

# You Drive Me Hazy: EPA’s Visibility Program on the U.S. Border

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*Despite significant air quality improvements over the past 30 years, haze—a blend of pollutant particles that can travel for hundreds of miles—continues to affect the clarity of our nation’s air. Under a provision of the Clean Air Act that aims to restore scenic vistas in national parks and wilderness areas, EPA developed a long-term program to achieve “natural visibility” in protected spaces by 2064. But in 2017, EPA modified its program to allow states to change their 2064 goal from “natural visibility” to “natural visibility” plus an “estimate” of internationally sourced haze.*

*This Note explores various problems associated with EPA’s new approach: it is inconsistent with the language of the Clean Air Act, it incentivizes states to overestimate cross-border haze, it disincentivizes cross-border collaboration, and it fosters environmental injustice. The Note proposes a two-part alternative approach that includes (1) changing how states account for international pollution in their state implementation plans, and (2) reaffirming state and federal duties to engage in cross-border haze reduction efforts. Though the literature has analyzed the progress of EPA’s haze program and evaluated cross-border environmental efforts, this Note builds upon past work by exploring the impact of EPA’s 2017 rule, which states will implement in their next round of plans due on July 31, 2021.*

## Introduction

Big Bend National Park—often called “Texas’ Gift to the Nation”<sup>1</sup>—sits on the Texas side of the U.S.–Mexico border, flanked by the Rio Grande and the Sierra del Carmen mountain range. Like many parks in the western United States, Big Bend is known for its bold colors, rugged landscapes, and grand vistas. When First Lady “Lady Bird” Johnson visited the park in 1966,

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1. See, e.g., Recognizing the 63rd Anniversary of Big Bend National Park, H.R. Res. 483, 110th Cong. (2007) (“Whereas 63 years ago Big Bend National Park, ‘Texas’ Gift to the Nation’, was officially established on June 12, 1944 . . .”).

she marveled that the seemingly endless landscape “looks like the very edge of the world.”<sup>2</sup>

Today, a visitor in Big Bend may not experience that same view. Big Bend’s hallmark vistas began disappearing in the 1970s as the park experienced increasing amounts of “haze”: a blend of air pollutant particles that creates a white-brown veil in the lower atmosphere and reduces one’s ability to see for long distances.<sup>3</sup> The National Park Service estimates that Big Bend’s visual range should stretch for over 165 miles under natural conditions, but that number declines to less than 55 miles on days of high pollution.<sup>4</sup> In the summer of 1995, park visitors could only see nine miles in any direction—the worst non-weather-related air quality ever recorded in a national park.<sup>5</sup>

**Figure 1**<sup>6</sup>



2. *When Lady Bird Came to Big Bend*, NAT’L PARK SERV., [https://www.nps.gov/bibe/learn/historyculture/lady\\_bird.htm](https://www.nps.gov/bibe/learn/historyculture/lady_bird.htm) [<https://perma.cc/9C4Y-536B>].

3. See *How Air Pollution Affects the View*, U.S. ENVTL. PROT. AGENCY (Apr. 2006), [https://www.epa.gov/sites/production/files/2015-05/documents/haze\\_brochure\\_20060426.pdf](https://www.epa.gov/sites/production/files/2015-05/documents/haze_brochure_20060426.pdf) [<https://perma.cc/ZYC7-PEGL>] (describing haze and its effects); *Monitoring Air Quality at Big Bend National Park*, NAT’L PARK SERV., [https://www.nps.gov/bibe/learn/nature/aq\\_monitoring.htm](https://www.nps.gov/bibe/learn/nature/aq_monitoring.htm) [<https://perma.cc/WHP4-387S>] (noting that “noticeable changes in [Big Bend’s] air quality appeared during the 1970s”).

4. *Park Air Profiles – Big Bend National Park*, NAT’L PARK SERV., <https://www.nps.gov/articles/airprofiles-bibe.htm> [<https://perma.cc/FC4E-G63Q>].

5. Joe Nick Patoski, *Big Bend, R.I.P.?*, TEX. MONTHLY (Mar. 1996), <https://www.texasmonthly.com/articles/big-bend-r-i-p/> [<https://perma.cc/MY63-XQ2Y>].

6. *Big Bend Spectrum Series, Regional Haze Spectrum #1 and Regional Haze Spectrum #12*, INTERAGENCY MONITORING OF PROTECTED VISUAL ENV’TS, <http://views.cira.colostate.edu/Datawarehouse/IMPROVE/Data/Photos/BIBE/start.htm> [<https://perma.cc/M26C-YDJX>].

Haze reduces the ability to see and appreciate scenic vistas, which undercuts the purpose of the national park system and reduces park visitation.<sup>7</sup> Many of the pollutants that form haze are linked to health problems including “respiratory illness, decreased lung function, and even premature death.”<sup>8</sup> These pollutants can also cause environmental damage, such as lake and stream acidification that kills fish and other aquatic species.<sup>9</sup>

Congress addressed declining air quality in national parks in the Clean Air Act Amendments of 1977,<sup>10</sup> but actual implementation of the law has been slow and contentious.<sup>11</sup> The pollution particles that create haze can blow in from hundreds of miles away, so contributing areas and industries often point fingers instead of installing pollution controls.<sup>12</sup> Solving the haze problem is particularly difficult in areas along the U.S. border because pollution blows in not only from domestic sources, but also from international sources.<sup>13</sup> Border states like Texas argue that pollution sources within the state (like power plants, petroleum refineries, or highway vehicles) should not have to install costly pollution controls (e.g., “scrubbers” that remove sulfur dioxide pollution from power plants) in order to

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7. See National Park Service Organic Act, Pub. L. No. 64-235, 39 Stat. 535 (1916) (codified as amended at 54 U.S.C. § 100101 (2012)) (stating that the purpose of national parks is “to conserve the scenery and the natural and historic objects and the wild life therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations”); Susan Kelley, *Visitors Avoid National Parks When Air Pollution Is High*, CORNELL CHRON. (July 18, 2018), <https://news.cornell.edu/stories/2018/07/visitors-avoid-national-parks-when-air-pollution-high> [<https://perma.cc/R7Y3-QMY6>] (describing a 2018 study that found a negative correlation between poor air quality and park visitation).

8. *Basic Information About Visibility*, U.S. ENVTL. PROT. AGENCY, <https://www.epa.gov/visibility/basic-information-about-visibility> [<https://perma.cc/V3NV-FEBJ>].

9. *Id.* Haze can also reduce safety for small aircrafts, and it was likely a factor in the airplane crash that killed John F. Kennedy, Jr. Stephen F. Corfidi, *Haze Over the Central and Eastern United States*, NOAA/NWS STORM PREDICTION CTR., <https://www.spc.noaa.gov/publications/corfidi/haze.html> [<https://perma.cc/3GLF-4UBS>].

10. See Clean Air Act Amendments of 1977, Pub. L. No. 95-95, § 128, 91 Stat. 685, 742–45 (1977) (codified as amended at 42 U.S.C. § 7491 (2012)) (declaring, as a “national goal,” visibility protection for “class I Federal areas” such as national parks and federal wilderness areas).

11. See, e.g., *Texas v. EPA*, 829 F.3d 405, 410–11 (5th Cir. 2016) (deciding a challenge brought by Texas, energy companies, power plants, steel mills, and others against EPA’s federal plan to control haze in Texas and Oklahoma).

12. See, e.g., *Effect of Arizona Power Plant on Grand Canyon Disputed*, DESERET NEWS (Dec. 3, 1990, 12:00 AM), <https://www.deseret.com/1990/12/3/18894378/effect-of-arizona-power-plant-on-grand-canyon-disputed> [<https://perma.cc/C4R4-9B48>] (discussing an Arizona power company’s attempt to dispute a National Park Service study showing that the company’s power station accounted for more than 50% of visibility loss in the Grand Canyon).

13. A typical summer wind pattern in Big Bend, for example, collects pollutants in East Texas, circulates into Louisiana, dips south along the Gulf Coast, migrates west into Mexico, and finally blows northwest into the park. *Air Quality in Big Bend National Park*, NAT’L PARK SERV., <https://www.nps.gov/bibe/learn/nature/airquality.htm> [<https://perma.cc/38YM-LPP7>].

overcompensate for cross-border pollution.<sup>14</sup> Conversely, park preservation groups and environmental organizations argue that border states overestimate cross-border pollution to avoid controlling their own in-state sources.<sup>15</sup>

In 2017, the Environmental Protection Agency (EPA) finalized a rule that formally addressed the issue of cross-border haze.<sup>16</sup> Under previous rules, EPA had required states to achieve “natural visibility”—the level of air quality estimated to have existed prior to man-made air quality degradation—by the year 2064.<sup>17</sup> Under the new rule, EPA allows states to change their end goal from “natural visibility” to “natural visibility” plus an “estimate” of internationally sourced haze, which effectively gives states the ability to water down the end result of their haze programs.<sup>18</sup> This Note argues that EPA’s 2017 approach to cross-border haze is problematic because (1) it is inconsistent with the language of the Clean Air Act, (2) it incentivizes border states to manipulate data and avoid cross-border collaboration, and (3) it causes environmental justice issues along the U.S. border. This Note proposes a modified approach to cross-border haze and explores multinational institutions that can help address transboundary pollution. While some scholars have analyzed the progress of EPA’s haze program<sup>19</sup> and others have evaluated cross-border environmental efforts,<sup>20</sup> the literature

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14. See, e.g., TEX. COMM’N ON ENVTL. QUALITY, PROJECT NO. 2007-016-SIP-NR, REVISIONS TO THE STATE IMPLEMENTATION PLAN (SIP) CONCERNING REGIONAL HAZE ES-2 (2009), [https://www.tceq.texas.gov/assets/public/implementation/air/sip/haze/2SIP\\_ado\\_rev.pdf](https://www.tceq.texas.gov/assets/public/implementation/air/sip/haze/2SIP_ado_rev.pdf) [<https://perma.cc/AYA4-5FFP>] (arguing that Texas should not be required “to carry out compensatory overcontrol to make up for the lack of progress in reducing the impacts of international transport”).

