United States Court of Appeals,
District of Columbia Circuit.
BLUEWATER NETWORK, Petitioner,
v.
ENVIRONMENTAL PROTECTION AGENCY and Christine Todd Whitman, Administrator, U.S. Environmental Protection Agency, Respondents.
International Snowmobile Manufacturers Association, Intervenor.
Nos. 03-1003 to 03-1005, 03-1249.
Argued April 12, 2004.
Decided June 1, 2004.
Background: Association of snowmobile manufacturers and environmental groups each petitioned for review of Environmental Protection Agency (EPA) order establishing emissions standards for snowmobiles pursuant to the Clean Air Act (CAA).

Holdings: The Court of Appeals, Harry T. Edwards, Circuit Judge, held that:
(1) EPA could regulate particular category of nonroad vehicles that caused or contributed to carbon monoxide (CO) or ozone concentrations in nonattainment areas regardless of whether that individual category's contribution was significant;
(2) finding that snowmobiles caused or contributed to CO concentrations in nonattainment areas was supported by evidence;
(3) association could challenge EPA's decision to group snowmobiles with other land-based recreational vehicles;
(4) EPA could regulate hydrocarbons (HC) as contributing to air pollution that could reasonably be anticipated to endanger public health or welfare;
(5) EPA could not regulate oxides of nitrogen (NOx) emissions on same basis as HC;
(6) decision to require implementation of advanced technologies in most, but not all, snowmobiles by target year was not adequately explained by EPA; and
(7) EPA was not required to base standards on application of catalyst technology.

Granted in part and denied in part.
West Headnotes

[1] KeyCite Notes

149E Environmental Law
149EXIII Judicial Review or Intervention
149Ek677 Scope of Inquiry on Review of Administrative Decision
149Ek683 k. Air Pollution. Most Cited Cases

Review of Environmental Protection Agency (EPA) order by Court of Appeals under the “arbitrary and capricious” standard of the Clean Air Act (CAA) is narrow and does not permit Court to substitute its policy judgment for that of EPA; rather, Court is principally concerned with ensuring that EPA has examined the relevant data and articulated a satisfactory explanation for its action including a rational connection between the facts found and the choice made, that the EPA's decision was based on a consideration of the

relevant factors, and that the EPA has made no clear error of judgment. Clean Air Act, § 307(d)(9), as amended, 42 U.S.C.A. § 7607(d)(9).

[2] KeyCite Notes 

361 Statutes
361VI Construction and Operation
361VI(A) General Rules of Construction
361k213 Extrinsic Aids to Construction
361k219 Executive Construction
361k219(6) Particular Federal Statutes
361k219(6.1) k. In General. Most Cited Cases

Environmental Protection Agency's (EPA's) interpretations of the Clean Air Act (CAA) are reviewed by Court of Appeals under Chevron standard, whereby Court first employs traditional tools of statutory construction to determine whether Congress has spoken to precise question at issue and, if intent of Congress is clear, that is the end of the matter; however, where statute is ambiguous and EPA has acted within its delegated authority, Court will defer to EPA's interpretation if it is reasonable, although such deference is appropriate only where agency acts pursuant to an express or implied congressional delegation of authority to regulate in the area at issue and its action has the force of law. Clean Air Act, § 101 et seq., as amended, 42 U.S.C.A. § 7401 et seq.

[3] KeyCite Notes 

149E Environmental Law
149EVI Air Pollution
149Ek266 Particular Sources of Pollution
149Ek273 k. Mobile Sources; Motor Vehicles. Most Cited Cases

149E Environmental Law KeyCite Notes 
149EVI Air Pollution
149Ek287 k. Ozone. Most Cited Cases

Under Clean Air Act (CAA) provision authorizing Environmental Protection Agency (EPA) to set emissions standards for nonroad engines and vehicles, EPA could regulate particular category of vehicles that caused or contributed to carbon monoxide (CO) or ozone concentrations in more than one area that failed to attain national ambient air quality standards (NAAQS) for CO or ozone, regardless of whether that category's contribution was significant. Clean Air Act, § 213(a)(3), as amended, 42 U.S.C.A. § 7547(a)(3).

[4] KeyCite Notes

361 Statutes
361VI Construction and Operation
361VI(A) General Rules of Construction
361k187 Meaning of Language
361k195 k. Express Mention and Implied Exclusion. Most Cited Cases

It is a general principle of statutory construction that when Congress includes particular language in one section of a statute but omits it in another section of the same Act, it is generally presumed that Congress acts intentionally and purposely in the disparate inclusion or exclusion.

[5] KeyCite Notes

149E Environmental Law
149EVI Air Pollution
149Ek298 Evidence
149Ek301 k. Weight and Sufficiency. Most Cited Cases

Finding of Environmental Protection Agency (EPA) that snowmobiles caused or contributed to carbon monoxide (CO) concentrations in more than one area that failed to attain national ambient air quality standards (NAAQS) for CO, as required to regulate CO emissions for snowmobiles under Clean Air Act (CAA), was supported by evidence of snowmobile operation in Fairbanks and Anchorage, Alaska, and within Spokane, Washington, nonattainment areas, even if Alaska data were estimates of expected snowmobile emissions, rather than actual measured emissions. Clean Air Act, § 213(a)(3), as amended, 42 U.S.C.A. § 7547(a)(3).

[6] KeyCite Notes

149E Environmental Law
149EVI Air Pollution
149Ek266 Particular Sources of Pollution
149Ek273 k. Mobile Sources; Motor Vehicles. Most Cited Cases

Clean Air Act (CAA) provision authorizing Environmental Protection Agency (EPA) to set emissions standards for certain categories of nonroad vehicles if they contributed to carbon monoxide (CO) concentrations in more than one area that “has failed to attain” national ambient air quality standards (NAAQS) for CO permitted EPA to make such determination based on whether areas in question were designated by EPA as nonattainment areas, not on whether area was currently attaining the NAAQS; mere attainment did not automatically result in redesignation, and current attainment did not

demonstrate that area would continue in attainment. Clean Air Act, §§ 107(d)(3), 213(a)(2, 3), as amended, 42 U.S.C.A. §§ 7407(d)(3), 7547(a)(2, 3).

[7] KeyCite Notes 

149E Environmental Law
149EXIII Judicial Review or Intervention
149Ek668 Time for Proceedings
149Ek671 k. Accrual, Computation, and Tolling. Most Cited Cases

Environmental Protection Agency (EPA) reopened issue as to whether snowmobiles should be grouped with other land-based recreational vehicles for purpose of determining nonroad vehicles' contributions to ozone and carbon monoxide (CO) concentrations in areas that failed to attain national ambient air quality standards (NAAQS), as would permit promulgation of emissions standards for those vehicles, thus permitting association of snowmobile manufacturers to challenge the grouping decision as part of petition challenging EPA's final rule setting such standards, where EPA had offered new evidence for grouping decision in connection with final rulemaking and actually reconsidered such decision in response to comments. Clean Air Act, § 213(a)(3), as amended, 42 U.S.C.A. § 7547(a)(3).

[8] KeyCite Notes 

15A Administrative Law and Procedure
15AIV Powers and Proceedings of Administrative Agencies, Officers and Agents
15AIV(C) Rules and Regulations
15Ak392 Proceedings for Adoption
15Ak392.1 k. In General. Most Cited Cases

Whether an agency has in fact reopened an issue, thus permitting challenges to agency's determination of such issue, is dependent upon the entire context of the rulemaking including all relevant proposals and reactions of the agency, and not just the agency's stated intent; specifically, if an agency's response to comments explicitly or implicitly shows that the agency actually reconsidered the rule, the matter has been reopened.

