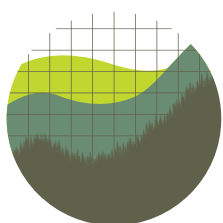




Within Its Wheelhouse

EPA's Latest Power Plant Regulations Rely on Traditional Approaches Left Available After *West Virginia v. EPA*



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Introduction

In May 2023, the Environmental Protection Agency (EPA) proposed new limits for greenhouse gas (GHG) emissions from certain fossil-fuel-fired power plants under Section 111 of the Clean Air Act.¹ Section 111 requires EPA to set limits reflecting the emission reductions achievable by applying what the agency determines to be the “best system of emission reduction” (BSER) that “has been adequately demonstrated” and that meets certain other statutory factors.² For coal-fired power plants scheduled to retire in or after 2040, and new baseload gas-fired power plants, EPA determined the BSER to include carbon capture and storage (CCS),³ a set of technologies that filter out carbon dioxide before it reaches the atmosphere and discard it safely, for example, by sequestering it underground.

Some critics have suggested that EPA’s new rule triggers the major questions doctrine.⁴ Under that doctrine, a court should look skeptically on the agency action in extraordinary cases involving unprecedented and transformative applications of agency authority.

But the major questions doctrine is inapplicable to EPA’s use of CCS in its proposed regulations. Rather than propose a new approach that would transform its exercise of statutory authority, EPA has embraced one of its most traditional and well-established regulatory practices: setting emission limits based on pollution controls that cause a regulated source to operate more cleanly. EPA’s approach to setting limits reflecting the emission reductions achievable through CCS is well in line with decades of practice and the existing statutory regime. EPA has stayed comfortably within the wheelhouse of Section 111 authority that the Supreme Court explicitly left available in its 2022 *West Virginia v. Environmental Protection Agency* decision.

This policy brief details why EPA’s latest proposal to limit GHG emissions from power plants fits neatly within the bounds of the legal authority left intact after *West Virginia*. It then explains how states and operators retain flexibility to use emission trading and averaging programs to implement EPA’s regulations.

¹ New Source Performance Standards for Greenhouse Gas Emissions from New, Modified, and Reconstructed Fossil Fuel-Fired Electric Generating Units; Emission Guidelines for Greenhouse Gas Emissions from Existing Fossil Fuel-Fired Electric Generating Units; and Repeal of the Affordable Clean Energy Rule, 88 Fed. Reg. 33,240 (proposed May 23, 2023) (to be codified at 40 C.F.R. pt. 60) [hereinafter Proposed Rule].

² 42 U.S.C. § 7411(a)(1) (including additional statutory factors for identifying the BSER).

³ See, e.g., Proposed Rule, 88 Fed. Reg. at 33,243. EPA’s proposed rule included additional BSERs for existing coal-fired and new gas-fired power plants that are not discussed in this report. EPA also proposed to regulate some of the largest and most heavily used existing gas-fired power plants, but EPA subsequently announced that it intends to reconsider its approach and finalize limits for existing gas-fired power plants separately.

⁴ See, e.g., Mario Loyola, *EPA’s Illegal Power Play*, HERITAGE FOUND. (Sept. 28, 2023), <https://www.heritage.org/government-regulation/commentary/epas-illegal-power-play> [<https://perma.cc/X882-LF6J>].

1. **CCS Fits in EPA’s Long Tradition of Selecting a System of Emission Reduction that Makes Sources Operate More Cleanly:** CCS operates like traditional add-on technologies, such as sulfur scrubbers, that filter out pollution. These traditional add-on technologies also generate waste that facilities must dispose of, including offsite.
2. **Effects on the Generation Mix Are Common and Permitted Under Supreme Court Precedent:** EPA’s power plant regulations have long caused effects on the generation mix as they affect the costs of competing electricity-producing technologies. Although the Supreme Court ruled that EPA cannot select generation shifting as the BSER, it distinguished generation-shifting *effects* as permissible.
3. **Only Extraordinary Cases Involving Novel Regulatory Approaches That Transform the Underlying Statutory Authority Trigger the Major Questions Doctrine:** By hewing to its traditional regulatory approaches of identifying pollution controls that cause a regulated source to operate more cleanly—and not identifying generation shifting as the BSER—EPA has ensured that its approach is not among the “extraordinary” cases that trigger the major questions doctrine.
4. **The Supreme Court’s *West Virginia* Decision Preserves Room to Use Averaging, Trading, and Controls that Extend Beyond the Source to Achieve Compliance:** These mechanisms have historically provided cost-effective pollution-reduction approaches. The *West Virginia* Court explicitly declined to bar EPA from using those approaches—leaving EPA room to cut air pollution while giving businesses compliance flexibility.

Legal Background: Setting GHG Emission Limits Under Section 111 of the Clean Air Act

Section 111 of the Clean Air Act requires EPA to regulate stationary source categories that cause, or significantly contribute to, air pollution that “may reasonably be anticipated to endanger public health or welfare.”⁵ The agency first used its Section 111 authority to mitigate air pollution soon after President Nixon signed the section into law,⁶ and EPA has continued to use it dozens of times over the past five decades.⁷

In 2011, the Supreme Court clarified that Section 111 grants EPA authority to reduce GHG emissions specifically from fossil-fuel-fired power plants.⁸ During the Obama administration, EPA issued a rule under Section 111(d) to limit GHG emissions from existing power plants under a regulation called the Clean Power Plan.⁹ The Clean Power Plan set the BSER based in part on generation shifting from sources that emit greenhouse gases more intensively (like coal-fired power plants) to lower- or zero-emitting sources (like wind and solar facilities).¹⁰ In other words, rather than simply relying on specific technological controls, EPA used generation shifting as part of the BSER. The Supreme Court stayed the Clean Power Plan in February 2016, before it took effect.¹¹ During the Trump administration, EPA then repealed the Clean Power Plan and replaced it with the Affordable Clean Energy Rule,¹² but the D.C. Circuit vacated that Trump-era repeal and rule replacement.¹³