15. See, e.g., Earthjustice, National Parks Conservation Association, Sierra Club, Appalachian Mountain Club, Environmental Law & Policy Center, Northwest Environmental Defense Center, and Physicians for Social Responsibility, Comments on Proposed Rule for the Protection of Visibility: Amendments to Requirements for State Plans 36–37 (Aug. 5, 2016), <https://www.regulations.gov/document?D=EPA-HQ-OAR-2015-0531-0375> [<https://perma.cc/22D9-2JVH>] (arguing that states’ ability to adjust haze plans in light of international emissions creates “a recipe for abuse”).

16. Protection of Visibility: Amendments to Requirements for State Plans, 82 Fed. Reg. 3078, 3105 (Jan. 10, 2017) (codified at 40 C.F.R. pts. 51, 52).

17. See 40 C.F.R. § 51.308(d)(1)(i)(B) (2019) (articulating the previous standard that states must achieve “natural visibility conditions by the year 2064”).

18. See *id.* § 51.308(f)(1)(vi)(B) (codifying EPA’s 2017 cross-border haze provision).

19. See Michael T. Palmer, *The Regional Haze Rule: EPA’s Next Phase in Protecting Visibility Under the Clean Air Act*, 7 ENVTL. LAW. 555, 581–90, 617–21 (2001) (discussing the history of the haze program and evaluating the potential of the 1999 regional haze rule); Arnold W. Reitze, Jr., *Visibility Protection Under the Clean Air Act*, 9 GEO. WASH. J. ENERGY & ENVTL. L. 127, 149 (2019) (describing court decisions and regulatory actions related to Congress’s visibility provisions).

20. See Lauren Eades, *Air Pollution at the U.S.–Mexico Border: Strengthening the Framework for Bilateral Cooperation*, J. PUB. & INT’L AFF. 2018, at 64, 67–70 (describing several environmental institutions on the U.S.–Mexico border); Cameron A. Grant, *Transboundary Air Pollution: Can NAFTA and NAAEC Succeed Where International Law Has Failed?*, 5 COLO. J. INT’L ENVTL. L. & POL’Y 439, 447–50 (1994) (exploring how certain trade agreements can address cross-border pollution); Angela M. Dusenbury, Note, *Emissions Trading Along the United States–*

has not yet explored the impact of EPA's 2017 cross-border haze provisions, which states will implement in their next round of haze plans due on July 31, 2021.

Part I of this Note offers a brief history of Congress's approach to visibility in national parks and describes EPA's efforts to implement a haze program. Part II explains EPA's 2017 approach to cross-border haze and the problems it creates. Part III describes an alternative approach to cross-border haze and outlines several policy tools that states and EPA can use to address the issue.

### I. Statutory and Regulatory Approach to Haze

Haze—and air pollution in general—is not a new problem. Historically, air pollution went hand-in-hand with life in the city: speaking about Rome in the year 1170, the medieval philosopher Maimonides mused that “[t]he relation between city air and country air may be compared to the relation between grossly contaminated, filthy air, and its clear, lucid counterpart.”<sup>21</sup> After the Industrial Revolution, pollution sources became so numerous and widespread that air quality issues spilled out from cities and began to affect larger natural spaces as well.<sup>22</sup> In a famous U.S. public nuisance case from 1907, air pollution from smelters in Ducktown, Tennessee, spread out from an industrial area and caused “wholesale destruction of forests, orchards and crops” miles away in the neighboring state of Georgia.<sup>23</sup>

Though air pollution is not always as acutely toxic as it was in the Ducktown case, it often has damaging effects on human health, ecosystem health, and landscapes as a whole. EPA notes that the “best understood and most easily measured effect of air pollution” is its impact on visibility—how far a person can see across a landscape.<sup>24</sup> Certain pollutants in the atmosphere can scatter and absorb natural light, making the air appear “hazy.”<sup>25</sup> Visibility impairment serves as an indicator for harmful human health and ecosystem

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*Mexico Border: A Solution to Transboundary Air Pollution*, 29 ST. B. TEX. ENVTL. L.J. 144, 153–58 (1999) (exploring binational emissions trading as a solution to transboundary air pollution on the U.S.–Mexico border).

21. K.C. Heidorn, *A Chronology of Important Events in the History of Air Pollution Meteorology to 1970*, 59 BULL. AM. METEOROLOGICAL SOC'Y 1589, 1589 (1978).

22. NAT'L RESEARCH COUNCIL, PROTECTING VISIBILITY IN NATIONAL PARKS AND WILDERNESS AREAS 19–20 (1993).

23. *Georgia v. Tenn. Copper Co.*, 206 U.S. 230, 236 (1907).

24. Regional Haze Regulations, 64 Fed. Reg. 35,714, 35,717–18 (July 1, 1999) (codified at 40 C.F.R. pt. 51).

25. For a full description of the science behind how haze affects visibility, see generally WILLIAM C. MALM, VISIBILITY 73–92 (2016).

effects,<sup>26</sup> and it also creates aesthetic concerns, especially in areas where the ability to see clearly for long distances is of high value.<sup>27</sup> Part I of this Note provides a brief history of Congress's and EPA's response to visibility impairment and describes early efforts to address cross-border haze.<sup>28</sup>

*A. Legislative History Behind Federal Visibility Protections*

In 1975, a photographer for the environmental group "Friends of the Earth" submitted a slide presentation to federal lawmakers that showed deteriorating visibility in Grand Canyon National Park due to pollution from a nearby coal-fired power plant.<sup>29</sup> The slide presentation caught the attention of Florida Congressman Paul Rogers, who, together with a lobbyist from Friends of the Earth, drafted a visibility protection law that eventually made its way into the Clean Air Act Amendments of 1977.<sup>30</sup> Early photographic evidence of visibility impairment played a big role in the legislative debate behind the law, with participants making statements like, "On some days, a visitor cannot see across [the] Grand Canyon for the yellow-brown haze lying in it."<sup>31</sup>

Park supporters and environmental groups applauded the proposed visibility protections, but industrial groups sharply opposed them. The 1977 hearings before the Senate Subcommittee on Environmental Pollution and the House Subcommittee on Health and the Environment highlight this tension: testimony from the National Parks and Conservation Association urged Congress to "make every possible effort" to protect the "healthy, fresh air," "cultural heritage," and "scenic vistas" of the national park system.<sup>32</sup> Testimony from the Environmental Defense Fund stressed the "economic value" of tourism in national parks.<sup>33</sup> Conversely, testimony from the American Petroleum Institute recommended that provisions for visibility protection "be deleted" because there "ha[d] not been adequate information

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26. Regional Haze Regulations, 64 Fed. Reg. at 35,718.

27. MALM, *supra* note 25, at 256.

28. For a full history on the Regional Haze Program, see generally Palmer, *supra* note 19.

29. MALM, *supra* note 25, at 253; video clip from THE REGULATORS: OUR INVISIBLE GOVERNMENT (PBS documentary 1982), <https://www.c-span.org/video/?c4810776/user-clip-regulators-clip> [<https://perma.cc/9QZX-FA49>].

30. Clean Air Act Amendments of 1977, Pub. L. No. 95-95, § 128, 91 Stat. 685, 742-45 (1977) (codified as amended at 42 U.S.C. § 7491 (2012)).

31. *Clean Air Act Amendments of 1977: Hearings on S. 251, S. 252, and S. 253 Before the S. Subcomm. on Envtl. Pollution of the S. Comm. on Env't and Pub. Works*, 95th Cong. 206 (testimony of Richard E. Ayres, Natural Resources Defense Council).

32. *Id.* at 753, 755 (testimony presented by the National Parks and Conservation Association).

33. *Id.* at 119, 121 (statement of John Krautkraemer, Colorado Open Space Council and Environmental Defense Fund).

developed to establish the need for this new Section.”<sup>34</sup> Testimony from the Virginia Air Pollution Control Board pinned the issue on dust and humidity, noting: “We do not believe there is any way EPA or any other regulatory agency can handle this problem unless they have the power of God.”<sup>35</sup>

The visibility provisions survived the subcommittee and made it to the House and Senate floors. Members of the House of Representatives voted 326–49 in favor of the Clean Air Act Amendments,<sup>36</sup> noting that “[i]t is our intent that aggressive steps be taken to reduce this eyesore which has defaced our grand vistas in the West.”<sup>37</sup> While the visibility provisions experienced a degree of pushback in the Senate,<sup>38</sup> the amendments eventually passed with a vote of 73–7.<sup>39</sup> President Jimmy Carter signed the Clean Air Act Amendments into law on August 7, 1977.<sup>40</sup>

Notably, the legislative history behind this law does not reflect any discussion of how cross-border pollution might affect visibility in national parks. Much of the political push for the law stemmed from visible trails of pollution that flowed directly from American power plants into the Grand Canyon, so lawmakers may not have contemplated distant pollution sources when they passed these visibility protections.<sup>41</sup> The United States also emitted far more air pollution than its neighboring countries at the time the statute was passed—for example, the United States emitted 28,064 gigagrams of sulfur dioxide (a haze-forming pollutant) in 1977, while Canada emitted 4,435 gigagrams and Mexico emitted 1,763 gigagrams.<sup>42</sup> When

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34. *Clean Air Act Amendments of 1977: Hearings on H.R. 4151, H.R. 4578, and H.R. 4444 Before the H. Subcomm. on Health and the Env't of the H. Comm. on Interstate and Foreign Commerce*, 95th Cong. 1216–17 (statement of Dr. W. J. Coppoc, Chairman, Environmental Affairs General Committee, American Petroleum Institute).