[9] KeyCite Notes 

149E Environmental Law
149EVI Air Pollution
149Ek266 Particular Sources of Pollution
149Ek273 k. Mobile Sources; Motor Vehicles. Most Cited Cases

Decision of Environmental Protection Agency (EPA) to group snowmobiles with other

land-based recreational vehicles for purpose of determining whether nonroad vehicles contributed to carbon monoxide (CO) concentrations in areas that failed to attain national ambient air quality standards (NAAQS) for CO, as would permit promulgation of emissions standards for those vehicles, was reasonable, in view of vehicles' similar characteristics and absence of evidence that snowmobiles were operated in different parts of the country than other vehicles. Clean Air Act, § 213(a)(3), as amended, 42 U.S.C.A. § 7547(a)(3).

[10] KeyCite Notes 

149E Environmental Law
149EVI Air Pollution
149Ek266 Particular Sources of Pollution
149Ek273 k. Mobile Sources; Motor Vehicles. Most Cited Cases

Clean Air Act (CAA) provision permitting Environmental Protection Agency (EPA) to regulate nonroad vehicle emissions not referred to in separate paragraph, which specifically referred to carbon monoxide (CO), oxides of nitrogen (NOx), and volatile organic compounds (VOCs), if such emissions contributed to air pollution that could reasonably be anticipated to endanger public health or welfare, allowed EPA to regulate hydrocarbons (HC), even if HC was precursor to ozone, which was also mentioned in separate paragraph, and VOCs consisted primarily of HC; ozone was ambient pollutant, not emission, so reference to ozone in separate paragraph was irrelevant, and VOCs and HC were not coterminous. Clean Air Act, § 213(a)(2, 4), as amended, 42 U.S.C.A. § 7547(a)(2, 4).

[11] KeyCite Notes 

149E Environmental Law
149EVI Air Pollution
149Ek275 Particular Pollutants
149Ek281 k. Nitrogen Oxides. Most Cited Cases

Environmental Protection Agency (EPA) could not regulate oxides of nitrogen (NOx) emissions from nonroad vehicles under Clean Air Act (CAA) provision permitting EPA to regulate nonroad vehicle emissions not referred to in separate paragraph if such emissions contributed to air pollution that could reasonably be anticipated to endanger public health or welfare, since that paragraph specifically referred to NOx, regardless of whether EPA sought to regulate NOx to address pollution other than carbon monoxide (CO) or ozone nonattainment, which were specifically referred to in separate paragraph, or whether such interpretation left gap in EPA's regulatory authority. Clean Air Act, § 213(a)(2, 4), as amended, 42 U.S.C.A. § 7547(a)(2, 4).

[12] KeyCite Notes 

149E Environmental Law
149EVI Air Pollution
149Ek266 Particular Sources of Pollution
149Ek273 k. Mobile Sources; Motor Vehicles. Most Cited Cases

Clean Air Act (CAA) provision requiring Environmental Protection Agency (EPA) to impose emissions standards for nonroad vehicles that achieved greatest degree of emission reduction achievable through application of technology that would be available did not require EPA to impose standards requiring full implementation of such advanced technologies in all regulated vehicles, so long as decision to impose less stringent standard was based on appropriate consideration of cost and other factors specified by statute. Clean Air Act, § 213(a)(3), as amended, 42 U.S.C.A. § 7547(a)(3).

[13] KeyCite Notes 

149E Environmental Law
149EVI Air Pollution
149Ek266 Particular Sources of Pollution
149Ek273 k. Mobile Sources; Motor Vehicles. Most Cited Cases

Decision of Environmental Protection Agency (EPA) to require implementation of advanced technologies in most, but not all, snowmobiles by target year, in setting emissions standards for snowmobiles pursuant to Clean Air Act (CAA), was not adequately explained by EPA, absent explanation of EPA's apparent assumption that no existing models of snowmobiles could be eliminated or explanation of how EPA arrived at specific standards adopted. Clean Air Act, § 213(a)(3), as amended, 42 U.S.C.A. § 7547(a)(3).

[14] KeyCite Notes 

15A Administrative Law and Procedure
15AIV Powers and Proceedings of Administrative Agencies, Officers and Agents
15AIV(D) Hearings and Adjudications
15Ak507 k. Report or Opinion; Reasons for Decision. Most Cited Cases

15A Administrative Law and Procedure KeyCite Notes 
15AV Judicial Review of Administrative Decisions
15AV(D) Scope of Review in General
15Ak753 k. Theory and Grounds of Administrative Decision. Most Cited Cases

15A Administrative Law and Procedure KeyCite Notes 
15AV Judicial Review of Administrative Decisions
15AV(D) Scope of Review in General
15Ak763 k. Arbitrary, Unreasonable or Capricious Action; Illegality. Most Cited Cases

To determine whether agency decision reflects a rational connection between the facts found and the choice made, under arbitrary and capricious standard of review, a reasonable explanation of the specific analysis and evidence upon which the agency relied is necessary; with its delicate balance of thorough record scrutiny and deference to agency expertise, judicial review can occur only when agencies explain their decisions with precision, for it will not do for a court to be compelled to guess at the theory underlying the agency's action.

[15] KeyCite Notes 

149E Environmental Law
149EVI Air Pollution
149Ek266 Particular Sources of Pollution
149Ek273 k. Mobile Sources; Motor Vehicles. Most Cited Cases

In setting emissions standards for snowmobiles pursuant to Clean Air Act (CAA), Environmental Protection Agency (EPA) was not required to base standards on application of catalyst technology used in automobiles and other engines; decision was based on lack of evidence to support prediction that such technology would be available within relevant lead time, and decision was supported by the record. Clean Air Act, § 213(a)(3), as amended, 42 U.S.C.A. § 7547(a)(3).

[16] KeyCite Notes 

149E Environmental Law
149EVI Air Pollution
149Ek287 k. Ozone. Most Cited Cases

Finding of Environmental Protection Agency (EPA) that category of nonroad vehicles containing snowmobiles contributed to ozone pollution in more than one area that failed to attain national ambient air quality standards (NAAQS) did not require EPA to regulate snowmobile emissions of ozone precursors under Clean Air Act (CAA); rather, EPA reasonably determined that snowmobiles should be considered separately from recreational vehicle category for purposes of ozone contribution finding, because snowmobiles were operated in cold weather, while ozone was a warm-weather phenomenon. Clean Air Act, § 213(a)(3), 42 U.S.C.A. § 7547(a)(3).

[17] KeyCite Notes

149E Environmental Law
149EVI Air Pollution
149Ek266 Particular Sources of Pollution
149Ek273 k. Mobile Sources; Motor Vehicles. Most Cited Cases

149E Environmental Law KeyCite Notes
149EVI Air Pollution
149Ek287 k. Ozone. Most Cited Cases

Clean Air Act (CAA) did not require Environmental Protection Agency (EPA) to regulate both carbon monoxide (CO) and ozone precursors in snowmobile emissions upon finding that nonroad vehicle category of which snowmobiles were a part contributed to either CO or ozone concentrations in more than one area that failed to attain national ambient air quality standards (NAAQS); EPA could reasonably interpret CAA to require regulation of ozone precursors only if it had made a finding that snowmobiles contributed to ozone concentrations in more than one ozone nonattainment area. Clean Air Act, § 213(a)(3), as amended, 42 U.S.C.A. § 7547(a)(3).