Subsequently, the Supreme Court granted review of the case. In its 2022 *West Virginia v. Environmental Protection Agency* decision, the Court did not question EPA’s authority under Section 111 to regulate GHG emissions from power plants, but it held that EPA’s particular generation-shifting approach in the Clean Power Plan was unlawful.¹⁴ To support its decision, the Court expressly named and relied on the “major questions doctrine” for the first time in a Supreme Court majority opinion.¹⁵ As we explain in more detail below, under this doctrine, the Court said that the Clean Power Plan’s approach was unlawful because its inclusion of generation shifting in the BSER did not fit within Section 111’s traditional regulatory practices and, if allowed to stand, would transform the nature of the agency’s statutory authority from reducing pollution of regulated sources to dictating the national generation mix.¹⁶ In the year after that Court ruling, EPA issued a new proposal to regulate certain power plants’ greenhouse gas emissions under Section 111, this time relying on traditional types of controls.

⁵ 42 U.S.C. § 7411(b)(1)(A).

⁶ See, e.g., Standards of Performance for New Stationary Sources, 36 Fed. Reg. 24,876 (Dec. 23, 1971) (setting sulfur dioxide emission standards the year after the 1970 Clean Air Act Amendments that introduced Section 111).

⁷ See Env’t Prot. Agency, *New Source Performance Standards*, <https://www.epa.gov/stationary-sources-air-pollution/new-source-performance-standards> [<https://perma.cc/G4VA-4D5R>].

⁸ Am. Elec. Power Co. v. Connecticut, 564 U.S. 410 (2011).

⁹ Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Units, 80 Fed. Reg. 64,661 (Oct. 23, 2015).

¹⁰ *Id.* at 64,667 (defining three “building blocks” underlying the BSER, the second and third of which involve this generation shifting).

¹¹ Order in Pending Case, *West Virginia v. Env’t Prot. Agency*, 577 U.S. 1126 (Feb. 9, 2016).

¹² See Repeal of the Clean Power Plan; Emission Guidelines for Greenhouse Gas Emissions From Existing Electric Utility Generating Units; Revisions to Emission Guidelines Implementing Regulations, 84 Fed. Reg. 32,520 (July 8, 2019).

¹³ See *Am. Lung Ass’n v. Env’t Prot. Agency*, 985 F.3d 914 (D.C. Cir. 2021). The D.C. Circuit granted a stay of the mandate to vacate the repeal of the Clean Power Plan while EPA designed new GHG emission limits. Order Granting Motion for Patrial Stay, *Am. Lung Ass’n v. Env’t Prot. Agency*, No. 19-1140 (D.C. Cir. Feb. 22, 2021). This stay clarified that operators were not required to meet the requirements of the never-implemented Clean Power Plan.

¹⁴ *West Virginia v. Env’t Prot. Agency*, 142 S. Ct. 2587 (2022).

¹⁵ See *id.* at 2605 (using the phrase for the first time).

¹⁶ *Id.* at 2608.

CCS Fits in EPA’s Long Tradition of Selecting a System of Emission Reduction that Makes Sources Operate More Cleanly

Determining that CCS is the BSER fits within a long tradition of EPA setting emission limits based on “add-on controls”—technologies that can be physically added to a stationary source to reduce emissions.¹⁷ This section shows how CCS fits within this long tradition.

Scrubber Technology and Other Add-on Controls

Since the 1970 Clean Air Act Amendments established Section 111, “EPA has exercised [its] authority [under the provision] by setting performance standards based on measures that would reduce pollution by causing plants to operate more cleanly.”¹⁸ For example, in 1971, EPA set sulfur dioxide standards for fossil-fuel-fired steam generators and sulfuric acid production facilities that based the standards’ stringency on the emission reductions achievable through sulfur scrubbers (among other technologies).¹⁹ These scrubbers, which “extract[] the sulfur dioxide gas out of the exit gas stream through exposure to a sodium sulfite solution,”²⁰ are a quintessential example of add-on controls. In *West Virginia*, the Supreme Court looked to EPA’s long history of using such technologies in setting emission limits to inform its understanding of EPA’s authority.²¹

Further, in *West Virginia*, the Court explicitly contrasted scrubber technology with generation shifting, suggesting that the former was an example of the kind of add-on control technology that is allowable for the BSER, while the latter is not.²² The Court highlighted the BSER in an earlier Section 111(d) regulation, the 2005 Clean Air Mercury Rule,²³ which would cause facilities to “take additional steps to address . . . [mercury] reduction requirements under Clean Air Act section 111, including . . . [installing] additional scrubbers.”²⁴ The Court went on to describe the Clean Air Mercury Rule as one “entry in an unbroken list of prior Section 111 rules that devised the enforceable emissions limit by determining the best control mechanisms available for the source.”²⁵ Other “entri[ies]” in this “unbroken list” that the *West Virginia* Court highlighted—all under Section 111(d)—include:

- Emission guidelines based on “fiber mist eliminators,” which attach to regulated facilities, in a proposed standard regulating sulfuric acid mist in existing sulfuric acid production units.²⁶
- Emission guidelines based in part on scrubbers and filters in a final standard regulating sulfur in kraft pulp mills.²⁷
- Emission guidelines based on flares, which are combustor devices used at the facility, in a final standard regulating several pollutants for municipal solid waste landfills.²⁸

¹⁷ *Id.* at 2611.

¹⁸ *Id.* at 2599.

¹⁹ See Standards of Performance for New Stationary Sources, 36 Fed. Reg. 24,876 (Dec. 23, 1971).

²⁰ *Essex Chem. Corp. v. Ruckelshaus*, 486 F.2d 427, 438 (D.C. Cir. 1973).