35. *Id.* at 363 (statement of John M. Daniel, Assistant Executive Director, Virginia Air Pollution Control Board).

36. 123 CONG. REC. 16,979 (1977).

37. *Id.* at 27,076 (statement of Rep. Waxman).

38. *See, e.g., id.* at 18,137 (statement of Sen. Hatch) (“Now, I agree like anybody else it would be wonderful to not have impaired visibility, but I wonder when we are going to talk about impaired right-to-work, impaired jobs . . .”).

39. *Id.* at 18,515–16.

40. Clean Air Act Amendments of 1977, Pub. L. No. 95-95, § 128, 91 Stat. 685, 742–45 (1977) (codified as amended at 42 U.S.C. § 7491 (2012)).

41. *See* 123 CONG. REC. 27,076 (1977) (statement of Rep. Waxman) (“Protecting the Grand Canyon simply must become a normal business practice of the American industry. . . . [T]he Four Corners and Navajo powerplants can expect to retrofit with additional pollution controls to limit the vast deterioration in visibility which their plumes have caused.”).

42. *Historical Anthropogenic Sulfur Dioxide Emissions: National and Regional Data Set by Source Category*, v2.86 (1850–2005), NASA SOCIOECONOMIC DATA AND APPLICATIONS CTR., <https://doi.org/10.7927/H49884X9> [<https://perma.cc/J53Z-829A>].

passing the visibility statute, lawmakers may have recognized that the brunt of pollution reduction would need to occur domestically.

*B. The 1977 Visibility Provisions*

Congress's final product, titled "Visibility protection for Federal class I areas," sets out three main parts: (1) a national goal of preventing and eliminating visibility impairment in national parks,<sup>43</sup> (2) a requirement for EPA to gather data to meet this national goal,<sup>44</sup> and (3) a requirement that EPA promulgate regulations directing states to make "reasonable progress" towards the national goal.<sup>45</sup> The law aims to protect "Class I Federal areas," which include national parks bigger than 6,000 acres and wilderness areas bigger than 5,000 acres.<sup>46</sup> Currently, 156 areas are protected under this definition, including Big Bend National Park, Yellowstone, the Grand Canyon, and many others.<sup>47</sup>

Congress's visibility law does not make a distinction between domestic and international sources of visibility impairment, nor does it authorize border states to achieve less than the national goal.

*C. EPA's Slow Response to the 1977 Law*

After Congress finalized these federal visibility protections, implementation of the law progressed at a glacial speed for more than twenty years. The environmental group Friends of the Earth sued EPA in 1979 after the agency failed to make any visibility regulations in the two years following the Clean Air Act Amendments of 1977.<sup>48</sup> As a result of the lawsuit, EPA entered into a consent decree that required the agency to make a visibility regulation by December 2, 1980.<sup>49</sup> Dialogue between EPA regulators near the end of 1980 reflected a serious strain to produce a rule by the deadline:

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43. The statute sets a national goal of "the prevention of any future, and the remedying of any existing, impairment of visibility in mandatory class I Federal areas which impairment results from manmade air pollution." 42 U.S.C. § 7491(a)(1) (2012).

44. The statute directs EPA to gather information for measuring, modeling, identifying, and preventing any visibility-impairing man-made air pollution, which the statute defines broadly as "air pollution which results directly or indirectly from human activities." *Id.* §§ 7491(a)(3), 7491(g)(3).

45. The statute requires EPA's regulations to direct states to develop plans that contain "emission limits, schedules of compliance, and other measures as may be necessary" to reach the national visibility protection goal. *Id.* § 7491(b)(2).

46. *Id.* §§ 7491(a)(1), 7472(a).

47. *List of Areas Protected by the Regional Haze Program*, U.S. ENVTL. PROT. AGENCY, <https://www.epa.gov/visibility/list-areas-protected-regional-haze-program> [<https://perma.cc/LM92-VZBP>].

48. David R. Everett, Note, *The Hazy Future: Are State Attempts to Reduce Visibility Impairment in Class I Areas Caught Between Scylla and Charybdis? The Effects of the Clean Air Act Amendments of 1990 on Visibility Protection*, 8 PACE ENVTL. L. REV. 115, 129 n.83 (1990).

49. *Id.*

“We entered this exercise . . . agreeing to this schedule with the Court and the environmentalists . . . with the upfront understanding that we’re going to do a C+ job the first time through. It’s all you can do in this timeframe.”<sup>50</sup>

Indeed, the finalized 1980 regulation—EPA’s first stab at addressing visibility impairment—did little to remedy the issue in national parks, and ultimately only one facility, a coal-fired power plant located twelve miles from the Grand Canyon, ever had to install pollution controls under the rule.<sup>51</sup> EPA’s 1980 rule identified two sources of visibility impairment: (1) plumes of air pollution originating from “a single source or a small group of sources,” and (2) regional haze, defined as “widespread, regionally homogeneous haze from a multitude of sources which impairs visibility in every direction over a large area.”<sup>52</sup> Though commenters at the time considered regional haze to be a “far more serious” problem than visible plumes,<sup>53</sup> EPA did not address haze in the 1980 rulemaking, and it instead promised to address regional haze in “future phases” once it acquired more data on the issue.<sup>54</sup>

For almost two decades after publishing the 1980 rule, EPA did not make another regulation for visibility protection. One reason for this stagnation was the fact that Congress did not include any deadlines in the 1977 visibility statute, and thus, environmental groups had no mechanism to force EPA’s hand.<sup>55</sup> Several groups brought a suit to compel EPA action in 1986, and—though the appeals court noted that “[c]alendar pages had yellowed by the thousands” without the promised haze regulation—the court nonetheless dismissed the suit because the 1977 statute did not create a time-sensitive duty for EPA to regulate haze.<sup>56</sup> A second reason for EPA’s

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50. Video clip from *THE REGULATORS: OUR INVISIBLE GOVERNMENT* (PBS documentary 1982), <https://www.c-span.org/video/?c4876475/user-clip-drama-epa-steering-committee> [<https://perma.cc/TXH9-MXYQ>].

51. CONG. RESEARCH SERV., RL32483, VISIBILITY, REGIONAL HAZE, AND THE CLEAN AIR ACT: STATUS OF IMPLEMENTATION 2 (2006), [https://www.everycrsreport.com/files/20061023\\_RL32483\\_0f0c2857acd5021367379018d141ee01007fbc10.pdf](https://www.everycrsreport.com/files/20061023_RL32483_0f0c2857acd5021367379018d141ee01007fbc10.pdf) [<https://perma.cc/L44H-EHS3>].

52. See Visibility Protection for Federal Class I Areas, 45 Fed. Reg. 80,084, 80,085 (Dec. 2, 1980) (codified at 40 C.F.R. pt. 51) (“From this research, we can say there are generally two types of air pollution which reduce or impair visibility: (1) Smoke, dust, colored gas plumes, or layered haze emitted from stacks which obscure the sky or horizon and are relatable to a single source or a small group of sources, and (2) widespread, regionally homogeneous haze from a multitude of sources which impairs visibility in every direction over a large area.”).

53. *Protecting Visibility Under the Clean Air Act: EPA Establishes Modest “Phase” I Program*, 11 ENVTL. L. REP. 10053, 10053–54 (1981).

54. Visibility Protection for Federal Class I Areas, 45 Fed. Reg. at 80,086.

55. See THOMAS O. MCGARITY, *POLLUTION, POLITICS, AND POWER* 50 (2019) (noting that the 1970 Clean Air Act contained a provision allowing citizen suits against EPA should it fail to meet a statutory deadline). The visibility provisions did not include any statutory deadlines. 42 U.S.C. § 7491 (2012).

56. *Maine v. Thomas*, 874 F.2d 883, 886, 888 (1st Cir. 1989).

stagnation was that the Reagan Administration—which held power between 1981 and 1989—aggressively sought “regulatory relief” for industry groups during those years, a period that one scholar has called “the lost decade” for environmental regulations.<sup>57</sup> Environmental action began to return during the George H. W. Bush Administration, under which the 1990 amendments to the Clean Air Act—a largely bipartisan effort—finally created a deadline for action on the issue of haze in national parks.<sup>58</sup> After several groups published detailed reports on haze throughout the 1990s that criticized the government’s slow response,<sup>59</sup> EPA eventually acted again on haze during the Clinton Administration.

*D. EPA (Finally) Promulgates a Haze Rule*

At the turn of the century, EPA finalized the 1999 “Regional Haze Regulations,” which signaled a promising step forward for addressing haze in national parks. The 1999 rule imposed three main requirements on the states, but state responses to the rule were quite slow.

First, the 1999 rule required all states to develop a long-term plan to achieve “natural visibility”—defined as “the long-term degree of visibility . . . estimated to exist . . . in the absence of human-caused impairment”<sup>60</sup>—in all national parks and wilderness areas by the year 2064.<sup>61</sup> Even states without an eligible national park or wilderness area had to develop a regional haze plan under the rule, because “all States contain sources whose emissions are reasonably anticipated to contribute to regional haze.”<sup>62</sup>

Second, the 1999 rule required states to chart a path from “baseline visibility conditions” (calculated with visibility data from 2000 to 2004) to the end goal: natural visibility.<sup>63</sup> The path from baseline visibility to natural

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57. See MCGARITY, *supra* note 55, at 92 (stating the Reagan Administration’s approach to environmental regulation).

58. See *id.* at 124 (describing the 1990 amendments to the Clean Air Act under the George H. W. Bush administration); CONG. RESEARCH SERV., *supra* note 51, at 2 (noting that the 1990 amendments contained a statutory deadline for EPA to act on haze).

59. See, e.g., NAT’L RESEARCH COUNCIL, *supra* note 22, at 11 (“The slowness of progress to date is due largely to a lack of commitment to an adequate government effort to protect and improve visibility and to sponsor the research and monitoring needed to better characterize the nature and origin of haze in various areas.”).

