" to require Units 3 and 4 to install SCR or SNCR controls as BART by the December 5, 2017 compliance deadline.

A. At a minimum, SNCR is cost effective and should be BART.

Although ADEQ rejected SNCR controls as BART for Units 3 and 4, the agency's own BART analysis shows that installing and operating SNCR on the units before they stop burning coal in 2025 would be cost effective. Specifically, ADEQ's analysis shows that SNCR would reduce Unit 3's NOx pollution at an average cost-effectiveness of $3,177 per ton.[26] For Unit 4, SNCR would reduce the unit's NOx pollution at a cost of $3,027 per ton.[27] As ADEQ acknowledges, *EPA has already found these costs to be cost effective*.[28] EPA explicitly concluded in its BART determination for Cholla that NOx pollution controls that "have average cost-effectiveness values of $3,114/ton to $3,472/ton . . . fall[] in a range that we would consider cost-effective."[29] The record thus plainly shows that SNCR is in fact cost effective. ADEQ's conclusion that SNCR is not cost effective is arbitrary and unsupported by the record.

In addition, SNCR would be even more cost effective if ADEQ had used a proper remaining useful life in its cost analysis. ADEQ's cost analysis overestimated SNCR costs by assuming the controls would have a twenty-year remaining useful life, during which Units 3 and 4 would burn coal for eight years and then switch to gas for twelve years. However, operating SNCR on the units after a gas switch in 2025 would result in over twelve additional years of costs, but very minimal pollution reduction benefits due to the decrease in NOx emissions when

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25 ADEQ SIP Revision at 10.

26 *Id.* at 6, Table 3.

27 *Id.*

28 *Id.* at 5 ("EPA indicates in its Arizona Regional Haze [TSD] that an average cost-effectiveness of $3,000-4,000/ton falls within an acceptable range to be considered cost-effective.").

29 Proposed BART Rule, 77 Fed. Reg. at 42,860.

the units burn gas instead of coal. As ADEQ explained, because NOx pollution controls would minimally reduce the units' pollution after a gas switch, "once converted to natural gas, the use of SNCR or SCR controls would result in enormous costs per dv."[30] As a result, a proper cost analysis would have analyzed SNCR costs based on a 7.41 year remaining useful life, which would reflect the more realistic scenario that the utilities would install SNCR on Units 3 and 4 by December 2017, and then cease operating the SNCR when the units switch to gas in April 2025. ADEQ's approach artificially inflates SNCR's costs and makes SNCR appear less cost effective than it would be in reality. As illustrated in Table 1 below, had ADEQ used this more appropriate remaining useful life, it would have shown that SNCR would reduce Unit 3's NOx pollution at an average cost-effectiveness of $2,830 per ton, and Unit 4's NOx pollution at a cost of $3,015 per ton.

Table 1 – SNCR Average Cost-Effectiveness Using a 7.41 Year Remaining Useful Life

	SNCR	
	Cholla 3	**Cholla 4**
Total Capital Cost	$19,238,125	$24,885,052
Equipment Life	7.41	7.41
Interest Rate	0.07	0.07
CRF	0.18	0.18
First Year Debt Service	$3,416,077	$4,418,791
O&M	$1,254,500	$1,737,393
Total First Year Cost	$4,670,577	$6,156,184
NOx Tons Removed[31]	1,651	2,042
$/ton	**$ 2,830**	**$ 3,015**

[30] ADEQ SIP Revision at 8.

[31] ADEQ assumed that SNCR would be slightly more effective at removing NOx pollution than EPA's BART analysis assumed. *Compare* ADEQ SIP Revision at 42, Table B-2 & 48, Table B-8 (SNCR would remove 1,911 tpy of NOx at Unit 3 and 2,643 tpy of NOx at Unit 4 compared to OFA), *with* Final BART Rule, 77 Fed. Reg. at 72,548 (SNCR would remove 1,651 tpy of NOx at Unit 3 and 2,042 tpy of NOx at Unit 4 compared to OFA). Table 1 above reflects EPA's emission reduction estimates for SNCR, and thus produces a conservative estimate of SNCR's cost-effectiveness based on a 7.41 year remaining useful life. SNCR would be even more cost effective if ADEQ's greater emission reduction estimates and a 7.41 year remaining useful life are used. If ADEQ's estimates are used, SNCR would remove Unit 3's NOx pollution at a cost of $2,444 per ton and it would remove Unit 4's NOx pollution at a cost of $2,329 per ton.