²¹ *West Virginia*, 142 S. Ct. at 2610.

²² *Id.* at 2610–11.

²³ See *id.*

²⁴ Standards of Performance for New and Existing Stationary Sources: Electric Utility Steam Generating Units, 70 Fed. Reg. 28,606, 28,619 (May 18, 2005).

²⁵ *West Virginia*. 142 S. Ct. at 2610–11.

²⁶ *Id.* at 2602 (citing Emission Guidelines for the Control of Sulfuric Acid Mist from Existing Sulfuric Acid Production Units, 41 Fed. Reg. 48,706 (Nov. 4, 1976)).

²⁷ *Id.* (citing Kraft Pulp Mills; Final Guideline Document; Availability, 44 Fed. Reg. 29,828 (May 22, 1979)).

²⁸ *Id.* (citing Standards of Performance for New Stationary Sources and Guidelines for Control of Existing Sources: Municipal Solid Waste

In addition to these examples flagged by the Court, EPA has based many of its other Section 111 standards on similar “add-on” control technologies.²⁹

CCS includes what is essentially a “carbon scrubber,”³⁰ an approach which fits the mold of emission-control technologies long used under Section 111. It similarly uses an add-on technology to capture the targeted pollution before it can leave the source and enter the atmosphere. As EPA summarizes, “[g]enerally, the capture processes most applicable to combustion turbines and utility boilers remove [carbon dioxide] from the exhaust gas after combustion.”³¹ And, much like the sulfur scrubbers described above, “[m]ost post-combustion capture systems utilize liquid solvents (most commonly amine-based) in a scrubber column to absorb the CO₂ from the flue gas.”³² **These “carbon scrubbers” are analogous to the emission-control technologies that EPA has long used to guide its Section 111 standards—and that the West Virginia Court recognized as traditional.**³³

Waste Disposal

In addition to capturing carbon pollution, the “S” in CCS involves disposing (i.e., “sequestering”) of this pollution safely. This too is not “extraordinary.” **Many pollution control technologies long used under Section 111, including classic scrubber technologies, also require waste disposal.** For example, the D.C. Circuit explained that sulfur scrubbers result in a sulfur waste material, or “sludge,” that can be “disposed of” offsite.³⁴ Similarly, in describing particulate matter standards for lime manufacturing plants, that court noted that underlying control technologies would require “dispos[ing]” of “dust cake[s]” that would form in “baghouses,”³⁵ “dry” “dust” from electrostatic precipitators that “may be disposed of in a variety of ways,”³⁶ and “slurry” from scrubbers that must be “deposited in ponds” in a way that does not risk runoff into navigable waters.³⁷ Each of these waste products must be disposed of in a proper location, which could be

Landfills, 61 Fed. Reg. 9905 (Mar. 12, 1996)).

²⁹ See, e.g., New Source Performance Standards Review for Steel Plants: Electric Arc Furnaces and Argon-Oxygen Decarburization Vessels, 88 Fed. Reg. 58,442, 58,448 (Aug. 25, 2023) (basing a particulate matter emission limit for certain electric arc furnaces and argon-oxygen decarburization vessels on “a capture system and fabric filter”); New Source Performance Standards Review for Nitric Acid Plants, 77 Fed. Reg. 48,433, 48,436 (Aug. 14, 2012) (basing a nitrogen oxides standard for nitric acid plants on selective catalytic reduction, which entails at-the-source technologies); Review and Amendment of Standards of Performance for New Stationary Sources-Secondary Brass and Bronze Production Plants, 49 Fed. Reg. 43,616, 43,617 (Oct. 30, 1984) (applying filter-based standards to new categories of furnaces); Standards of Performance for New Stationary Sources; Petroleum Dry Cleaners, 49 Fed. Reg. 37,328, 37,328 (Sept. 21, 1984) (basing a volatile-organic-compound standard for petroleum dry cleaners on “solvent recovery dryers” and “cartridge filters”). These examples comprise just four of the many prior Section 111 standards based on similar add-on technologies. For a full list of prior Section 111(b) standards, many of which use similar technologies to guide standards, see Env’t Prot. Agency, *New Source Performance Standards*, <https://www.epa.gov/stationary-sources-air-pollution/new-source-performance-standards> [<https://perma.cc/G4VA-4DSR>].

³⁰ The term “carbon scrubbers” is sometimes used to refer to a particular direct air capture technology. In this policy brief, we use the term to refer to scrubber technology in the smokestack of a power plant that plays a comparable role to sulfur scrubbers in a smokestack.

³¹ Proposed Rule, 88 Fed. Reg. at 33,254.

³² *Id.*

³³ *West Virginia*. 142 S. Ct. at 2610.

³⁴ *Sierra Club v. Costle*, 657 F.2d 298, 324 (D.C. Cir. 1981).

³⁵ *Nat’l Lime Ass’n*, 627 F.2d at 424. Dust cakes from baghouses are typically “landfilled” offsite, which requires “transportation.” James H. Turner et al., Env’t Prot. Agency, *Baghouses and Filters*, in EPA AIR POLLUTION CONTROL COST MANUAL 1-1, 1-48 (6th ed., 2002), https://www3.epa.gov/ttnatc1/dir1/c_allchs.pdf [<https://perma.cc/2D2U-LQBB>].

³⁶ *Nat’l Lime Ass’n*, 627 F.2d at 425. Dust from electrostatic precipitators is also typically “landfilled,” which again requires “transportation.” James H. Turner et al., Env’t Prot. Agency, *Electrostatic Precipitators*, in EPA AIR POLLUTION CONTROL COST MANUAL 3-1, 3-49 (6th ed., 2002), https://www3.epa.gov/ttnatc1/dir1/c_allchs.pdf [<https://perma.cc/2D2U-LQBB>].