60. U.S. ENVTL. PROT. AGENCY, GUIDANCE FOR ESTIMATING NATURAL VISIBILITY CONDITIONS UNDER THE REGIONAL HAZE PROGRAM 1-1 (2003), <https://www3.epa.gov/ttn/amtic/files/ambient/visible/natural.pdf> [<https://perma.cc/RB28-YX2V>].

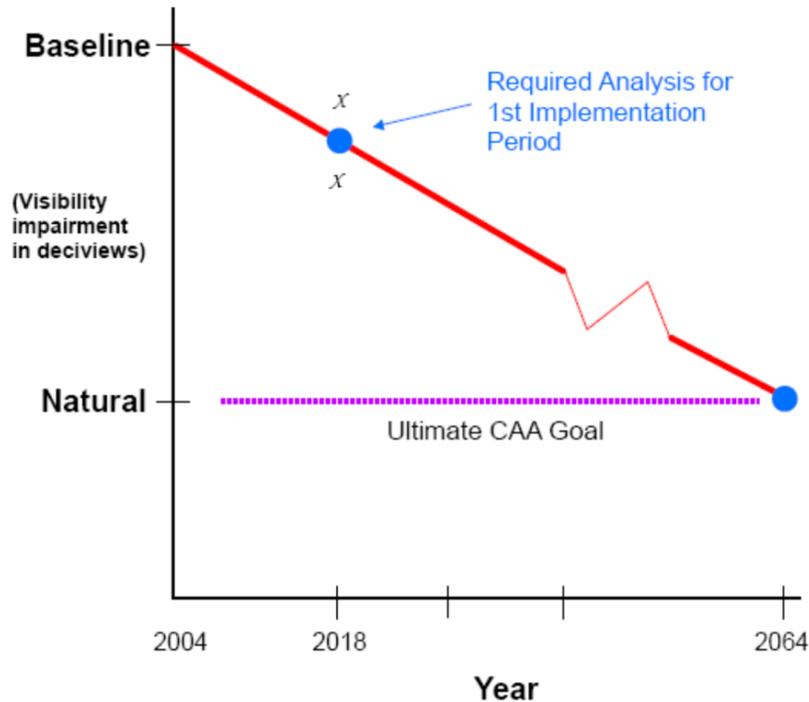
61. Regional Haze Regulations, 64 Fed. Reg. 35,714, 35,732 (July 1, 1999) (codified at 40 C.F.R. pt. 51).

62. *Id.* at 35,721.

63. *Id.* at 35,732. “Natural visibility” still allows for some degree of haze attributed to “natural” sources like “windblown dust.” *Id.* at 35,729.

visibility is often called the “glide path.”<sup>64</sup> Figure 2 shows an example of a state glide path from baseline visibility to natural visibility.

Figure 2<sup>65</sup>



Third, to assure that states are on track with the glide path, the 1999 rule required states to set “reasonable progress goals” over ten-year periods.<sup>66</sup> To achieve these goals, states must devise strategies including “enforceable emission limits, schedules of compliance, or other enforceable measures” to reduce haze-forming pollution.<sup>67</sup> States must require “best available retrofit technology” (BART) (e.g., “scrubbers” that reduce sulfur dioxide emissions from coal-fired power plants) on certain large air pollution sources.<sup>68</sup> States

64. See, e.g., *SIP Revision: Regional Haze*, TEX. COMM’N ON ENVTL. QUALITY, [https://www.tceq.texas.gov/airquality/sip/bart/haze\\_sip.html](https://www.tceq.texas.gov/airquality/sip/bart/haze_sip.html) [<https://perma.cc/V3J7-DT5S>] (“The ‘glide path’ is the path to the 2064 goal.”).

65. *Id.*

66. Regional Haze Regulations, 64 Fed. Reg. at 35,730–31.

67. *Id.* at 35,772.

68. *Id.* at 35,737–38.

can opt out of BART if they implement a program that EPA determines is equally effective, like an emissions trading program.<sup>69</sup>

Notably, the 1999 rule recognized for the first time that border states may face unique challenges in measuring and remedying regional haze, but it did not provide any mechanisms for addressing the issue. EPA noted that some national parks or wildness areas, like Big Bend, “are particularly prone to influence by emissions beyond the United States border.”<sup>70</sup> EPA offered general guidance “that States should evaluate the impacts of current and projected emissions from international sources in their regional haze programs, particularly in cases where it has already been well documented that such sources are important.”<sup>71</sup> EPA also promised to “work with the governments of Canada and Mexico to seek cooperative solutions on transboundary pollution problems.”<sup>72</sup> EPA did not clarify how states should adjust their programs to account for international emissions, but it did note that “[t]he EPA does not expect States to restrict emissions from domestic sources to offset the impacts of international transport of pollution.”<sup>73</sup>

After EPA finalized the 1999 rule, states responded slowly and unwillingly. Though the rule required states to submit a plan by 2007 to cover the first ten-year implementation period from 2008 to 2018, 37 of the 50 states failed to submit all or a portion of their plans by the deadline.<sup>74</sup> After EPA threatened to impose federal plans on uncooperative states, “[n]early all [s]tates” submitted their haze plans by 2011.<sup>75</sup>

In this first round of ten-year haze plans, border states often noted that emissions from across the U.S. border impacted their ability to reach natural visibility by the year 2064. New Mexico, for example, wrote that it had “no control over international emissions” and that it “strongly believes that unless future work is conducted by the federal government to determine the extent of international emissions . . . improvements in visibility and general air

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69. *Id.* at 35,772.

70. *Id.* at 35,736.

71. *Id.*

72. *Id.*

73. *Id.*

74. Finding of Failure to Submit State Implementation Plans Required by the 1999 Regional Haze Rule, 74 Fed. Reg. 2392, 2392 (Jan. 15, 2009).

75. U.S. ENVTL. PROT. AGENCY, FACT SHEET: REGIONAL HAZE CONSENT DECREE (2011), [https://www.epa.gov/sites/production/files/2015-11/documents/20111109regionalhazecd\\_fs.pdf](https://www.epa.gov/sites/production/files/2015-11/documents/20111109regionalhazecd_fs.pdf) [<https://perma.cc/QVK4-KYYY>]. Some states, like Montana, did not have enough staff to implement a haze program and just accepted a federal plan. *See, e.g., Regional Haze*, MONT. DEP'T OF ENVTL. QUALITY, <http://deq.mt.gov/Air/AQ/RegionalHaze> [<https://perma.cc/X4NN-QYWJ>] (“For a variety of reasons, including available staff time and the cost of performing the required technical analyses, Montana told EPA the state would not submit a plan to comply with the rule. As a result, EPA published a Federal Implementation Plan or ‘FIP’ for Montana in 2012.”).

quality will continue to elude states.”<sup>76</sup> Similarly, Texas asked EPA for “federal efforts to reduce the international transport impacts on regional haze coming into the United States across Texas’ southern border.”<sup>77</sup> The issues flagged in state haze plans, combined with pressure from industry groups, spurred EPA to formally address the issue of cross-border haze in 2017.

## II. Problems with EPA’s 2017 Approach to Cross-Border Haze

This Part analyzes EPA’s 2017 approach to cross-border haze, which, as stated earlier, changes the end goal of the program from “natural visibility” to “natural visibility” plus an “estimate” of international emissions. This Part argues that EPA’s approach creates three major problems: (1) it makes the haze program inconsistent with the language of the Clean Air Act, (2) it incentivizes border states to overestimate international emissions and avoid cross-border collaboration, and (3) it causes environmental justice issues along the U.S. border.

### A. EPA’s 2017 Cross-Border Haze Approach

EPA directly addressed how states should deal with cross-border haze in a rule titled “Protection of Visibility: Amendments to Requirements for State Plans.”<sup>78</sup> Acknowledging that “emissions . . . from other countries . . . may impact Class I areas, especially those areas near borders and coastlines,” EPA finalized a provision that allows states to adjust haze plans “by adding an estimate for international anthropogenic impacts to 2064 natural visibility conditions.”<sup>79</sup> While EPA requires “scientifically valid data and methods” to quantify cross-border haze, the agency also noted that it “had not yet . . . seen an approach” that can estimate cross-border haze with sufficient accuracy.<sup>80</sup> EPA also noted that it would review a state’s estimation of cross-border haze “in the context of the complete [haze plan] submission,” indicating that such review would not be overly searching.<sup>81</sup>

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76. N.M. ENV’T DEP’T, NEW MEXICO STATE IMPLEMENTATION PLAN: REGIONAL HAZE 129 (2011), [https://www.env.nm.gov/wp-content/uploads/sites/2/2018/03/Proposed\\_RH\\_SIP\\_309g\\_03312011.pdf](https://www.env.nm.gov/wp-content/uploads/sites/2/2018/03/Proposed_RH_SIP_309g_03312011.pdf) [<https://perma.cc/8UB9-ZNSR>]. New Mexico also cited its participation with the Paso del Norte Joint Advisory Committee—a binational group that works to decrease air emissions in certain border communities—but noted that the committee “only covers a small portion of New Mexico, Texas, and Mexico.” *Id.*

77. TEX. COMM’N ON ENVTL. QUALITY, *supra* note 14, at ES-2.

78. Protection of Visibility: Amendments to Requirements for State Plans, 82 Fed. Reg. 3078 (Jan. 10, 2017) (codified at 40 C.F.R. pts. 51, 52).

79. *Id.* at 3103, 3105.

80. *Id.* at 3104–05.

81. *See id.* at 3104 (discussing EPA’s proposed holistic review).