[18] KeyCite Notes

149E Environmental Law
149EVI Air Pollution
149Ek266 Particular Sources of Pollution
149Ek273 k. Mobile Sources; Motor Vehicles. Most Cited Cases

Clean Air Act provision requiring Environmental Protection Agency (EPA) to set nonroad vehicle emissions standards reflecting the maximum emissions reduction achievable through adoption of technology that would be available, giving appropriate consideration to specified factors including noise and technology, did not require EPA to set standards maximizing energy conservation or noise reduction to greatest extent possible. Clean Air Act, § 213(a)(3), as amended, 42 U.S.C.A. § 7547(a)(3).

[19] KeyCite Notes

149E Environmental Law
149EXIII Judicial Review or Intervention
149Ek666 k. Preservation of Error in Administrative Proceeding. Most Cited Cases

Environmental groups waived particular challenge to Environmental Protection Agency (EPA) order establishing emissions standards for snowmobiles pursuant to the Clean Air

Act (CAA) that was not specifically raised in administrative proceedings. Clean Air Act, § 101 et seq., as amended, 42 U.S.C.A. § 7401 et seq.

[20] KeyCite Notes 

149E Environmental Law
149EVI Air Pollution
149Ek266 Particular Sources of Pollution
149Ek273 k. Mobile Sources; Motor Vehicles. Most Cited Cases

Decision of Environmental Protection Agency (EPA) to adopt snowmobile emissions standards based on mix of direct injection (DI) two-stroke engines and four-stroke engines, rather than on exclusive application of four-stroke technology, was not arbitrary and capricious, in view of EPA's determination that neither technology was obviously superior. Clean Air Act, § 213(a)(3, 4), as amended, 42 U.S.C.A. § 7547(a)(3, 4).

*5 **374 On Petitions for Review of an Order of the Environmental Protection Agency.
James S. Pew argued the cause for petitioners Bluewater Network and Environmental Defense. With him on the briefs was Jennifer R. Kefer.

Eric B. Wolff argued the cause for petitioner International Snowmobile Manufacturers Association. With him on the briefs were Stuart A. Drake and Granta Y. Nakayama.

Stephen E. Crowley and Kent E. Hanson, Attorneys, U.S. Department of Justice, argued the cause for respondents. With them on the brief were John C. Cruden, Deputy Assistant Attorney General, and Michael J. Horowitz, Attorney, U.S. Environmental Protection Agency.

James S. Pew and Jennifer R. Kefer were on the brief for intervenors Bluewater Network and Environmental Defense.

Stuart A. Drake, Granta Y. Nakayama, and Eric B. Wolff were on the brief for intervenor International Snowmobile Manufacturers Association.

Before: EDWARDS, SENTELLE, and TATEL, Circuit Judges.

Opinion for the Court filed by Circuit Judge EDWARDS.

HARRY T. EDWARDS, Circuit Judge:
In November 2002, the Environmental Protection Agency (“EPA” or “Agency”) issued a final rule establishing emissions standards for snowmobiles and certain other “nonroad”

vehicles. See Control of Emissions From Nonroad Large Spark-Ignition Engines, and Recreational Engines (Marine and Land-Based), 67 Fed.Reg. 68,242 (Nov. 8, 2002). The snowmobile standards at issue in this case - promulgated under § 213 of the Clean Air Act ("CAA" or "Act"), 42 U.S.C. § 7547 (2000) - regulate emissions of three pollutants: carbon monoxide ("CO"), hydrocarbons ("HC"), and oxides of nitrogen ("NOx").

The CO standard was adopted under § 213(a)(3). Under this provision, EPA must regulate CO and certain ozone-precursor emissions from a category of engines if, and only if, the Agency finds that such emissions "cause, or contribute to" CO or ozone concentrations in more than one area that has failed to attain the relevant national ambient air quality standard ("NAAQS"). Where the Agency makes such a finding - as it did for snowmobiles with respect to CO emissions -it must adopt standards reflecting "the greatest degree of emission reduction achievable" through the application of technology that "will be available," taking cost and other factors into account.

EPA regulated HC and NOx emissions under § 213(a)(4), which is directed at pollution problems other than CO and ozone. This provision authorizes EPA -upon making certain findings - to adopt such standards as the Agency "deems appropriate," again based on technology that will *6 **375 be available and taking cost and other factors into account. Of crucial importance for this case, § 213(a)(4) only permits regulation of "emissions not referred to in" § 213(a)(2), which expressly mentions emissions of CO, volatile organic compounds, and NOx.

The Agency based its standards on the expected application of two "advanced" technologies to snowmobiles: direct injection two-stroke engines and four-stroke engines. EPA estimated that compliance with the final phase of its standards - effective in 2012 - would require the use of these engines in 70% of all new snowmobiles. The Agency found that broader application would not be possible by 2012, because of resource constraints on manufacturers and the magnitude of the investment required to apply the technologies to the wide variety of snowmobile models on the market.

Petitioner International Snowmobile Manufacturers Association ("ISMA") challenges EPA's authority to promulgate the standards. ISMA argues that EPA lacks authority to issue the CO standard, because the Agency's finding that snowmobiles contribute to CO pollution in more than one area that has failed to attain the NAAQS is based on an impermissible interpretation of the statute and is arbitrary and capricious. ISMA claims, in addition, that the statute bars EPA from regulating HC and NOx emissions under § 213(a)(4), because those emissions are "referred to" in § 213(a)(2).

Petitioners Bluewater Network and Environmental Defense (collectively "Bluewater") challenge what they consider to be the excessive leniency of the standards. Bluewater's principal claim is that EPA's determination that advanced technologies cannot be applied to all new snowmobiles by 2012 is premised on an impermissible interpretation of the statute and is arbitrary and capricious. Bluewater also raises a host of other challenges to the regulation, including the claim that EPA improperly refused to base its standards on the application of catalyst technology.

We grant in part and deny in part each of the two petitions for review. First, we hold that EPA acted within its statutory authority in promulgating the CO and HC standards under § 213(a)(3) and (a)(4), respectively. Accordingly, we reject ISMA's challenges to those standards. However, we agree with ISMA that EPA lacks authority to regulate NOx

emissions under § 213(a)(4), because such emissions are “referred to” in § 213(a)(2). We therefore vacate the NOx standard.

In response to Bluewater's petition, we remand the CO and HC standards for EPA to clarify the analysis and evidence upon which the standards are based. Specifically, we direct EPA to clarify (1) the statutory and evidentiary basis of the Agency's assumption that the standards must be sufficiently lenient to permit the continued production of all existing snowmobile models, and (2) the analysis and evidence underlying the Agency's conclusion that advanced technologies can be applied to no more than 70% of new snowmobiles by 2012. We reject Bluewater's remaining claims.

I. Background

A. Factual Background

The snowmobile industry is relatively concentrated, with four manufacturers producing 99% of all snowmobiles, or “sleds,” sold in the United States. These manufacturers offer various types of sleds designed for different applications - including high-performance trail riding, high-performance off-trail riding, mountain riding, touring, and entry-level riding - with multiple engine*7 **376 models available for each type. As a result, most of the major manufacturers offer 30 to 50 different engine-snowmobile model combinations. High-performance models, with very high power-to-weight ratios, dominate current sales. See 67 Fed.Reg. at 68,273.