³⁷ *Nat’l Lime Ass’n*, 627 F.2d at 425. Nothing in the standard requires that the pond be at the same site as the regulated facility. Moreover, other EPA-identified methods of disposing of this slurry occur offsite. See Daniel Mussatti & Paula Hemmer, Env’t Prot. Agency, *Wet Scrubbers for Particulate Matter*, in EPA AIR POLLUTION CONTROL COST MANUAL 2-1, 2-17 (6th ed., 2002), <https://www3.epa.gov/ttnatc1/dir1/cs6ch2.pdf> [<https://perma.cc/PAB5-94MS>] (noting that disposal options for this slurry include “discharg[ing]” wastewater that includes the slurry, as well as “landfill[ing]” any “remaining solid or sludge,” which can entail “laboratory analysis” and “transportation”). While the

located on- or off-site, depending in part on the facility’s geography (e.g., distance between ponds and navigable waters), as the preceding footnotes illustrate. The waste requiring disposal has previously included the regulated particulates,³⁸ just as CCS requires disposing of the regulated pollutant in a proper location—which could be on-site if suitable, and off-site if not.

Considering how to dispose of waste appropriately is a natural part of designing and selecting a standard. In 1973, the D.C. Circuit found that EPA needed to consider any resulting environmental harms from its off-site disposal of scrubber wastes more carefully in its determination that sulfur scrubbers were the BSER for sulfuric acid plants and coal-fired steam generators.³⁹ And in 1979, EPA set Section 111 standards for multiple pollutants from electric utility steam generating units that included in its BSER analysis an evaluation of “the waste products that would be generated under alternative standards,”⁴⁰ including tens of millions of tons of waste “sludge.”⁴¹ The D.C. Circuit took no issue with EPA’s review of these waste disposal options.⁴² It noted without objection that some facilities using the control technologies would adopt “throwaway processes, in which all waste streams are discarded.”⁴³ These decisions clarify that waste disposal is appropriate to consider in the BSER analysis. EPA’s analysis of processes to safely store carbon dioxide waste⁴⁴ in the Proposed Rule⁴⁵ shows the kind of “reasoned consideration of this problem that is required.”⁴⁶

Thinking about how to capture, contain, and dispose of waste, as with CCS, fits comfortably into EPA’s traditional approach to Section 111 regulation. Just as EPA’s proposed standards are based on add-on technologies (“carbon capture”) that require waste disposal and related infrastructure (“carbon storage”), so too were other prior Section 111 standards, including:

- EPA’s 1971 sulfur dioxide standards for “recycle” sulfuric acid plants were based on add-on technologies (sulfur scrubbers) that require waste disposal and related infrastructure (purge waste disposal).⁴⁷
- EPA’s 1977 particulate matter standards for lime-production facilities were based on add-on technologies (“bag-houses,” electrostatic precipitators, and scrubbers) that require waste disposal and related infrastructure (dust or slurry disposal).⁴⁸

court ultimately struck down this standard, its analysis focused on EPA’s inadequate or conflicting explanations on several other issues. See *Nat’l Lime Ass’n*, 627 F.2d.

³⁸ See, e.g., *Nat’l Lime Ass’n*, 627 F.2d at 423 (equating the “dust” described above and “particulate matter”); *id.* at 425 (noting that the “slurry” described above includes “coalesce[d]” “particles”).

³⁹ *Essex Chem. Corp.*, 486 F.2d at 439.

⁴⁰ New Stationary Sources Performance Standards; Electric Utility Steam Generating Units, 44 Fed. Reg. 33,580, 33,603 (June 11, 1979).

⁴¹ *Id.* at 33,608 tbl.2.

⁴² *Sierra Club*, 657 F.2d at 336 (discussing EPA’s analysis of the amount of waste sludge produced by various control methods).

⁴³ *Id.* at 323 n.69.

⁴⁴ To clarify, this policy brief describes carbon dioxide as a “waste” in that term’s colloquial, everyday sense. EPA has explicitly excluded sequestered carbon dioxide as a “waste” for purposes of the Resource Conservation and Recovery Act, which grants EPA authority to regulate certain hazardous waste. See Hazardous Waste Management System: Conditional Exclusion for Carbon Dioxide (CO₂) Streams in Geologic Sequestration Activities, 79 Fed. Reg. 350 (Jan. 3, 2014). But that specialized definition is not at issue here.

⁴⁵ See, e.g., ENV’T PROT. AGENCY, GREENHOUSE GAS MITIGATION MEASURES FOR STEAM GENERATING UNITS: TECHNICAL SUPPORT DOCUMENT 25–33 (2023); ENV’T PROT. AGENCY, GREENHOUSE GAS MITIGATION MEASURES: CARBON CAPTURE AND STORAGE FOR COMBUSTION TURBINES 23–30 (2023); Proposed Rule, 88 Fed. Reg. at 33,247–48 (noting that sequestration is rendered safer and more environmentally friendly by, “among other things, the EPA regulation of geologic sequestration wells under the Underground Injection Control (UIC) program of the Safe Drinking Water Act; required reporting and public disclosure of geologic sequestration activity, as well as implementation of rigorous monitoring, reporting, and verification of geologic sequestration, under the EPA’s Greenhouse Gas Reporting Program; and safety regulations for CO₂ pipelines administered by the Pipeline and Hazardous Materials and Safety Administration (PHMSA)”).

⁴⁶ *Essex Chem. Corp.*, 486 F.2d at 439.

⁴⁷ See *id.* at 438–39 (remanding the regulation with instructions for EPA to further consider its waste disposal-related environmental effects).

⁴⁸ See *Nat’l Lime Ass’n*, 627 F.2d at 424–25 (summarizing waste disposal concerns that were not challenged by litigants).