EPA issued clarifying guidance on the issue in 2018 and again in 2019. The 2018 guidance recommended a specific computer model for states to calculate cross-border haze.<sup>82</sup> Notably, the 2018 guidance recommended that states use “recent year estimates” of international emissions to modify the 2064 end goal, noting that projecting international emissions to 2064 is “speculative and somewhat uncertain.”<sup>83</sup> The guidance also noted that states can run the computer models in various ways with various inputs, which can produce “a range of estimates” for cross-border haze.<sup>84</sup> EPA further advised states to consider “the realism of the estimate” before “simply adding to natural conditions.”<sup>85</sup> In the 2019 guidance, EPA ran the recommended model for the national parks and wilderness areas involved in the haze program, providing a “range” of cross-border haze estimates that states may use in the second round of haze plans due on July 31, 2021.<sup>86</sup> The 2019 guidance also noted that the “uncertainty in many of the calculations and modeling and ambient data” requires “additional scrutiny.”<sup>87</sup>

*B. EPA’s Approach Is Inconsistent with the Language of the Clean Air Act*

EPA’s approach allowing cross-border haze to continue to impair visibility in national parks and wilderness areas is inconsistent with the language of the Clean Air Act. In the 1977 visibility protections, Congress set a national goal of “the prevention of *any* future, and the remedying of *any* existing, impairment of visibility . . . result[ing] from *manmade* air pollution.”<sup>88</sup>

Within Congress’s broad language, the words “any” and “manmade” both indicate that Congress wished to eliminate *all* visibility impairment in national parks, not just domestically sourced pollution. The plain meaning of

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82. See U.S. ENVTL. PROT. AGENCY, TECHNICAL GUIDANCE ON TRACKING VISIBILITY PROGRESS FOR THE SECOND IMPLEMENTATION PERIOD OF THE REGIONAL HAZE PROGRAM 18 (2018), [https://www.epa.gov/sites/production/files/2018-12/documents/technical\\_guidance\\_tracking\\_visibility\\_progress.pdf](https://www.epa.gov/sites/production/files/2018-12/documents/technical_guidance_tracking_visibility_progress.pdf) [<https://perma.cc/M63V-XDUR>] [hereinafter TECHNICAL GUIDANCE ON TRACKING VISIBILITY] (recommending “chemical transport models (CTMs) as the most broadly applicable method for attributing pollutant” contributions to international sources).

83. *Id.* at 19.

84. *Id.* at 22.

85. *Id.*

86. See generally U.S. ENVTL. PROT. AGENCY, AVAILABILITY OF MODELING DATA AND ASSOCIATED TECHNICAL SUPPORT DOCUMENT FOR THE EPA’S UPDATED 2028 VISIBILITY AIR QUALITY MODELING app. E (2019), [https://www.epa.gov/sites/production/files/2019-10/documents/updated\\_2028\\_regional\\_haze\\_modeling-tsd-2019\\_0.pdf](https://www.epa.gov/sites/production/files/2019-10/documents/updated_2028_regional_haze_modeling-tsd-2019_0.pdf) [<https://perma.cc/4L8Y-CGHZ>] [hereinafter AVAILABILITY OF MODELING DATA] (providing minimum adjustments, default adjustments, and maximum adjustments for 2064 endpoint values).

87. *Id.* at 67.

88. 42 U.S.C. § 7491(a)(1) (2012) (emphasis added).

the word “any,” as defined in the dictionary, is: “[I]ndiscriminately of whatever kind.”<sup>89</sup> The U.S. Supreme Court has followed the plain meaning of the word “any” on several occasions, noting that, “[r]ead naturally, the word ‘any’ has an expansive meaning, that is, ‘one or some indiscriminately of whatever kind.’”<sup>90</sup> One of the Supreme Court’s interpretations of “any” actually involved the Clean Air Act Amendments of 1977. In *Harrison v. PPG Industries*,<sup>91</sup> the Supreme Court held that the phrase “*any other* final action” in section 307(b)(1) of the 1977 amendments involved “expansive language” that “offer[ed] no indication whatever that Congress intended [a] limiting construction.”<sup>92</sup> The Court thus held that—without “legislative history to the contrary”—the word “any” “must be construed to mean exactly what it says, namely, *any other* final action.”<sup>93</sup>

Similarly, EPA’s interpretation of Congress’s visibility protections should not limit efforts to reduce haze only to domestic sources, but should instead include “exactly what the [visibility provision] says”—remedying “any” impairment of visibility in national parks, domestic or otherwise.<sup>94</sup> The law targets visibility impairment caused by “manmade air pollution,” which it broadly defines as “air pollution which results directly or indirectly from *human* activities.”<sup>95</sup> Congress specifically mentioned “human” activities as opposed to “domestic” or “American” activities, and thus EPA should not limit its haze program only to domestic pollution sources.

This plain language approach is backed up by the statute’s legislative history, which demanded “aggressive steps . . . to reduce this eyesore which has defaced our grand vistas.”<sup>96</sup> EPA’s 2017 approach—which allows states to write off cross-border haze as an unchangeable fact—likely does not constitute an “aggressive step” to improve visibility in national parks. An aggressive step would more likely involve engaging with border countries to reduce haze-forming air pollution. Indeed, EPA itself has recognized this duty to act beyond borders in several of its regional haze rulemakings: in its 1999 regional haze rule, EPA stated it would “work with the governments of

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89. *Any*, MERRIAM-WEBSTER, <https://www.merriam-webster.com/dictionary/any> [https://perma.cc/WC43-629E].

90. *See, e.g.*, *Ali v. Fed. Bureau of Prisons*, 552 U.S. 214, 219, 221 (2008) (alteration in original) (quoting *United States v. Gonzales*, 520 U.S. 1, 5 (1997)) (interpreting the phrase “any other law enforcement officer”); *Gonzales*, 520 U.S. at 5 (interpreting the phrase “any other term of imprisonment”).

91. 446 U.S. 578 (1980).

92. *Id.* at 589.

93. *Id.*

94. *Id.*

95. 42 U.S.C. § 7491(g)(3) (2012) (emphasis added).

96. 123 CONG. REC. 27,076 (1977) (statement of Rep. Waxman).

Canada and Mexico to seek cooperative solutions on transboundary pollution problems.”<sup>97</sup> EPA even noted that states themselves must play a role in cross-border relations: “States retain a duty to work with EPA in helping the Federal government use appropriate means to address international pollution transport.”<sup>98</sup> In light of EPA’s own declarations, the language of the Clean Air Act, and the Act’s legislative history, the approach of ignoring internationally sourced haze in EPA’s regional haze program is misguided.

C. *EPA’s Approach Incentivizes Overestimation of International Emissions and Disincentivizes Cross-Border Collaboration*

EPA’s cross-border haze approach further thwarts Congress’s statutory goal by (1) incentivizing states to game the system, and (2) disincentivizing state and federal cross-border collaboration on haze issues.

EPA’s own guidance on calculating cross-border haze demonstrates the extraordinary uncertainty associated with projecting international pollution estimates out to the year 2064. EPA’s 2019 guidance gives states three options to adjust their plans for cross-border haze: a “minimum” adjustment, a “default” adjustment, and a “maximum” adjustment.<sup>99</sup> Without these adjustments—meaning, if “natural visibility” remained the end goal—47 of the 99 areas included in the 2019 guidance would not meet their haze reduction goals by 2028 without additional in-state pollution controls.<sup>100</sup> If the “maximum” option is selected, all but two sites—one in New Mexico and one in Arizona—would meet the 2028 haze benchmark without even needing to reduce in-state pollution at all.<sup>101</sup> Conversely, if a “minimum” estimate is selected, twenty-six areas would not meet their 2028 benchmarks, meaning many more states would need to require additional pollution controls within their borders.<sup>102</sup> This wide range of outcomes is reflected in visual

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97. Regional Haze Regulations, 64 Fed. Reg. 35,714, 35,736 (July 1, 1999) (codified at 40 C.F.R. pt. 51).

98. *Id.* at 35,755.

99. AVAILABILITY OF MODELING DATA, *supra* note 86, at 56.

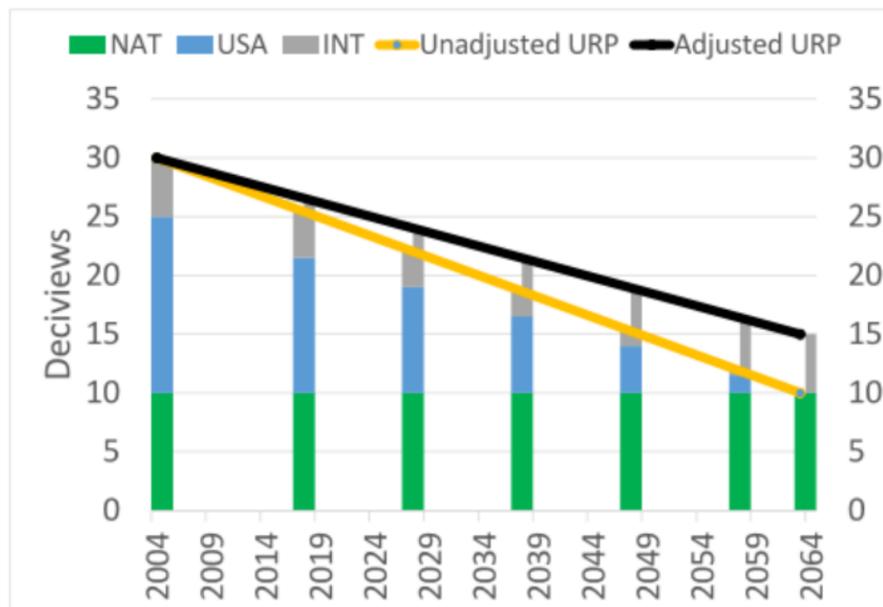
100. *Id.* at 31, 67.

101. *See id.* at 56–65 (showing that only Salt Creek in New Mexico and Sycamore Canyon Wilderness in Arizona would still require more in-state controls even with a “maximum” glide path adjustment). States that reasonably contribute to visibility impairment in these areas might also have to consider control technology within their states.