It appears that ADEQ has attempted to obfuscate the fact that SNCR is cost effective by focusing attention elsewhere when it discusses BART costs. For example, while ADEQ's proposal specifically discusses SCR costs and SNCR's incremental cost-effectiveness, it only mentions SNCR's average cost-effectiveness once, buried within the data presented in Table 3.[32] In addition, ADEQ's conclusion that SNCR would entail "excessive" costs glosses over the fact that EPA had earlier determined that the costs required to install and operate SNCR would be cost effective at Cholla. Moreover, ADEQ weighed the BART factors based only on SNCR's incremental costs, even though EPA has specifically cautioned against doing so.[33] Because ADEQ apparently ignored SNCR's average cost-effectiveness when it concluded that SNCR's costs outweighed its visibility benefits, ADEQ's weighing of the BART factors is flawed and it should not have eliminated SNCR as BART.[34]

In addition, ADEQ's conclusion that SNCR would have insignificant visibility benefits is flawed because ADEQ only discussed SNCR's incremental visibility improvement. The record shows that installing SNCR at Units 3 and 4 would result in a 1.32 dv cumulative visibility improvement compared to existing controls, which is a significant visibility improvement.[35] But when ADEQ weighed the BART factors, it ignored this fact and only discussed SNCR's incremental visibility benefits.[36] Because of the multiple flaws in ADEQ's BART analysis, the BART "reassessment" is arbitrary. Consequently, at a minimum, ADEQ should revise its BART determination to select SNCR controls as BART for Units 3 and 4.

B. SCR is the "best available" control technology and should be BART.

While SNCR is undoubtedly cost effective and should be BART for Units 3 and 4 over the existing controls, ADEQ should select SCR as BART. EPA's regulations define BART as the "best system of continuous emission reduction," 40 C.F.R. § 51.301, and SCR is the best available control technology for the two Cholla units.

ADEQ rejected SCR as BART after concluding that its "excessive cost" outweighed the "moderate additional visibility improvements."[37] However, just as it did with SNCR, ADEQ only discussed the incremental cost-effectiveness of SCR when it weighed the BART factors. Focusing exclusively on SCR's incremental costs in this manner skewed ADEQ's weighing of the BART factors by overstating SCR's costs. ADEQ's analysis shows that SCR would reduce

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32 *See* ADEQ SIP Revision at 5 (only discussing SCR costs in the cost analysis summary); *id.* at 10 (only discussing the incremental cost-effectiveness of SNCR and SCR), *id.* at 6, Table 3.

33 In response to comments that SNCR's incremental costs at Apache Generating Station outweighed its incremental visibility benefits, EPA explained that a more comprehensive analysis that also considered average cost-effectiveness showed SNCR would be cost effective, and EPA "is not limited to considering incremental costs and benefits in comparing BART alternatives." Final BART Rule, 77 Fed. Reg. at 72,538.

34 *See* ADEQ SIP Revision at 10.

35 *See id.* at 8–9.

36 *See id.* at 10.

37 ADEQ SIP Revision at 10.

Unit 3's NOx pollution at a cost of $6,286 per ton, and it would reduce Unit 4's NOx pollution at a cost of $6,810 per ton.[38] These costs are cost effective in light of the technology's significant visibility benefits. As ADEQ's analysis shows, installing SCR at Units 3 and 4 would result in a 3.97 dv cumulative visibility improvement compared to existing controls, including a 0.79 dv improvement at Petrified Forest and a 0.59 dv improvement at the Grand Canyon.[39]

Moreover, SCR would be even more cost effective than ADEQ's analysis shows. Just as it did for SNCR, ADEQ's cost analysis for SCR used a twenty year remaining useful life. However, ADEQ should have used a 7.41 year remaining useful life because continuing to operate SCR after the units stop burning coal would result in twelve years of additional costs with very little pollution reduction benefits. *See supra* at 11–12. As illustrated in Table 2 below, had ADEQ used this more appropriate remaining useful life, it would have shown that SCR would reduce Unit 3's NOx pollution at an average cost-effectiveness of $5,022 per ton, and Unit 4's NOx pollution at a cost of $5,330 per ton.