- EPA’s 1979 sulfur dioxide standards for coal-fired steam generators were based on add-on technologies (more advanced sulfur scrubbers) that require waste disposal and related infrastructure (disposal of sludge and, under some processes, other waste streams).⁴⁹

This attention to safe disposal of harmful pollutants at an appropriate location fits within the requirement that EPA select the “system of emission reduction” that is “best”—a “comprehensive” term that allows, and arguably requires, EPA to consider appropriate disposal.⁵⁰ As the D.C. Circuit put it, “[c]ontrol technologies cannot be ‘best’ if they create greater problems than they solve.”⁵¹ EPA has traditionally considered disposal, including off-site disposal options, when regulating under Section 111.

Effects on the Generation Mix Are Common and Permitted Under Supreme Court Precedent

The fact that complying with Section 111 standards may result in some generation shifting from higher- to lower-emitting sources is also not “extraordinary” and is consistent with judicial precedent. In *West Virginia*, the Supreme Court held that the Clean Air Act lacked “clear congressional authorization” for EPA to set emission limits under Section 111(d) based on a BSER that included generation shifting.⁵² **The problem the Court identified with the Clean Power Plan is not that it would indirectly result in generation shifting as power plants sought to comply with the standards efficiently, but rather that EPA had selected generation shifting as the rule’s “best system of emission reduction” used to set the stringency of the emission limits in the first place.** As the majority clarifies:

there is an obvious difference between (1) issuing a rule that may end up causing an incidental loss of coal’s market share, and (2) simply announcing what the market share of coal, natural gas, wind, and solar must be, and then requiring plants to reduce operations or subsidize their competitors to get there.⁵³

Indeed, all regulations of power plants naturally affect the relative costs and benefits of different compliance pathways and therefore can cause generation-shifting effects. Regulated entities explained this basic cause-and-effect of regulation in their briefing for litigation over the Clean Power Plan in 2016: “Electricity providers have been shifting generation among affected units and to zero-emitting sources as a means of achieving emission reductions for decades.”⁵⁴ As the *West Virginia* dissent notes, in a point the majority does not dispute, “Every regulation of power plants—even the most conventional, facility-specific controls—‘dictat[es]’ the national energy mix to one or another degree. . . . In that sense . . . , everything EPA does is ‘generation shifting.’”⁵⁵ Thus, the fact that compliance with the standards may result in generation-shifting effects is no cause for further scrutiny.

⁴⁹ See *Sierra Club*, 657 F.2d at 336, 323 n.69 (reviewing the reasonableness of EPA’s standard, noting the advantages of EPA’s chosen controls for reducing waste, and ultimately upholding the regulation).

⁵⁰ *Portland Cement Ass’n v. Ruckelshaus*, 486 F.2d 375, 385 n.42 (D.C. Cir. 1973); see also *Essex Chem. Corp.*, 486 F.2d at 439 (approvingly citing this language in requiring EPA to consider the off-site waste effects a standard could generate).

⁵¹ *Sierra Club*, 657 F.2d at 326 (citing *Essex Chem. Corp.*, 486 F.2d at 438–39; *Portland Cement*, 486 F.2d at 386 n.42; Bruce A. Ackerman & William T. Hassler, *Beyond the New Deal: Coal and the Clean Air Act*, 89 YALE L.J. 1466, 1479–80 (1980); David P. Currie, *Direct Federal Regulation of Stationary Sources Under the Clean Air Act*, 128 U. PA. L. REV. 1389, 1420–25 (1980)). Echoing this sentiment, Justice Scalia argued that “[n]o regulation is ‘appropriate’ if it does significantly more harm than good.” *Michigan v. Env’t Prot. Agency*, 576 U.S. 743, 752 (2015). A regulation cannot be “best” if it is not appropriate.

⁵² See *West Virginia*, 142 S. Ct. at 2615–16 (“[T]he only interpretive question before us, and the only one we answer, is . . . whether the ‘best system of emission reduction’ identified by EPA in the Clean Power Plan was within the authority granted to the Agency in Section 111(d) of the Clean Air Act. For the reasons given, the answer is no.”).

⁵³ *Id.* at 2613 n.4.

⁵⁴ Brief of Intervenors Calpine Corp. et al. at 2–3, *West Virginia v. Env’t Prot. Agency*, (D.C. Cir. 2016) (No. 15-1363), <https://perma.cc/CWV2-RMSA>.

⁵⁵ *West Virginia*, 142 S. Ct. at 2637–38 (Kagan, J., dissenting).

Because all regulation naturally affects the relative costs of doing business for competing regulated entities, barring EPA from affecting the distribution of producers under Section 111 would functionally bar the agency from issuing *any* power plant regulations under Section 111. Such a result cannot be what Congress intended given the Clean Air Act’s clear purpose to protect public health from pollution.

Only Extraordinary Cases Involving Novel Regulatory Approaches That Transform the Underlying Statutory Authority Trigger the Major Questions Doctrine

No part of *West Virginia* bars EPA’s use of CCS in its latest proposal. In *West Virginia*, the Supreme Court relied on the major questions doctrine when finding that EPA exceeded its Section 111 authority by identifying generation shifting as a component of the BSER. The major questions doctrine provides that, in extraordinary cases involving unprecedented and transformative applications of agency authority, a court should look skeptically on the agency action in question.⁵⁶

In *West Virginia*, the Supreme Court stressed that only “extraordinary cases” trigger the major questions doctrine.⁵⁷ The bulk of the Court’s analysis of the doctrine’s triggers examined whether EPA had “‘claim[ed] to discover in a long-extant statute [1] an unheralded power’ [2] representing a ‘transformative expansion in [its] regulatory authority.’”⁵⁸ In other words, the Supreme Court focused on (1) regulatory history and (2) the transformative nature of the agency’s asserted authority, which echoed references to “history and . . . breadth” earlier in the opinion.⁵⁹ In *Biden v. Nebraska*—the first Supreme Court decision to rely on the major questions doctrine after *West Virginia*—the Supreme Court again reiterated the importance of “the ‘history and the breadth of the authority that the agency had asserted,’” in addition to “the ‘economic and political significance’ of that assertion.”⁶⁰ Both *West Virginia* and *Nebraska* reveal that an agency action does not trigger the major questions doctrine unless its history *and* breadth *and* economic and political significance provide reason for a court to be skeptical of the agency’s action.