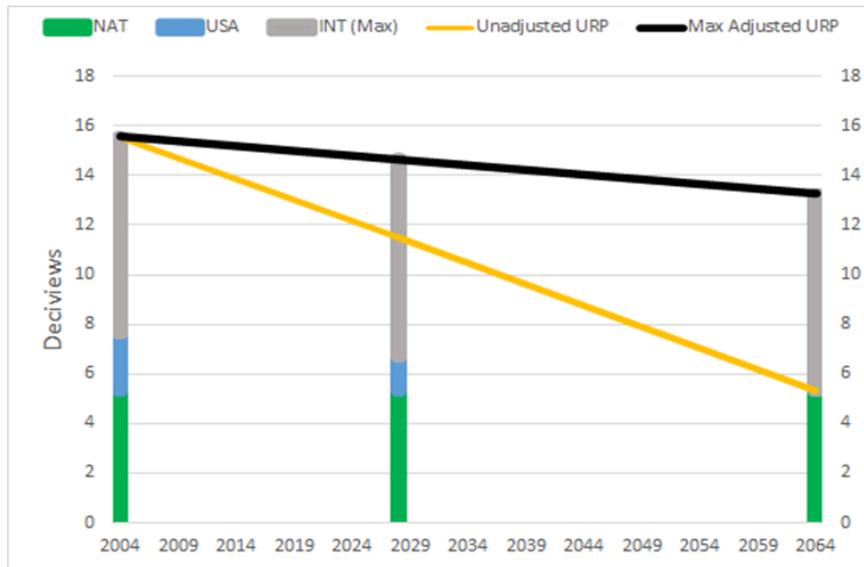
102. *See id.* at 67 (noting that twenty-six areas would not meet the 2028 goal under a “minimum” adjustment).

representations of EPA’s data, as well. The following two figures show how a glide path “adjustment” can vary based on differing model inputs and assumptions: Figure 3, which EPA published in its 2018 guidance, shows a general example of what a glide path adjustment could look like, demonstrating a fairly small difference between an end goal of “natural visibility” and an end goal adjusted for cross-border haze. On the other hand, Figure 4 uses data from EPA’s 2019 guidance to show the potentially huge difference in visibility outcomes in Big Bend when the “natural visibility” end goal is replaced with a “maximum adjustment” end goal.

**Figure 3**<sup>103</sup>



103. TECHNICAL GUIDANCE ON TRACKING VISIBILITY, *supra* note 82, at 19. To help interpret the graph in Figures 3 and 4, please note the following abbreviations: estimates of natural sources (NAT), estimates of domestic anthropogenic sources (USA), estimates of international anthropogenic sources (INT), and uniform rate of progress (URP).

Figure 4<sup>104</sup>

EPA’s “range of estimates” for calculating cross-border haze allows incredible leeway for states to overestimate international emissions. The incentive to manipulate EPA’s new approach mostly results from the cost of in-state pollution controls: installing technology to reduce sulfur dioxide pollution from a large coal-fired power plant, for example, could cost upwards of \$600 million.<sup>105</sup> Though not all pollution control technologies are as expensive, industries sometimes overestimate the potential costs of pollution control, warning state agencies that stricter environmental protections could create economic devastation for certain facilities.<sup>106</sup> Consequently, states that wish to protect these industries have huge incentives to manipulate EPA’s approach by overestimating cross-border

104. To analyze the data that was used to create this chart, see AVAILABILITY OF MODELING DATA, *supra* note 86, at 25, 56, app. at E-1. The “maximum” adjustment values may also include estimates for prescribed fires. *Id.* at 54–55.

105. See George W. Sharp, *Update: What’s That Scrubber Going to Cost?*, POWER MAG. (Feb. 28, 2009), <https://www.powermag.com/update-whats-that-scrubber-going-to-cost/> [<https://perma.cc/GM7G-4KVG>] (noting that SO<sub>2</sub> pollution control technologies cost an average of \$359 per KW for large facilities based on 2008 survey responses from coal-fired power plants, meaning that a 1.7 GW plant would need to expend over \$600 million to control its SO<sub>2</sub> pollution).

106. See MCGARITY, *supra* note 55, at 124 (describing how the saga of requiring pollution controls on a plant near the Grand Canyon “demonstrate[s] how companies can grossly overestimate the cost of compliance to their political advantage”).

haze and thus minimizing the need for costly in-state controls. Moreover, even when certain pollution controls have relatively small costs, some states may still overestimate cross-border haze in order to maintain a more “deregulated” business environment.

For border states that require air emissions data from Mexico to estimate cross-border haze, limited and dated information sources make EPA’s haze approach even more uncertain. Mexico does not regularly publish air emission data for “point sources” (large, individual pollution sources), and cross-border haze computer models require information from these sources to generate accurate haze estimates.<sup>107</sup> The last inventory of Mexico’s emission sources occurred in 2008, and subsequent EPA models of Mexican emissions have relied upon “projections” of this outdated information.<sup>108</sup> Thus, EPA estimations for 2064 cross-border haze along the southern border of the United States rely on data from fifty-six years prior, indicating a huge degree of uncertainty. Similarly, if states on the southern border choose to run their own cross-border haze models instead of using EPA’s “adjustments,” they would need to “project” 2008 emissions data out to the year 2064. The staleness of this data creates another layer of uncertainty that could lead to further state manipulation of EPA’s cross-border haze approach.

In addition to these issues with overestimating international emissions, EPA’s approach also disincentivizes cross-border collaboration on haze. By allowing states to write off internationally sourced haze in the program’s end goal, the approach reduces state incentives to engage across the border to drive changes that can reduce air pollution. Likewise, EPA’s approach also removes federal incentives to engage in cross-border diplomacy on haze issues. Though the United States has already entered into various environmental agreements with Canada and Mexico, most of these agreements rely on annexes (amendments to the general agreement that focus on specific concerns) and continuing enforcement in order to improve cross-border issues.<sup>109</sup> EPA’s 2017 rule reduces the haze program’s ability to drive further changes through these agreements.

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107. See TECHNICAL GUIDANCE ON TRACKING VISIBILITY, *supra* note 82, at 19–20 (noting that cross-border haze models require information on international emissions and noting that only some international emissions may be “readily available”).

108. See U.S. ENVTL. PROT. AGENCY, TECHNICAL SUPPORT DOCUMENT (TSD): PREPARATION OF EMISSIONS INVENTORIES FOR THE VERSION 7.1 2016 NORTH AMERICAN EMISSIONS MODELING PLATFORM 37 (2019), [https://www.epa.gov/sites/production/files/2019-08/documents/2016v7.1\\_northamerican\\_emismod\\_tsd.pdf](https://www.epa.gov/sites/production/files/2019-08/documents/2016v7.1_northamerican_emismod_tsd.pdf) [<https://perma.cc/SP8X-52DN>] (noting that EPA estimates emissions from Mexican point sources based on the 2008 Inventario Nacional de Emisiones de Mexico).

109. See *infra* Part III.

*D. EPA's Approach Causes Environmental Justice Issues*

Under EPA's 2017 approach, border states will have more discretion to overestimate cross-border pollution and thus minimize in-state pollution controls. Consequently, national parks and wilderness areas on or near the U.S. border may experience poorer visibility and worse air quality at the end of EPA's haze program. Because EPA's 2017 cross-border haze provision affects certain communities more than others, it raises environmental justice concerns that warrant further review.

The legal framework for environmental justice arose from efforts by individuals and communities starting in the 1960s to address huge inequities in environmental protection.<sup>110</sup> Despite growing legal protections for clean and healthy environments throughout the twentieth century, people of color and low-income people often faced—and still continue to face—disproportionate impacts from air pollution, waste, toxics, lead poisoning, and other environmental risks.<sup>111</sup> After years of organizing and demonstrations by grassroots groups—including a 1967 protest in Houston sparked by the death of an eight-year-old African-American girl in a garbage dump, and a 1982 sit-in against a polychlorinated biphenyl (PCB) landfill in a mostly African-American community in North Carolina—EPA took the first steps to study environmental injustice in 1991.<sup>112</sup> Several years after EPA published a report presenting evidence of environmental injustice, President Clinton signed an Executive Order requiring all federal agencies to “make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations in the United States.”<sup>113</sup> The Executive Order is not judicially enforceable, but it does direct federal agencies to make and implement programs that do not create environmental injustice.<sup>114</sup>

Under the Executive Order, EPA is directed to make rules and guidance that do not disproportionately affect minority or low-income groups. The areas that will be most affected by EPA's 2017 cross-border haze approach,

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110. *Environmental Justice*, U.S. ENVTL. PROT. AGENCY, <https://www.epa.gov/environmentaljustice> [<https://perma.cc/434R-R4ST>].

111. Robert D. Bullard, *Environmental Justice for All: It's the Right Thing to Do*, 9 J. ENVTL. L. & LITIG. 281, 281 (1994).

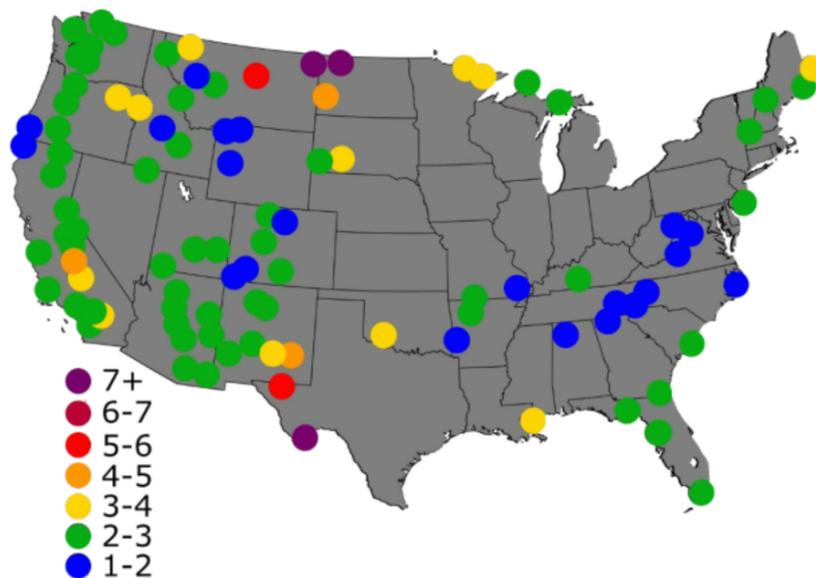
112. *Id.* at 284–85, 288.