Table 2 – SCR Average Cost-Effectiveness Using a 7.41 Year Remaining Useful Life

	SCR	
	Cholla 3	**Cholla 4**
Total Capital Cost	$83,461,195	$119,083,832
Equipment Life	7.41	7.41
Interest Rate	0.07	0.07
CRF	0.18	0.18
First Year Debt Service	$14,820,045	$21,145,489
O&M	$1,570,766	$2,350,182
Total First Year Cost	$16,390,811	$23,495,671
NOx Tons Removed	3,264	4,408
$/ton	**$ 5,022**	**$ 5,330**

As EPA has noted elsewhere, SCR controls are generally cost effective and should be BART if they provide a 0.5 dv or greater visibility improvement at the most impacted Class I area at a cost of $5,000 per ton or less. *See* Final Colorado Haze Plan, 80 Fed. Reg. 29,953, 29,957 (May 26, 2015) (while the 0.5 dv/$5,000 per ton thresholds "should not be used as absolute determinants of BART outcomes, they are in general consistent with the decisions that other states and EPA have made when considering whether to require SCR as NOx BART, and

[38] ADEQ SIP Revision at 6.

[39] *Id.* at 9.

generally reflect a reasonable balancing of the BART factors"). SCR at Cholla is thus cost effective according to EPA, as it would result in a visibility benefit significantly greater than 0.5 dv at the closest Class I area (0.79 dv improvement at Petrified Forest), at a cost that is only marginally above $5,000 per ton ($5,022 per ton at Unit 3 and $5,330 per ton at Unit 4). Because SCR would significantly reduce the units' NOx pollution and substantially improve visibility at many Class I areas, ADEQ should revise its BART determination to select SCR as BART.

CONCLUSION

The Conservation Organizations strongly support APS's and PacifiCorp's retirement plan to stop burning coal at Cholla. However, the utilities' pledge to stop burning coal does not excuse Cholla from its obligations under the regional haze program. The BART requirements for Cholla have been in place for over two-and-a-half years, and the Clean Air Act does not allow the utilities or ADEQ to simply "re-do" or "reassess" the existing BART determination to implement the utilities' preferred course of action. As ADEQ's analysis shows, the proposed BART "reassessment" would subject national park and wilderness area visitors to increased pollution and worse visibility impairment for nearly two decades after the BART compliance deadline. Clean Air Act section 110(*l*) thus prohibits EPA from approving the BART "reassessment" because it would weaken the existing BART determination.

Fortunately, ADEQ's analysis points to a clear path forward that would allow the utilities to stop burning coal at Cholla on their preferred timeline, while also ensuring that the BART "reassessment" does not weaken the existing BART determination by allowing Units 3 and 4 to continue operating with any new pollution controls. As ADEQ's analysis demonstrates, installing updated pollution controls at Units 3 and 4 by the December 2017 BART deadline would cost-effectively reduce the units' NOx pollution before they stop burning coal in 2025. At a minimum, SNCR controls should be BART. Moreover, a proper analysis shows that SCR controls are the "best available" controls and should be BART. Accordingly, ADEQ should revise its BART determination to require Cholla Units 3 and 4 to install these cost-effective, updated pollution controls by the BART compliance deadline.

A strong haze plan for Arizona that complies with the Clean Air Act is critically important to improve visibility at the many national parks and wilderness areas in Arizona and nearby states. Moreover, a strong regional haze plan will protect public health and benefit tourism and local economies by ensuring that people from around the world will continue to travel to Arizona to explore and enjoy the region's treasured landscapes.

Sincerely,

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On behalf of National Parks Conservation Association and Sierra Club

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