A BSER based on the use of CCS fits the traditional mold of an emission-reduction technique that requires individual sources to operate more cleanly and is not the type of “extraordinary case” that triggers the doctrine.⁶¹ As outlined above, CCS closely mirrors the kinds of pollution-scrubbing technology that EPA has long used to guide its standards, with judicial approval. That these “carbon scrubbers” require additional outside infrastructure to help with safe disposal is also nothing new, and enabling safe transportation and storage is well in line with EPA’s historical practice of determining what system is “best” with reference to off-site considerations.

Nor is the use of these technologies “transformative” of the underlying statutory authority.⁶² In *West Virginia*, the Court labeled the Clean Power Plan “transformative” because EPA had set the BSER to include generation-shifting.⁶³ The

⁵⁶ See generally Natasha Brunstein & Donald L. R. Goodson, *Unheralded and Transformative: The Test for Major Questions After West Virginia*, 47 WM. & MARY ENV’T L. & POL’Y REV. 47 (2022).

⁵⁷ *West Virginia*, 142 S. Ct. at 2608 (quoting *Food & Drug Admin. v. Brown & Williamson Tobacco Corp.*, 529 U.S. 120, 159–60 (2000)).

⁵⁸ *Id.* at 2610 (quoting *Util. Air Regul. Grp. (UARG) v. Env’t Prot. Agency*, 573 U.S. 302, 324 (2014)).

⁵⁹ *Id.* at 2608 (quoting *Brown & Williamson*, 529 U.S. at 159).

⁶⁰ *Nebraska*, 143 S. Ct. at 2372 (quoting *West Virginia*, 142 S. Ct. at 2608) (alterations omitted).

⁶¹ *West Virginia*, 142 S. Ct. at 2608 (quoting *Brown & Williamson*, 529 U.S. at 159–60).

⁶² *Id.* (quoting *UARG*, 573 U.S. at 324).

⁶³ *Id.* at 2612 (“Under its newly ‘discover[ed]’ authority, however, EPA can demand much greater reductions in emissions based on a very different kind of policy judgment: that it would be ‘best’ if coal made up a much smaller share of national electricity generation.” (quoting *UARG*, 573 U.S. at 324)).

Court found that this approach led EPA to inappropriately dictate the optimal generation mix,⁶⁴ rather than hewing to its expertise in evaluating systems of emissions reduction for the same categories of sources it has been regulating for decades.⁶⁵ By sharp contrast, CCS and other BSERs “based on measures that would reduce pollution by causing plants to operate more cleanly”—the very types of emission-reduction approaches that the Court recognized in *West Virginia* as the most traditional⁶⁶—hardly constitute the “fundamental revision of the statute” that the Court found in that case.⁶⁷ As discussed above, the presence of incidental generation-shifting effects changes nothing, as such effects are a common, long-standing, and arguably inevitable feature of any power-sector regulation, and power plants frequently comply with Section 111 mandates by shifting generation.⁶⁸

Although *Nebraska* discusses economic and political significance as relevant to major questions analysis, it does so only after reviewing regulatory antecedents and the transformation of the regulatory scheme.⁶⁹ Economic and political significance alone are insufficient to trigger the doctrine. Moreover, EPA has designed an incremental proposal with costs that are modest compared to prior Clean Air Act rules⁷⁰ and dwarfed by the hundreds of billions at stake in *Nebraska*.⁷¹

Setting emission limits premised on CCS is well in line with the agency’s historical approach to pollution control. This rule’s use of CCS therefore does not trigger the major questions doctrine. EPA’s finding that CCS is adequately demonstrated and cost reasonable is reviewable only using typical arbitrary-or-capricious standards under the Administrative Procedure Act,⁷² not the heightened scrutiny of the major questions doctrine.

⁶⁴ See *id.* at 2611–13.

⁶⁵ Courts have long granted EPA considerable latitude to use its expert determination to determine the BSER and balance the relevant statutory factors. See, e.g., *Am. Elec. Power Co.*, 564 U.S. at 426 (noting that Congress left the decisions of whether and how to regulate GHGs under Section 111 to EPA’s “expert determination”); *Costle*, 657 F.2d at 330 (explaining that “section 111 most reasonably seems to require that EPA identify the emission levels that are “achievable” with “adequately demonstrated technology” and that EPA “must exercise its discretion to choose an achievable emission level which represents the best balance of economic, environmental, and energy considerations”); *Lignite Energy Council v. Env’t Prot. Agency*, 198 F.3d 930, 933 (D.C. Cir. 1999) (“Because section 111 does not set forth the weight that should be assigned to each of these factors, we have granted the agency a great degree of discretion in balancing them . . .” (citations omitted)).

⁶⁶ *West Virginia*, 142 S. Ct. at 2599.

⁶⁷ *Id.* at 2612 (quoting *MCI Telecomms. Corp. v. AT&T Co.*, 512 U.S. 218, 231 (1994)).

⁶⁸ See, e.g., Brief of *Amici Curiae* Grid Experts in Support of Respondents at 16–25, *West Virginia v. Env’t Prot. Agency*, 577 U.S. 1126 (2022) (No. 20-1530) (explaining that power companies and grid operators frequently comply with air-pollution controls by shifting generation); Brief of Intervenors *Calpine Corp. et al.*, *supra* note 54, at 2–3.

⁶⁹ *Nebraska*, 143 S. Ct. at 2372–73.