113. Exec. Order No. 12,898, 59 Fed. Reg. 7629 (Feb. 11, 1994). *See generally* U.S. ENVTL. PROT. AGENCY, ENVIRONMENTAL EQUITY: REDUCING RISK FOR ALL COMMUNITIES (1992) (reporting evidence that “racial minority and low-income populations are disproportionately exposed” to environmental risks).

114. ROBERT ESORTHY & DAVID M. BEARDEN, CONG. RESEARCH SERV., IF10529, ROLE OF THE U.S. ENVIRONMENTAL PROTECTION AGENCY IN ENVIRONMENTAL JUSTICE 1 (2019), <https://fas.org/sgp/crs/misc/IF10529.pdf> [<https://perma.cc/837Q-57JU>].

however, are largely inhabited by minority populations, low-income populations, or both. Figure 5 shows the areas that EPA predicts will experience the highest endpoint adjustments due to cross-border haze in the year 2064. The most affected areas—most of which reside on the U.S.–Mexico border and in rural areas of Montana and North Dakota—may experience the worst air quality and lowest visibility at the end of EPA’s regional haze program.

**Figure 5**<sup>115</sup>



Populations along the U.S.–Mexico border include a high percentage of minority groups and high levels of poverty.<sup>116</sup> Populations along the most impacted area of the U.S.–Canada border in Montana and North Dakota include numerous American Indian reservations.<sup>117</sup> Many impacted areas

115. AVAILABILITY OF MODELING DATA, *supra* note 86, at 66. EPA measured these estimated adjustments in deciviews, a unit that quantifies visibility impairment. *Id.*

116. U.S.–MEX. BORDER HEALTH COMM’N, THE UNITED STATES–MEXICO BORDER REGION AT A GLANCE, [http://www.nnir.org/drupal/sites/default/files/unm\\_the\\_us\\_mexico\\_border\\_region\\_at\\_a\\_glance.pdf](http://www.nnir.org/drupal/sites/default/files/unm_the_us_mexico_border_region_at_a_glance.pdf) [<https://perma.cc/SND8-TYMQ>].

117. U.S. CENSUS BUREAU, AMERICAN INDIANS AND ALASKA NATIVES IN THE UNITED STATES (2010), [https://www2.census.gov/geo/maps/special/AIANWall2010/AIAN\\_US\\_2010.pdf](https://www2.census.gov/geo/maps/special/AIANWall2010/AIAN_US_2010.pdf) [<https://perma.cc/D2DG-6FAC>].

near the northern border also experience high levels of poverty.<sup>118</sup> Though EPA's 2017 haze rule noted that it "will not have disproportionately high and adverse human health, well-being or environmental effects" on minority or low-income populations,<sup>119</sup> the data released in EPA's 2019 guidance suggests otherwise: national parks and wilderness areas that will most closely reach "natural visibility" sit along the East and West coasts or in the interior of the country, while national parks and wilderness areas that will remain polluted and impaired sit mostly in areas with large minority populations and high poverty rates along the U.S. border.<sup>120</sup> These environmental justice concerns warrant review of EPA's cross-border haze approach under the agency's own guidance for assessing and preventing environmental injustice.<sup>121</sup>

### III. Solutions

To address the various issues explored in Part II, EPA should consider an alternative approach for dealing with cross-border haze. This Part offers a two-part alternative and explores various multinational institutions that can support EPA and state efforts.

#### A. *A Two-Part Proposal for Addressing Cross-Border Haze*

EPA can address the problems associated with its current approach in two ways: (1) by replacing the 2064 end goal "adjustment" with recurring cross-border haze analyses in states' ten-year haze plans, and (2) by clarifying an affirmative duty for border states and EPA to engage in cross-border collaboration to address haze-forming pollution.

First, EPA should replace its current cross-border haze approach—adjusting the 2064 end goal to "natural visibility" plus an "estimate" of cross-border haze—with recurring considerations of cross-border haze in every ten-year revision of a state's haze plan.<sup>122</sup> Accounting for cross-border haze in periodic haze-plan revisions instead of in the program's end goal will allow for a more nuanced, flexible approach that eliminates one of the main sources of potential manipulation in EPA's current approach: having to extrapolate

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118. See *Maps & Data*, POVERTY USA, <https://www.povertyusa.org/data/2018> [<https://perma.cc/H2CS-KAQZ>] (illustrating the high levels of poverty along the borders).

119. Protection of Visibility: Amendments to Requirements for State Plans, 82 Fed. Reg. 3078, 3120 (Jan. 10, 2017) (codified at 40 C.F.R. pts. 51, 52).

120. AVAILABILITY OF MODELING DATA, *supra* note 86, at 24 fig.3-2.

121. See generally U.S. ENVTL. PROT. AGENCY, TECHNICAL GUIDANCE FOR ASSESSING ENVIRONMENTAL JUSTICE IN REGULATORY ANALYSIS (2016), [https://www.epa.gov/sites/production/files/2016-06/documents/ejtg\\_5\\_6\\_16\\_v5.1.pdf](https://www.epa.gov/sites/production/files/2016-06/documents/ejtg_5_6_16_v5.1.pdf) [<https://perma.cc/6GTT-MU7K>] (providing technical approaches for identifying and eliminating environmental justice issues in regulatory decisions).

122. See Regional Haze Program Requirements, 40 C.F.R. § 51.308(f) (2019) (requiring that each state revise its haze plan every ten years).

international emissions data all the way out to the year 2064. Instead, states can factor cross-border haze into their calculations of “reasonable progress goals” for any given ten-year period, which would allow them to avoid overcontrolling in-state pollution in a given ten-year period, but would not allow them to alter their end goal using extraordinarily uncertain estimates.<sup>123</sup> Though this recurring analysis still leaves room for some overestimation of cross-border haze (especially for areas that rely on 2008 emissions data from Mexico), it reduces a large degree of uncertainty associated with projecting out to 2064. Moreover, this approach would reinstate the end goal of “natural visibility,” incentivize more cross-border collaboration in order to reach that end goal, and better align with the statutory mandate of the Clean Air Act: the elimination of “any” visibility impairment in national parks and wilderness areas.

Second, EPA should clarify—either in a rulemaking or through guidance—that border states have an affirmative duty to address haze-forming international emissions through diplomatic means. This duty aligns with the language in the visibility provisions of the Clean Air Act and with EPA’s own haze regulations. The Clean Air Act calls for state plans containing “such emission limits, schedules of compliance *and other measures as may be necessary* to make reasonable progress toward meeting the national goal.”<sup>124</sup> The national goal involves cleaning up “any” visibility impairment in national parks, and thus “other measures” can easily encompass an affirmative duty to work with neighboring countries on cross-border haze. EPA’s regional haze regulations also incorporate this language, noting that states should take “other measures as necessary” in both their long-term haze control strategy and in their development of reasonable progress goals.<sup>125</sup>

Additionally, to reduce overestimation of international emissions in a state’s calculation of “reasonable progress goals” every ten years, EPA could require states to expend more efforts and resources on international collaboration when states make higher estimates of cross-border haze. Conversely, EPA could require less efforts and resources towards international collaboration when states make lower estimates of cross-border haze. This approach could further prevent overestimation of international

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123. Considerations of cross-border haze can factor into a state’s four-factor analysis of what constitutes a “reasonable progress goal” under 40 C.F.R. §§ 51.308(d)(1)(i)(A), 51.308(f)(2)(i). Cross-border haze could affect the “time necessary for compliance” factor, as international emission sources affect how quickly a state can achieve progress towards natural visibility.

124. 42 U.S.C. § 7491(b)(2) (2012) (emphasis added).

125. 40 C.F.R. §§ 51.308(d)(3), 51.308(f)(2).

emissions, as higher estimates will need to be met with stronger diplomatic efforts.<sup>126</sup>

Finally, while Congress's visibility provisions do not create an explicit duty for EPA to address international haze-forming pollution, EPA should nonetheless exercise its general authority to engage in environmental diplomacy with neighboring countries in two ways.<sup>127</sup> First, EPA should continue its efforts to engage with bordering countries to develop more accurate and updated emission inventories (national databases that list the amount of air pollutants discharged into the atmosphere during a year), thus allowing for more accurate data in determining an approach to cross-border haze.<sup>128</sup> Second, EPA should specifically target haze-forming air pollution in its agreements with neighboring countries. Several existing multinational agreements and institutions already exist to provide a platform for these changes, and EPA should leverage these organizations to target cross-border haze.

*B. Multinational Agreements and Institutions That Can Support Efforts to Reduce Cross-Border Haze*

Many multinational environmental agreements, institutions, and programs already exist to facilitate collaboration across borders, so EPA and border states need not reinvent the wheel to address cross-border haze. At the federal level, the United States has entered into environmental agreements with both Mexico and Canada. In 1983, the United States and Mexico signed the "Agreement Between the United States of America and the United Mexican States on Cooperation for the Protection and Improvement of the Environment and Border Area" (commonly called the "La Paz Agreement"), which created a general framework to address shared environmental challenges in the border region.<sup>129</sup> EPA and SEMARNAT (Mexico's EPA equivalent) implement the La Paz Agreement, which requires consultation with state environmental agencies, cities, intergovernmental organizations,

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126. EPA could tack this rule onto 40 C.F.R. section 51.308(f)(3)(ii)(A), which currently requires states that will not achieve "reasonable progress" to provide a "robust demonstration" as to why they will not meet their goals. This rule could expand on this "robust demonstration" by requiring states to provide evidence of their international efforts to reduce cross-border haze, like engaging with regional pollution groups and collaborating with environmental agencies across the border.