The vast majority of snowmobiles now on the market use carbureted two-stroke engines. In comparison with fourstroke engines, carbureted two-stroke engines generally are simpler in design and have lower manufacturing costs. They also burn an air-fuel mixture that is comparatively rich in fuel. This makes them less fuel-efficient than four-stroke engines, but gives them a higher power-to-weight ratio, allows them to start more easily in cold weather, and permits them to run at cooler temperatures (which reduces engine wear) - all important advantages for snowmobiles. See 65 Fed.Reg. 76,797, 76,803-04 (Dec. 7, 2000) (advance notice of proposed rulemaking).

Because of their design characteristics, carbureted two-stroke engines emit comparatively high levels of CO and HC, see id., both of which can contribute to harmful air pollution. Elevated CO levels can cause a number of health problems associated with reduced delivery of oxygen to the body's tissues, including impairment of visual perception, work capacity, manual dexterity, learning ability, and performance of complex tasks. 67 Fed.Reg. at 68,245. HC emissions can, inter alia, cause visibility impairment (or “haze”) due to fine particulate matter (“PM”) pollution; specifically, HC emissions contain fine PM and can also contribute to the formation of “secondary” fine PM in the atmosphere. Id. at 68,254.

Like virtually all internal combustion engines, snowmobile engines emit volatile organic compounds (“VOCs”) - most of which are hydrocarbons - and NOx. VOCs and NOx are the primary precursors of ground-level ozone, which can cause a number of severe respiratory problems. 65 Fed.Reg. at 76,798. Ground-level ozone is formed through a complex chemical reaction of VOCs and NOx in the atmosphere. Because this reaction occurs only in the presence of heat and sunlight, elevated ground-level ozone concentrations are primarily a warm-weather phenomenon. See id.

B. Statutory Context

Recognizing the significant and growing role of unregulated emissions from "nonroad" engines in causing air pollution, Congress enacted § 213 of the Clean Air Act as part of the 1990 amendments to the Act. See Pub.L. No. 101-549, § 222, 104 Stat. 2399, 2500-02 (1990) (codified at 42 U.S.C. § 7547); see also S. Rep. No. 101-228, at 103-04 (1989) (discussing the policy rationale for regulating nonroad engine emissions). Section 213 authorizes EPA to set emissions standards for "nonroad engines and vehicles," a broad grouping including farm and construction equipment, lawn and garden equipment, airport service equipment, marine engines, and recreational vehicles such as off-road motorcycles, all-terrain vehicles, and snowmobiles.

Under § 213's multi-step scheme, EPA must first complete a study to determine whether emissions from nonroad engines "cause, or significantly contribute to, air pollution which may reasonably be anticipated to endanger public health or welfare." 42 U.S.C. § 7547(a)(1). Based on the results of this study, EPA must then determine whether emissions of CO, NOx, and VOCs from new and existing nonroad vehicles or engines collectively are "significant contributors to ozone or carbon monoxide concentrations in more than 1 area which has failed to attain the national ambient air quality standards [NAAQS] for *8 **377 ozone or carbon monoxide." 42 U.S.C. § 7547(a) (2). (For convenience, we refer to areas which have failed to attain the NAAQS as "nonattainment areas.")

If EPA makes a finding of significant contribution for nonroad engines under § 213(a)(2), the Agency is required under § 213(a)(3) to promulgate standards for those individual "classes or categories" of new nonroad engines whose emissions, in EPA's judgment, "cause, or contribute to" CO or ozone concentrations in more than one CO or ozone nonattainment area. 42 U.S.C. § 7547(a)(3). These standards must

achieve the greatest degree of emission reduction achievable through the application of technology which [EPA] determines will be available ..., giving appropriate consideration to the cost of applying such technology within the period of time available to manufacturers and to noise, energy, and safety factors associated with the application of such technology.

Id. In setting these standards, EPA is directed to "first consider standards equivalent in stringency to standards for comparable [onroad] motor vehicles or engines (if any)" regulated under § 202 of the Act. Id.

Section 213(a)(4) provides EPA with an alternative basis of regulatory authority. Under this provision, if EPA determines that nonroad engine emissions "not referred to" in § 213(a)(2) "significantly contribute to air pollution which may reasonably be anticipated to endanger public health or welfare," EPA may promulgate emissions standards it "deems appropriate" for individual categories or classes of nonroad engines that EPA determines "cause, or contribute to, such air pollution." 42 U.S.C. § 7547(a)(4). These standards likewise must be based on technology that EPA determines will be available, giving appropriate consideration to cost, noise, energy, and safety factors. Id.

C. Regulatory History

In November 1991, EPA completed the "Nonroad Engine and Vehicle Emission Study" called for in § 213(a)(1). Based on this study, EPA made a final determination pursuant

to § 213(a)(2) that emissions from nonroad engines significantly contribute to CO and ozone concentrations in more than one nonattainment area. 59 Fed.Reg. 31,306, 31,307 (June 17, 1994). EPA further found, under § 213(a)(4), that PM emissions from nonroad engines significantly contribute to air pollution that may reasonably be anticipated to endanger public health or welfare. See id. at 31,318.

On December 7, 2000, EPA issued a final finding under § 213(a)(3) that emissions from the category of large spark-ignition ("large-SI") engines and the lesser included category of land-based recreational vehicles (which includes snowmobiles, offroad motorcycles, and all-terrain vehicles) each contribute to ozone and CO concentrations in more than one nonattainment area. 65 Fed.Reg. 76,790, 76,791 (Dec. 7, 2000). EPA also found, pursuant to § 213(a)(4), that the large-SI and land-based recreational vehicle categories each contribute to PM air pollution that may reasonably be anticipated to endanger the public health or welfare. Id. EPA indicated that it would consider further whether it should regulate snowmobile emissions of ozone precursors, because ozone is less of a concern during cold weather, when snowmobiles are used. Id.

On November 8, 2002, EPA promulgated a final rule establishing emissions standards for large-SI engines and land-based recreational engines, including snowmobiles. 67 Fed.Reg. 68,242 (Nov. 8, 2002) ("Final Rule"). Only the snowmobile exhaust emissions standards are at issue in *9 **378 this case. The Final Rule established a CO emissions standard for snowmobiles pursuant to § 213(a)(3). In discussing the need for this standard, EPA referred to its December 2000 finding that the land-based recreational vehicle category - in which snowmobiles are included - contributes to CO concentrations in more than one CO nonattainment area. Id. at 68,248. EPA further found that, even when considered separately from other land-based recreational vehicles, snowmobiles contribute to such pollution. Id. at 68,248-49. The Agency determined that regulation of snowmobile emissions of ozone precursors under § 213(a)(3) was inappropriate, because snowmobiles are operated in cold weather and are therefore unlikely to contribute to ozone pollution. See Summary and Analysis of Comments ("SAC") at II-24, V-31, reprinted in Joint Appendix ("J.A.") 92, 110; see also 66 Fed.Reg. 51,098, 51,154 (Oct. 5, 2001) (notice of proposed rulemaking).

EPA promulgated HC and NOx emissions standards under § 213(a)(4). The Agency found that snowmobile emissions contribute significantly to haze in a number of relatively pristine protected areas, known under the CAA as "Class I" areas, including at least eight national parks. 67 Fed.Reg. at 68,252-54. This phenomenon is the result of increased ambient concentrations of fine PM. Id. EPA offered two grounds for regulating snowmobile HC emissions as a means of controlling fine PM pollution. First, HC emissions themselves contain fine PM and contribute to the formation of secondary fine PM in the atmosphere. Id. at 68,254. Second, EPA determined that HC emissions provide a good proxy for regulating fine PM emissions from snowmobiles, because the technologies for reducing HC emissions also reduce PM emissions and direct regulation of PM is more difficult. Id. Although the rule is unclear on this point, EPA appeared to base its authority to regulate NOx emissions under § 213(a)(4) on its finding that NOx contributes to the formation of secondary PM. See id. at 68,254 n. 30, 68,255.