⁷⁰ For example, EPA’s 1979 new source performance standards for coal-burning power plants, which the D.C. Circuit upheld, were projected to cost utilities “tens of billions of dollars” by 1995 (several fold more in 2019 dollars, which were used to estimate the proposed rule’s costs and benefits), resulting in higher energy costs and consumer prices. *Sierra Club*, 657 F.2d at 314. And the 2012 fuel-efficiency and greenhouse gas emission standards for motor vehicles, which were not challenged in court, were projected to cost industry \$174.25 billion, or an average of \$7.55 billion per year. 2017 and Later Model Year Light-Duty Vehicle Greenhouse Gas Emissions and Corporate Average Fuel Economy Standards, 77 Fed. Reg. 62,624, 62,663 tbl.I-19 (Oct. 15, 2012) (converting projected industry total and annual costs of \$150 billion and \$6.5 billion, respectively, from 2010 dollars to 2019 dollars using the Bureau of Labor Statistic CPI Inflation Calculator). In contrast, EPA projected that its proposed rule (excluding standards for existing gas plants) would cost just \$14 billion (total present value) in analogous 2019 dollars. ENV’T PROT. AGENCY, REGULATORY IMPACT ANALYSIS FOR THE PROPOSED NEW SOURCE PERFORMANCE STANDARDS FOR GREENHOUSE GAS EMISSIONS FROM NEW, MODIFIED, AND RECONSTRUCTED FOSSIL FUEL-FIRED ELECTRIC GENERATING UNITS; EMISSION GUIDELINES FOR GREENHOUSE GAS EMISSIONS FROM EXISTING FOSSIL FUEL-FIRED ELECTRIC GENERATING UNITS; AND REPEAL OF THE AFFORDABLE CLEAN ENERGY RULE at ES-21 tbl.ES-5 (2023). (Cost estimates for EPA’s final rule may differ somewhat from this \$14 billion estimate, but not likely by enough to change the bottom-line conclusion.)

⁷¹ See *Nebraska*, 143 S. Ct. at 2373.

⁷² See 5 U.S.C. § 706(2)(A) (“The reviewing court shall[] hold unlawful and set aside agency action . . . found to be[] arbitrary, capricious, and abuse of discretion, or otherwise not in accordance with law . . .”); *Motor Vehicle Mfrs. Ass’n of U.S., Inc. v. State Farm Mut. Auto. Ins. Co.*, 463 U.S. 29, 43 (1983) (“Normally, an agency rule would be arbitrary and capricious if the agency has relied on factors which Congress has not intended it to consider, entirely failed to consider an important aspect of the problem, offered an explanation for its decision that runs counter to the evidence before the agency, or is so implausible that it could not be ascribed to a difference in view or the product of agency expertise.”); see also DENA ADLER & ANDREW STAWASZ, INST. FOR POL’Y INTEGRITY, DEFINING “ADEQUATELY DEMONSTRATED”: EPA’S

The Supreme Court’s *West Virginia* Decision Preserves Room to Use Averaging, Trading, and Controls that Extend Beyond the Source to Achieve Compliance

The above sections have shown that CCS fits neatly within EPA’s common approach to determining a BSER based on add-on controls that help sources operate more cleanly. This kind of approach steers well clear of the *West Virginia* prohibition on specifying generation shifting as a BSER. But, as noted earlier, **Section 111 is not a mandate to install a particular technology; instead, it sets emission limits based on what emission reductions are achievable by a particular system. Regulated entities have flexibility in how they meet those limits**⁷³—including identifying alternative technologies or processes that may provide more inexpensive ways for their particular sources to meet the emission limits, or reducing their generation at higher-polluting sources by shifting production to lower-emitting sources. **In line with this structure, in the Proposed Rule, EPA recognized that states and operators maintain the authority to use emission averaging and trading mechanisms as compliance pathways to implement regulations.**⁷⁴

As EPA explains both in the Proposed Rule⁷⁵ and in the amendments to its implementing regulations for Section 111(d) more generally,⁷⁶ nothing in Section 111 prohibits trading or averaging as compliance mechanisms. The D.C. Circuit took the same position in *American Lung Association v. Environmental Protection Agency*.⁷⁷ In *West Virginia*, when the Supreme Court reviewed the *American Lung* decision and found that generation shifting could not be the BSER, it left the D.C. Circuit’s understanding of compliance mechanisms intact. Prior Section 111 regulations have also allowed averaging, banking, and trading mechanisms, for example, to regulate new stationary internal combustion engines for multiple pollutants⁷⁸ and mercury from existing power plants.⁷⁹

LONG HISTORY OF FORWARD-LOOKING STANDARDS UNDER SECTION 111 OF THE CLEAN AIR ACT 10 (2024), <https://policyintegrity.org/publications/detail/defining-adequately-demonstrated> (“As part of identifying the ‘best system of emission reduction’ under Section 111, EPA weighs factors like cost and energy requirements that require its expert review of the factual record. Courts have long granted EPA considerable latitude to use its expert determination to balance these factors.” (citations omitted)).

⁷³ The regulated entities would, however, be subject to any further constraints in state implementation plans for existing sources.

⁷⁴ See Proposed Rule, 88 Fed. Reg. at 33,339–41.

⁷⁵ See *id.*

⁷⁶ Adoption and Submittal of State Plans for Designated Facilities: Implementing Regulations Under Clean Air Act Section 111(d), 87 Fed. Reg. 79,176, 79,207–08 (Dec. 23, 2022) (finalized Nov. 17, 2023). This builds on a longstanding recognition: EPA previously amended the Section 111 implementing regulations in 2005 to provide that a state’s “[e]mission standards [may] be based on an allowance system.” See Emission Standards and Compliance Schedules, 40 C.F.R. § 60.24(b)(1) (2023).