127. EPA's authority to engage internationally derives from several agreements between the United States and neighboring countries. *See infra* Subpart III(B).

128. *See generally Transboundary Air Pollution*, U.S. ENVTL. PROT. AGENCY, <https://www.epa.gov/international-cooperation/transboundary-air-pollution> [<https://perma.cc/TK78-MUVB>] (describing EPA's past efforts to address international pollution issues).

129. Agreement Between the United States of America and the United Mexican States on Cooperation for the Protection and Improvement of the Environment in the Border Area, Mex.-U.S., Aug. 14, 1983, 35 U.S.T. 2916.

NGOs, border tribes, and Mexican indigenous communities.<sup>130</sup> Both countries can agree to update the La Paz Agreement, as they have done in the past to address issues including copper smelters along the border and transnational air pollution in urban areas.<sup>131</sup> To address cross-border haze pollution, EPA can coordinate with SEMARNAT to update the La Paz Agreement with an annex that creates a binational policy to address haze-forming air pollution. This annex could include goals or timelines for implementing pollution controls on major air sources (like power plants), plans to collaborate consistently to produce accurate emissions inventories, or commitments on renewable portfolio standards, which require energy companies to derive a certain percentage of their power from renewable sources, thus cutting down demand for fossil-fuel-driven electricity.

Another federal program that EPA could use to address cross-border haze near the U.S.–Mexico border is the “Border Program,” which has already run for three cycles: the Border XXI Program (1995–2000), the Border 2012 Program (2002–2012), and the Border 2020 Program (2012–2020).<sup>132</sup> The Border Programs target a variety of broad environmental goals over the program’s period.<sup>133</sup> For example, the first goal of the Border 2020 program was to “reduce air pollution,” so EPA, SEMARNAT, and several regional work groups developed objectives to reduce vehicle emissions on the border, reduce exceedances of health-based air quality limits in border communities, and improve ambient monitoring networks.<sup>134</sup> These efforts aimed to reduce local pollution issues and likely reduced some haze-forming pollution, but none of the programs to date have specifically addressed visibility or haze, nor have they attempted to set limits on major haze-forming pollution sources in Texas or Mexico (like power plants).<sup>135</sup> In the next phase of the Border Program, EPA can add haze reduction as a program goal, and it can also make agreements with SEMARNAT to target major point sources near the border, which are often the biggest contributors of haze-forming pollution particles.<sup>136</sup>

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130. Eades, *supra* note 20, at 68.

131. *Id.*

132. *Id.* at 70–71.

133. *Id.*

134. *Border 2020: Goals and Objectives*, U.S. ENVTL. PROT. AGENCY, <https://www.epa.gov/border2020/goals-and-objectives> [<https://perma.cc/22NX-GSDA>].

135. *See generally* U.S. ENVTL. PROT. AGENCY & SEMARNAT, BORDER 2020: U.S.–MEXICO ENVIRONMENTAL PROGRAM (2020), [https://www.epa.gov/sites/production/files/documents/border2020summary\\_0.pdf](https://www.epa.gov/sites/production/files/documents/border2020summary_0.pdf) [<https://perma.cc/4EVE-U2NW>] (summarizing the goals and methods to address environmental issues under Border 2020).

136. *See, e.g.*, Federal Implementation Plan for Regional Haze and Interstate Transport of Pollution Affecting Visibility, 79 Fed. Reg. 74,818, 74,834 (Dec. 16, 2014) (codified at 40 C.F.R.

The United States has entered into similar environmental agreements with Canada that could also be leveraged to address cross-border haze. In 1991, the two countries signed the U.S.–Canada Air Quality Agreement,<sup>137</sup> which originally aimed to reduce acid rain but was later amended to address transboundary smog pollution.<sup>138</sup> Unlike the La Paz Agreement, the U.S.–Canada Air Quality Agreement contains a provision that addresses visibility protection in both countries.<sup>139</sup> Accordingly, EPA should continue to implement and enforce this provision through the periodic progress reports required under this agreement.<sup>140</sup>

The Commission for Environmental Cooperation (CEC)—a tri-national organization including Mexico, the United States, and Canada—provides another option for federal involvement in cross-border haze issues. The CEC works to “protect and enhance the North American environment” through cooperation on “environmental issues of continental concern” through strategic plans and reports.<sup>141</sup> CEC’s plan for 2021–2025 notes that air pollution “remains a significant concern” and proposes several avenues for addressing the issue, including better tracking of pollution releases and improved “information exchange” on air quality issues.<sup>142</sup> EPA should leverage this program to push for consistent emissions inventories, which

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pt. 52) (“The TCEQ focused its control strategy analysis on point source emissions of SO<sub>2</sub> and NO<sub>x</sub>, as the sources of these pollutants are the main anthropogenic pollutants that affect visibility at Class I areas in Texas.”).

137. Agreement Between the Government of the United States of America and the Government of Canada on Air Quality, Can.-U.S., Mar. 13, 1991, T.I.A.S. No. 11,783 [hereinafter U.S.–Canada Air Quality Agreement].

138. *Annex 3: Specific Objectives Concerning Ground-Level Ozone Precursors*, ENV’T & CLIMATE CHANGE CAN., <http://www.ec.gc.ca/air/default.asp?lang=En&n=9992B080-1> [<https://perma.cc/2A3E-GQH8>]; see also *Canada-United States Air Quality Agreement: Overview*, GOV’T OF CAN., <https://www.canada.ca/en/environment-climate-change/services/air-pollution/issues/transboundary/canada-united-states-air-quality-agreement-overview.html> [<https://perma.cc/PLT5-VCKY>] (“The Ozone Annex was added . . . to address the transboundary air pollution leading to high air quality levels of ground-level ozone, a major component of smog.”).

139. See generally U.S.–Canada Air Quality Agreement, *supra* note 137 (providing a section for “Prevention of Air Quality Deterioration and Visibility Protection”).

140. See *U.S.–Canada Air Quality Agreement Progress Reports*, U.S. ENVTL. PROT. AGENCY, <https://www.epa.gov/airmarkets/us-canada-air-quality-agreement-progress-reports> [<https://perma.cc/AH2P-7DJM>] (listing the progress reports under the U.S.–Canada Air Quality Agreement).

141. *About*, COMM’N FOR ENVTL. COOPERATION, <http://www.cec.org/about/> [<https://perma.cc/N9J4-CW96>]. Though the CEC was originally created under NAFTA, the USMCA (NAFTA’s replacement agreement) affirmed EPA’s continuing role in the CEC. *EPA’s Role in the North American Commission for Environmental Cooperation (CEC)*, U.S. ENVTL. PROT. AGENCY, <https://www.epa.gov/international-cooperation/epas-role-north-american-commission-environmental-cooperation-cec> [<https://perma.cc/E86C-NHHM>].

142. COMM’N FOR ENVTL. COOPERATION, STRATEGIC PLAN 2021–2025 12–13 (2020), [http://www.cec.org/files/documents/strategic\\_plans/cec-strategic-plan-2021-2025.pdf](http://www.cec.org/files/documents/strategic_plans/cec-strategic-plan-2021-2025.pdf) [<https://perma.cc/A6L4-9MDZ>].

will allow EPA and the border states to better understand and address cross-border haze.

Border states can also engage in these agreements or create their own initiatives for environmental diplomacy. In many of these multinational agreements, state environmental agencies are invited to participate in planning and implementing the chosen environmental efforts.<sup>143</sup> Additionally, some state environmental agencies have created their own cross-border initiatives, which can also be leveraged to address haze pollution.<sup>144</sup> While border states may not be able to work on federal issues like updating the Mexican national air emissions inventory, they can share airshed-management techniques and expertise with neighboring states and participate in regional airshed-management groups.<sup>145</sup>

The variety of existing multinational environmental institutions starkly contrasts with EPA's current approach to cross-border haze, which essentially writes off international emissions as an uncontrollable phenomenon. Because a large framework for international engagement already exists, EPA should consider an alternative cross-border haze approach that encourages instead of discourages international collaboration on haze and visibility.

### Conclusion

EPA's current approach to cross-border haze undermines the national visibility goal of the Clean Air Act, incentivizes overestimation of international emissions, discourages cross-border collaboration, and creates environmental justice concerns. To correct these issues, EPA should consider alternative approaches to cross-border haze, including (1) changing how states account for international pollution in their state implementation plans, and (2) reaffirming state and federal duties to engage in cross-border haze reduction efforts. Both EPA and state environmental agencies can and should meaningfully engage with existing multinational environmental institutions to reduce cross-border haze and achieve natural visibility in national parks and wilderness areas.

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143. See generally U.S. ENVTL. PROT. AGENCY & SEMARNAT, *supra* note 135 (noting that 10 border states participated in planning and implementing the Border 2020 program).

144. See, e.g., *Environmental Issues in the Texas Portion of the U.S.–Mexico Border Area*, TEX. COMM'N ON ENVTL. QUALITY, <https://www.tceq.texas.gov/border> [<https://perma.cc/F6ZB-LNLT>] (describing TCEQ's efforts to collaborate across the border on environmental issues).

145. See, e.g., *JAC for the Improvement of Air Quality in the Ciudad Juarez, Chihuahua/El Paso, Texas/Dona Ana County, New Mexico Air Basin*, JOINT ADVISORY COMM. (JAC), <https://www.cccjac.org/> [<https://perma.cc/5BY5-Y2UQ>] (providing information on the Joint Advisory Committee (JAC)—a regional airshed group on the Texas border).