EPA based its emissions standards on two "advanced" technologies that it determined would be available for snowmobiles in the foreseeable future: (1) direct injection ("DI") two-stroke engines, which replace air-fuel carburetion with direct injection of fuel into

the cylinder, and (2) four-stroke engines. Id. at 68,272. The Agency predicted that DI two-stroke engines could reduce HC emissions by 70-75% and CO emissions by 50-70%. Four-stroke engines could reduce HC emissions by 70-95%, and could reduce CO emissions by 50-80% for low-power applications and 20-50% for high-power applications. Id. EPA did not view either technology as obviously superior. DI two-stroke engines would likely produce lower CO emissions than comparably powered four-stroke engines, but four-stroke engines would yield greater reductions in HC emissions. Four-stroke engines would likely produce more pure power, whereas DI two-stroke technology might be preferable for applications requiring a powerful, but lighter and more compact, engine. Id.

In setting emissions standards, EPA framed the regulatory question as "how broadly [these] technolog[ies] can be practically applied across the snowmobile fleet in the near term, taking into account factors such as the number of engine and snowmobile models currently available, and the capacity of the industry to perform the research and development efforts required to optimally apply advanced technology to each of these models." Id. at 68,273. EPA concluded that, "at least in theory," there was no purely technological barrier to the application of these technologies to all new snowmobiles by 2012. Id. *10 **379 However, the Agency identified a number of factors that would limit the speed with which such technologies could be applied to all snowmobiles models, including resource constraints on manufacturers, the fact that not all manufacturers produce their engines in-house, and the design and development work required to optimize advanced technologies for each model. Id.

Taking these factors into account, the final rule requires that snowmobile engines meet successively more stringent emissions standards in three phases. In Phase 1, manufacturers would be required to reduce CO and HC emissions by 30% relative to current baseline emissions. Half of all snowmobile sales would have to meet the Phase 1 standards by model year 2006, and all would have to meet them by model year 2007. EPA estimated that compliance with the Phase 1 standards would require application of advanced technologies to approximately 10% of new snowmobiles, with cleaner carburetion and other technologies applied to the remainder. Id. at 68,271.

In Phase 2, effective for the 2010 model year, manufacturers would be required to achieve a 50% reduction in HC emissions relative to baseline and a 30% reduction in CO emissions relative to baseline. Id. at 68,273. In Phase 3, effective for the 2012 model year, manufacturers must achieve a nominal 50% reduction relative to baseline for both CO and HC. This standard requires percentage reductions in CO and HC that together add up to 100%, e.g., 60% for HC and 40% for CO. However, emissions for each pollutant may not exceed the level permitted under the Phase 2 standards. Id. at 68,274. EPA predicted that the Phase 2 and 3 standards would require application of advanced technologies to 50% and 70% of new snowmobiles, respectively, with less advanced technologies applied to the remainder. Id. at 68,271, 68,273. The Phase 3 standards also require engines to meet a NOx standard (actually a HC + NOx standard), which caps NOx emissions at or near existing levels. Id. at 68,274.

The three-phase scheme is summarized in the following table:

Phase	Model Year	Required % of Emissions Reduction from Baseline		NO_x Standard?	Estimated % Use of Advanced Technology
		CO	HC		
Phase 1	2006-07	30%	30%	No	10%
Phase 2	2010	30%	50%	No	50%
Phase 3	2012	100% minus % HC reduction, but no loss than 30%	100% minus % CO reduction, but no less than 50%	Yes	70%

EPA noted that it believed that it would be feasible at some point after 2012 to apply advanced technologies to all new snowmobiles and that catalysts or other exhaust aftertreatment devices might become available at some future time. The Agency stated that it had considered setting a standard reflecting application of advanced technologies to 100% of new snowmobiles, but did not believe that this was feasible by 2012. EPA indicated that in the future it would consider promulgating*11 **380 more stringent standards to be applied in a fourth phase. The Agency declined to do so in this rulemaking, however, in order to monitor the development of new technologies in response to the Phase 1 through 3 standards. Id.
Bluewater and ISMA filed separate petitions for review of the snowmobile standards, and the petitions were consolidated in the instant case.

II. Analysis

A. Standard of Review
[1] Under § 307(d)(9) of the Clean Air Act, we review the Final Rule to determine, inter alia, whether EPA's action is "in excess of statutory jurisdiction, authority, or limitations, or short of statutory right," or is "arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law." 42 U.S.C. § 7607(d)(9); see also Ethyl Corp. v. EPA, 51 F.3d 1053, 1064 (D.C.Cir.1995) (noting that review under the CAA's "arbitrary and capricious" standard is the same as that required by the Administrative Procedure Act, 5 U.S.C. § 706(2)(A)). Our review under the "arbitrary and capricious" standard is narrow and does not permit us to substitute our policy judgment for that of the Agency. Rather, we are principally concerned with ensuring that EPA has "examine[d] the relevant data and articulate[d] a satisfactory explanation for its action including a rational connection between the facts found and the choice made," that the Agency's "decision was based on a consideration of the relevant factors," and that the Agency has made no "clear error of judgment." Motor Vehicle Mfrs. Ass'n v. State Farm Mut. Auto. Ins. Co., 463 U.S. 29, 43, 103 S.Ct. 2856, 2866, 77 L.Ed.2d 443 (1983) (internal citations and quotation marks omitted).
[2] We review EPA's interpretations of the CAA under the standard established by Chevron U.S.A. Inc. v. Natural Resources Defense Council, Inc., 467 U.S. 837, 104 S.Ct. 2778, 81 L.Ed.2d 694 (1984), and its progeny. Under this standard, we first employ the

traditional tools of statutory construction to determine whether Congress has spoken to the precise question at issue. Id. at 842-43 & n. 9, 104 S.Ct. at 2781-82 & n. 9. “If the intent of Congress is clear, that is the end of the matter; for the court, as well as the Agency, must give effect to the unambiguously expressed intent of Congress.” Id. at 842-43, 104 S.Ct. at 2781. However, where the statute is ambiguous and the Agency has acted within its delegated authority, we will defer to the Agency's interpretation if it is reasonable. Motion Picture Ass'n of Am., Inc. v. FCC, 309 F.3d 796, 801 (D.C.Cir.2002) (citing Chevron, 467 U.S. at 843-44, 104 S.Ct. at 2782). Such deference is appropriate only where the agency acts pursuant to an express or implied congressional delegation of authority to regulate in the area at issue and the Agency's action has the “force of law.” Id. (citing United States v. Mead Corp., 533 U.S. 218, 226-27, 121 S.Ct. 2164, 2170-71, 150 L.Ed.2d 292 (2001)).

B. EPA's Authority to Regulate CO Under § 213(a)(3)

Section 213(a)(3) requires EPA to regulate CO emissions from an individual “class or category” of nonroad engines if, and only if, the Agency first determines that such emissions “cause, or contribute to” CO concentrations in more than one area that has failed to attain the NAAQS for CO. 42 U.S.C. § 7547(a)(3). In the Final Rule, EPA based its authority to issue the snowmobile CO standard on two such “contribution” findings: the December 2000 finding for the land-based recreational vehicle category in which snowmobiles *12 **381 are included, and the Final Rule's finding for snowmobiles considered as a separate category.