⁷⁷ *Am. Lung Ass’n v. Env’t Prot. Agency*, 985 F.3d 914, 957 (D.C. Cir. 2021), *rev’d and remanded sub nom. West Virginia v. Env’t Prot. Agency*, 142 S. Ct. 2587 (2022) (“The statute says nothing about the measures that sources may use to comply with the standards States establish under Section 7411(d), and the EPA cites no separate authority that would require compliance measures to be source-specific, or that Congress meant to so hogtie the States in devising standards of performance.”)

⁷⁸ See Standards of Performance for Stationary Compression Ignition Internal Combustion Engines, 71 Fed. Reg. 39,154, 39,159 (July 11, 2006); Standards of Performance for Stationary Spark Ignition Internal Combustion Engines and National Emission Standards for Hazardous Air Pollutants for Reciprocating Internal Combustion Engines, 73 Fed. Reg. 3568, 3595 (Jan. 18, 2008). In 2006, EPA noted that it has “used [averaging, banking, and trading] often in the context of the nonroad engine program.” 71 Fed. Reg. at 39,159.

⁷⁹ See Standards of Performance for New and Existing Stationary Sources: Electric Utility Steam Generating Units, 70 Fed. Reg. 28,616, 28,619 (May 18, 2005) (“Under the cap-and-trade approach we are projecting that [mercury] reductions result from units that are most cost effective to control, which enables those units that are not cost effective to install controls to use other approaches for compliance including buying allowances, switching fuels, or making dispatch changes.”); see also *West Virginia*, 142 S. Ct. at 2611 (differentiating the emission trading component in the rule to limit mercury emissions from the Clean Power Plan to show that the former fits in with “an unbroken list of prior Section 111 rules”). Note that these mercury limits were vacated by the D.C. Circuit on other grounds. *New Jersey v. EPA*, 517 F.3d 574 (D.C. Cir. 2008).

That Congress intended Section 111 to allow trading and averaging as a compliance mechanism is further supported by the language of Section 111(d), which requires a “procedure similar to that provided by Section [1]10.”⁸⁰ In *West Virginia*, the Court spoke approvingly of states adopting such measures in state implementation plans under Section 110.⁸¹ Emission trading programs have long been used to fulfill Section 110 requirements, for example, to limit nitrogen oxides and sulfur dioxide in accordance with the “Good Neighbor Provision.”⁸² In short, the Proposed Rule steers clear of including emission trading and averaging in the BSER, but states and operators can still use these approaches to achieve compliance.

While EPA’s latest regulation does *not* use emission trading and averaging as part of the BSER, none of the above is to suggest that add-on controls, fuel switching, and other systems to make a source operate more cleanly are the *only* kinds of approaches for BSERs left to EPA after *West Virginia*. The Court explicitly provided that it was not ruling more broadly on “whether the statutory phrase ‘system of emission reduction’ refers exclusively to measures that improve the pollution performance of individual sources, such that all other actions are ineligible to qualify as the BSER.”⁸³ Further discussion of what can be included in the BSER after *West Virginia* is beyond the scope of this report.

Conclusion

Some critics of EPA’s Proposed Rule have argued that EPA has repeated the mistakes that led to the Clean Power Plan’s downfall by again triggering the major questions doctrine. But a closer look reveals no such thing. Instead, EPA’s use of CCS as the BSER aligns with the agency’s typical practice of using pollution-control techniques that help a regulated source operate more cleanly—so the regulations are neither a transformative nor an unheralded use of regulatory authority. The Proposed Rule would induce incidental generation shifting, which is typical of all power plant regulation, but specifically avoids the Clean Power Plan’s approach of using generation shifting *itself* as the BSER.

In sum, these proposed regulations do not implicate the major questions doctrine. EPA’s business-as-usual approach stays right within the agency’s historical and technical wheelhouse. Further aligned with this historical approach, states and operators retain the flexibility to use emission trading and other “beyond-the-fenceline” compliance approaches.

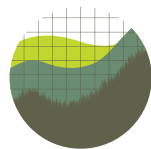
⁸⁰ 42 U.S.C. § 7411(d). In fact, Section 110’s directions expressly allow state implementation plans to “include enforceable emission limitations and other control measures, means, or techniques (including economic incentives such as fees, marketable permits, and auctions of emissions rights), as well as schedules and timetables for compliance, as may be necessary or appropriate to meet the applicable requirements of this chapter.” 42 U.S.C. § 7410(a)(2)(A).

⁸¹ *West Virginia*, 142 S. Ct. at 2614–15 (“And Section 110 of the [national ambient air quality standards, or] NAAQS program specifies that ‘marketable permits’ and ‘auctions of emissions rights’ qualify as ‘control measures, means, or techniques’ that States may adopt in their state implementation plans in order ‘to meet the applicable requirements of’ a NAAQS.” (citing 42 U.S.C. § 7410(a)(2)(A))).

⁸² See, e.g., Federal “Good Neighbor Plan” for the 2015 Ozone National Ambient Air Quality Standards, 88 Fed. Reg. 36,654, 36,762–64 (June 5, 2023) (providing background on the latest trading program and noting that EPA currently administers six cross-state air pollution rule emission trading programs: CSAPR NOx Annual Trading Program, CSAPR NOx Ozone Season Group 1 Trading Program, CSAPR SO₂ Group 1 Trading Program, CSAPR SO₂ Group 2 Trading Program, CSAPR NOx Ozone Season Group 2 Trading Program, and CSAPR NOx Ozone Season Group 3 Trading Program). EPA has administered emission trading programs under this section of the Clean Air Act for more than 25 years. See Finding of Significant Contribution and Rulemaking for Certain States in the Ozone Transport Assessment Group Region for Purposes of Reducing Regional Transport of Ozone, 63 Fed. Reg. 57,356, 57,358–59 (Oct. 27, 1998).

⁸³ *West Virginia*, 142 S. Ct. at 2615.

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