ISMA challenges EPA's authority to issue the CO standard under § 213(a)(3) on three grounds, arguing (1) that EPA's contribution findings are premised on an impermissible interpretation of the “cause, or contribute to” language in § 213(a)(3); (2) that the snowmobiles-only CO contribution finding in the Final Rule is arbitrary and capricious; and (3) that EPA improperly grouped snowmobiles with land-based recreational vehicles for purposes of its December 2000 contribution finding. We reject each of these claims and, accordingly, uphold EPA's authority to promulgate the CO standard.

1. EPA's Interpretation of “Contribute”

The relevant portions of the Act read as follows:

(a) Emissions standards

(1) The Administrator shall conduct a study of emissions from nonroad engines and nonroad vehicles (other than locomotives or engines used in locomotives) to determine if such emissions cause, or significantly contribute to, air pollution which may reasonably be anticipated to endanger public health or welfare. Such study shall be completed within 12 months of November 15, 1990.

(2) After notice and opportunity for public hearing, the Administrator shall determine within 12 months after completion of the study under paragraph (1), based upon the results of such study, whether emissions of carbon monoxide, oxides of nitrogen, and volatile organic compounds from new and existing nonroad engines or nonroad vehicles (other than locomotives or engines used in locomotives) are significant contributors to ozone or carbon monoxide concentrations in more than 1 area which has failed to attain the national ambient air quality standards for ozone or carbon monoxide. Such determination shall be included in the regulations under paragraph (3).

(3) If the Administrator makes an affirmative determination under paragraph (2) the Administrator shall, within 12 months after completion of the study under paragraph (1), promulgate (and from time to time revise) regulations containing standards applicable to emissions from those classes or categories of new nonroad engines and new nonroad vehicles (other than locomotives or engines used in locomotives) which in the Administrator's judgment cause, or contribute to, such air pollution. Such standards shall achieve the greatest degree of emission reduction achievable through the application of technology which the Administrator determines will be available for the engines or vehicles to which such standards apply, giving appropriate consideration to the cost of applying such technology within the period of time available to manufacturers and to noise, energy, and safety factors associated with the application of such technology. In determining what degree of reduction will be available, the Administrator shall first consider standards equivalent in stringency to standards for comparable motor vehicles or engines (if any) regulated under section 7521 of this title, taking into account the technological feasibility, costs, safety, noise, and energy factors associated with achieving, as appropriate, standards of such stringency and lead time. The regulations shall apply to *13 **382 the useful life of the engines or vehicles (as determined by the Administrator).
(4) If the Administrator determines that any emissions not referred to in paragraph (2) from new nonroad engines or vehicles significantly contribute to air pollution which may reasonably be anticipated to endanger public health or welfare, the Administrator may promulgate (and from time to time revise) such regulations as the Administrator deems appropriate containing standards applicable to emissions from those classes or categories of new nonroad engines and new nonroad vehicles (other than locomotives or engines used in locomotives) which in the Administrator's judgment cause, or contribute to, such air pollution, taking into account costs, noise, safety, and energy factors associated with the application of technology which the Administrator determines will be available for the engines and vehicles to which such standards apply. The regulations shall apply to the useful life of the engines or vehicles (as determined by the Administrator).
42 U.S.C. § 7547(a)(1)-(4) (also referred to as §§ 213(a)(1), 213(a)(2), 213(a)(3), 213(a)(4)).
[3] We begin by examining EPA's interpretation of the language of § 213(a)(3), because that interpretation provides the basis for the disputed contribution findings. ISMA argues that § 213(a)(3) requires a finding that an individual category of vehicles “significantly contributes” to CO concentrations in more than one nonattainment area. EPA rejected that reading, stating that § 213(a)(3) “does not require a finding of ‘significant contribution,’ but merely ‘contribution,’ for individual categories of nonroad engines.” 65 Fed.Reg. at 76,791; see also 59 Fed.Reg. at 31,309 (explaining the basis of EPA's interpretation). We agree with the Agency: Congress clearly did not intend to require an affirmative finding of “significant” contribution from individual vehicle categories in order to trigger regulation under § 213(a)(3).
We begin our interpretation of the provision with the “assumption that legislative purpose is expressed by the ordinary meaning of the words used.” Sec. Indus. Ass'n v. Bd. of Governors, 468 U.S. 137, 149, 104 S.Ct. 2979, 2986, 82 L.Ed.2d 107 (1984) (quoting Russello v. United States, 464 U.S. 16, 21, 104 S.Ct. 296, 299, 78 L.Ed.2d 17 (1983)). The ordinary meaning of “contribute” supports EPA's reading. As used in this context,

“contribute” means simply “to have a share in any act or effect,” Webster's Third New International Dictionary 496 (1993), or “to have a part or share in producing,” 3 Oxford English Dictionary 849 (2d ed.1989). Standing alone, the term has no inherent connotation as to the magnitude or importance of the relevant “share” in the effect; certainly it does not incorporate any “significance” requirement.

More important, the language and structure of § 213 as a whole make quite clear that Congress did not intend to require a finding of “significant contribution” for individual vehicle categories. Twice in the provision, Congress drew a distinction between the “significant contributor” finding required for all new and existing nonroad vehicles, and the “cause, or contribute to” finding for an individual category of new nonroad vehicles. Under § 213(a)(2), EPA must determine whether all new and existing nonroad vehicles are “significant contributors” to CO concentrations in more than one CO nonattainment area. If EPA makes this finding, § 213(a)(3) then requires the Agency to set standards for CO emissions from each individual category of *14 **383 new vehicles that “cause, or contribute to, such air pollution.” This same distinction between the “significant contributor” finding for all nonroad vehicles and the “cause, or contribute to” finding for an individual category of new nonroad vehicles is mirrored in § 213(a)(4). In addition, § 213(a)(1) expressly directs EPA to complete a study to determine whether all nonroad vehicles “cause, or significantly contribute to” harmful air pollution. 42 U.S.C. § 7547(a)(1) (emphasis added).

[4] “[I]t is a general principle of statutory construction that when ‘Congress includes particular language in one section of a statute but omits it in another section of the same Act, it is generally presumed that Congress acts intentionally and purposely in the disparate inclusion or exclusion.’ ” Barnhart v. Sigmon Coal Co., 534 U.S. 438, 452, 122 S.Ct. 941, 951, 151 L.Ed.2d 908 (2002) (quoting Russello, 464 U.S. at 23, 104 S.Ct. at 300). The repeated use of the term “significant” to modify the contribution required for all nonroad vehicles, coupled with the omission of this modifier from the “cause, or contribute to” finding required for individual categories of new nonroad vehicles, indicates that Congress did not intend to require a finding of “significant contribution” for individual vehicle categories.

This interpretation is consistent with § 213's structure and purpose. The “significant contributor” finding required for all nonroad engines can be understood as a threshold determination that the overall regulatory program is justified. See 58 Fed.Reg. 28,809, 28,811-13 (May 17, 1993) (discussing the basis of the significance determination). Emissions from individual categories of new vehicles will necessarily make a lesser contribution to air pollution than will emissions from all new and existing nonroad engines. However, as we noted in Michigan v. EPA, 213 F.3d 663, 684 (D.C.Cir.2000), “unlike bologna, which remains bologna no matter how thin you slice it, significant contribution may disappear if emissions activity is sliced too thinly.” Unless each individual vehicle category that makes some nontrivial contribution to pollution is subject to regulation, it is unlikely that the “significant” cumulative effect of emissions from all nonroad vehicle categories can effectively be controlled.

ISMA's arguments in support of its position are untenable. ISMA first contends that § 213(a)(3) somehow incorporates paragraph (a)(2)'s “significant contributor” language, because paragraph (a)(3) refers back to paragraph (a)(2) by means of the phrase “cause, or contribute to, such air pollution.” But the phrase “such air pollution” clearly refers to

“ozone or carbon monoxide concentrations in more than 1 area which has failed to attain” the NAAQS, and bears no plausible relation to the “significant contributor” language in paragraph (a)(2). See 42 U.S.C. § 7547(a)(2), (3).
ISMA also cites a Senate Committee report referring to proposed language from a Senate bill that would have required EPA first to list categories of nonroad engines, and then to promulgate regulations for each category found to “contribute significantly” to certain pollution. See S. 1630, 101st Cong. § 217 (1989), reprinted in 5 A Legislative History of the Clean Air Act Amendments of 1990, at 7906, 8044-45 (Comm. Print 1993) (“Legislative History”); S. Rep. No. 101-228, at 103-05 (1989). The Senate provision in question was dropped in favor of a House amendment, see Chafee-Baucus Statement of Senate Managers, S. 1630, The Clean Air Act Amendments of 1990, reprinted in 1 Legislative History, at 880, 896-97, and the discussion of the proposed language in the Senate report is therefore irrelevant. The House *15 **384 Committee report discussing the provision that was ultimately enacted provides no commentary on § 213(a)(3)'s “cause, or contribute to” language. See H.R. Rep. No. 101-490, at 309-10 (1990).
Finally, ISMA argues that EPA's interpretation leads to an absurd result, because it permits promulgation of national regulations for a vehicle category on the basis of a finding that this category makes an insignificant contribution to the relevant pollution. No such issue is presented in this case, however, because EPA's contribution findings, discussed at greater length below, clearly involve more than a de minimis contribution.

2. Snowmobiles-Only Contribution Finding
In the Final Rule, EPA found that emissions from snowmobiles, considered as a separate category, contribute to CO concentrations in more than one area designated by EPA as a “nonattainment” area for CO. 67 Fed.Reg. at 68,248-49. ISMA now challenges that finding, claiming that it lacks adequate evidentiary support and is premised on an improper interpretation of the statute. We reject these claims and uphold EPA's finding.
[5] EPA's snowmobiles-only finding is based primarily on data from the State of Alaska, estimating that snowmobile operation for engine maintenance, loading, and unloading contributes 0.3 tons/day of CO emissions to the Fairbanks nonattainment area and 0.34 tons/day of CO emissions to the Anchorage nonattainment area. Id. at 68,248. For Fairbanks, this contribution was equivalent to 1.2% of the total daily CO inventory for 2001. Id. EPA further found that there is a snowmobile trail located within the Spokane, Washington, nonattainment area, and that snowmobile operation on that trail contributes to CO concentrations there. Id. The Agency also noted that there are snowmobile trails located in close proximity to a number of other CO nonattainment areas and that there is evidence - primarily from Michigan and Alaska - that snowmobiles are ridden on roads as well as trails. Id. This evidence is adequate to support EPA's contribution finding, at least as to the Anchorage, Fairbanks, and Spokane nonattainment areas.
ISMA levels a number of challenges against EPA's finding, each of which falls short. Citing this court's decisions in Michigan v. EPA, 213 F.3d 663 (D.C.Cir.2000), and Appalachian Power Co. v. EPA, 251 F.3d 1026 (D.C.Cir.2001), ISMA first argues that contribution must be demonstrated through modeling or analysis showing transport of the emissions to the relevant area. But EPA's contribution finding in the instant case is based on emissions within the nonattainment areas, so no question of transport is implicated. Michigan and Appalachian Power Co. are inapposite: Both cases involved EPA's attempt

to impose regulatory requirements on upwind areas of a State without the requisite finding that these specific areas in fact made any measurable contribution to pollution in downwind areas. See Appalachian Power Co., 251 F.3d at 1040; Michigan, 213 F.3d at 683-84.

ISMA also contends that EPA was not entitled to rely on Alaska's data in making the contribution finding, because those data are estimates of expected snowmobile emissions, rather than actual measured emissions. We see nothing improper in EPA's reliance on Alaska's data, which in the case of Fairbanks were confirmed by a National Research Council study, see 67 Fed.Reg. at 68,248. Nothing in the statute requires direct empirical measurements, and nothing in the record suggests that Alaska's estimates are otherwise unreasonable.

*16 **385 [6] Finally, ISMA challenges EPA's decision to base its contribution finding on whether the areas in question are designated by EPA as “nonattainment” areas, rather than on whether the area is currently attaining the NAAQS. The Clean Air Act imposes numerous requirements for redesignation of an area from nonattainment to attainment status, including EPA approval of a state maintenance plan that will ensure attainment of the NAAQS for the decade following redesignation. See 42 U.S.C. § 7407(d)(3); see also 57 Fed.Reg. 13,498, 13,561-64 (Apr. 16, 1992) (discussing EPA procedures governing redesignation). Accordingly, attainment of the NAAQS does not automatically result in redesignation. While Fairbanks has not yet attained the NAAQS for CO, Spokane and Anchorage are currently attaining the NAAQS for CO but continue to be designated as “serious nonattainment” areas. See 66 Fed.Reg. 44,060 (Aug. 22, 2001) (Spokane); 66 Fed.Reg. 36,476 (July 12, 2001) (Anchorage). The other areas mentioned in EPA's snowmobiles-only contribution finding - Fort Collins, Colorado, and Medford, Oregon - have been redesignated as attainment areas for CO. See 68 Fed.Reg. 43,316 (July 22, 2003) (Fort Collins); 67 Fed.Reg. 48,388 (July 24, 2002) (Medford).

This issue turns on the meaning of the language in § 213(a)(2) referring to emissions contributing to CO concentrations in “more than 1 area which has failed to attain” the NAAQS for CO, 42 U.S.C. § 7547(a)(2) (emphasis added). The phrase “has failed to attain” - stated in the present perfect tense - is ambiguous with regard to whether it applies to an area that failed to attain the NAAQS in the past but is currently attaining the standard. EPA's interpretation of the phrase to refer to an area's attainment designation status, rather than whether it currently is attaining the NAAQS, is reasonable. Current attainment does not demonstrate that an area will continue in attainment, and areas often experience “relapse.” See 67 Fed.Reg. at 68,248 n. 7. Areas not yet redesignated “have failed to attain” the NAAQS, and may reasonably be considered to be at risk of relapse - due, in part, to any emissions contributing to the relevant pollution - until the steps necessary for redesignation have been taken.

3. Grouping of Snowmobiles With Land-Based Recreational Vehicles

ISMA also challenges EPA's decision to group snowmobiles with the land-based recreational vehicle category for purposes of the Agency's December 2000 contribution finding. ISMA claims that the grouping is unreasonable, because snowmobiles are operated in different parts of the country and at different times of the year than other recreational vehicles. The relevance of this claim is uncertain in light of our decision to uphold the snowmobiles-only contribution finding, which appears to provide an adequate

basis for promulgating the CO standards under § 213(a)(3). However, because EPA purported to rely in part upon the December 2000 finding when issuing the standards, see id. at 68,248; SAC at II-24, J.A. 92, we address - and reject - ISMA's claim.
[7] [8] EPA raises a threshold concern as to whether ISMA's challenge to the Agency's grouping decision is timely. We find that it is. Although EPA first made the grouping decision in the December 2000 finding, the Agency reopened that decision in the rulemaking under review in this case. " '[W]hether an agency has in fact reopened an issue' is dependent upon 'the entire context of the rulemaking including all relevant proposals and reactions of the agency,' and not just the agency's stated intent." *17 **386 Appalachian Power Co., 251 F.3d at 1033 (quoting Pub. Citizen v. Nuclear Regulatory Comm'n, 901 F.2d 147, 150 (D.C.Cir.1990)). More specifically, "if an agency's response to comments 'explicitly or implicitly shows that the agency actually reconsidered the rule, the matter has been reopened.' " Id. (quoting PanAmSat Corp. v. FCC, 198 F.3d 890, 897 (D.C.Cir.1999)). Such is the case here.
In the notice of proposed rulemaking, EPA directed virtually all of its discussion of the health effects of CO pollution to emissions from snowmobiles alone. See 66 Fed.Reg. at 51,105-06. ISMA and Polaris Industries submitted comments, based on a study by a consulting group, challenging the reasonableness of grouping snowmobiles with other land-based recreational vehicles for purposes of the CO finding and requesting that EPA reconsider its December 2000 finding. EPA considered these comments on the merits and responded, in part, with a new defense of the grouping: i.e., that, "even if [the Agency] did review snowmobile contribution separately, there is no question that they" meet the contribution criteria. SAC at II-24, J.A. 92. This was not a case in which parties merely "comment[ed] on matters other than those actually at issue [and] goad[ed the] agency into a reply." See Am. Iron & Steel Inst. v. EPA, 886 F.2d 390, 398 (D.C.Cir.1989), cert. denied, 497 U.S. 1003, 110 S.Ct. 3237, 111 L.Ed.2d 748 (1990). Rather, EPA put the basis of its finding in play by offering new evidence linking snowmobiles to CO nonattainment, and the comments went directly to the basis of EPA's authority to issue the snowmobile standards. Most important, EPA's response to these comments clearly indicates that it actually reconsidered - and therefore reopened to challenge - its grouping decision for purposes of the CO contribution finding.
[9] On the merits, we find nothing improper in this decision. EPA has discretion to define reasonable "categories or classes" of vehicles under § 213(a)(3). See Engine Mfrs. Ass'n v. EPA, 88 F.3d 1075, 1097-98 (D.C.Cir.1996). In this case, the Agency reasonably found that engines used in snowmobiles and other land-based recreational vehicles have similar characteristics, including combustion cycle, fuel usage patterns, power rating, and equipment type. See 65 Fed.Reg. at 76,791; 66 Fed.Reg. at 51,148. EPA ultimately concluded that snowmobiles should not be grouped with other land-based recreational vehicles for purposes of regulating ozone precursors, because snowmobiles are operated in cold weather and ozone is a warm-weather phenomenon. SAC at II-24, V-31, J.A. 92, 110. But this has no bearing on the reasonableness of the grouping for purposes of CO contribution, because peak CO concentrations typically occur during the colder months of the year, see id.; 66 Fed.Reg. at 51,105. ISMA offers no support for its assertion that snowmobiles and other recreational vehicles are not operated in the same parts of the country. We therefore uphold as reasonable EPA's decision to group snowmobiles with

other land-based recreational vehicles for purposes of the December 2000 CO contribution finding.

C. EPA's Authority to Regulate HC and NOx Under § 213(a)(4)

EPA promulgated the HC and NOx standards under § 213(a)(4), which authorizes the Agency to regulate emissions "not referred to in paragraph (2)" if such emissions contribute to air pollution which may reasonably be anticipated to endanger the public health or welfare. Paragraph (2) directs the Agency to determine "whether emissions of carbon monoxide, oxides of nitrogen, and volatile organic compounds from new and existing nonroad engines or *18 **387 nonroad vehicles ... are significant contributors to ozone or carbon monoxide concentrations in more than 1" nonattainment area. 42 U.S.C. § 7547(a)(2). ISMA argues that EPA lacks authority to regulate HC and NOx emissions under § 213(a)(4), because they are referred to in § 213(a) (2). We reject this claim as to HC, but we agree that EPA exceeded its statutory authority in issuing the NOx standard. Accordingly, we hereby vacate the latter standard.

1. HC Standard

[10] The only "emissions" identified in § 213(a)(2) are CO, NOx, and VOCs. ISMA argues that § 213(a)(2) nevertheless "refers to" HC, because it mentions ozone, of which HC is a precursor, and VOCs, which consist primarily of HC. We disagree. First, ozone is not an "emission," but rather an ambient pollutant formed through reactions between chemical precursors in the atmosphere, so paragraph (a)(2)'s reference to ozone is irrelevant here. Second, VOCs and HC are not coterminous. While HC and VOCs overlap in parts, they are distinct: Not all VOCs are hydrocarbons, and not all HC emissions are VOCs. See SAC at II-26, J.A. 94. It is true that EPA has in the past used HC as a surrogate for regulating VOCs, see id., but it did not do so here. Rather, EPA regulated HC emissions as a means of controlling fine PM emissions and pollution. The Agency reasonably determined that regulating HC would control PM pollution both because HC itself contributes to such pollution, and because HC provides a good proxy for regulating fine PM emissions. 67 Fed.Reg. at 68,254. Based on the foregoing, we conclude that EPA has the authority to regulate HC emissions under § 213(a)(4).

2. NOx Standard

[11] Section 213(a)(2) expressly and undeniably refers to NOx, and we therefore conclude that EPA lacks authority to regulate NOx emissions under § 213(a)(4). EPA resists this conclusion by arguing that the phrase emissions "referred to in paragraph (2)" means "emissions of carbon monoxide, oxides of nitrogen, and volatile organic compounds from ... nonroad engines ... [that] are significant contributors to ozone or carbon monoxide concentrations in more than one [ozone or CO nonattainment area]." SAC at II-26, J.A. 94; see also 65 Fed.Reg. at 76,790. In other words, EPA reads § 213(a)(4) to allow it to regulate any emissions meeting (a)(4)'s contribution criteria - including CO, NOx, and VOCs - so long as they are being regulated for the purpose of addressing pollution problems other than CO or ozone nonattainment. See id. The Agency's interpretation is untenable, for several reasons.

First, EPA's interpretation runs counter to the plain meaning of the phrase "emissions ... referred to in paragraph (2)." The most natural reading of the phrase is "emissions of

carbon monoxide, oxides of nitrogen, and volatile organic compounds." See 42 U.S.C. § 7547(a)(2). EPA's reading, by contrast, requires a strange contortion of § 213(a)(2)'s language - omitting several key words and supplying others. Had Congress intended the meaning and result which EPA urges, it would have said so more clearly. We therefore find EPA's reading of the language to be implausible on its face.

In addition, the sole discussion of the relevant language in the legislative history contradicts EPA's reading. In addressing the language ultimately enacted, the House Committee report states:

Paragraph (4) of revised section 213(a) provides that if the Administrator determines that emissions from nonroad vehicles*19 **388 not specifically mentioned in paragraph (2) (which lists CO, VOCs, and NOx) significantly contribute to air pollution which may reasonably be anticipated to endanger public health or welfare, the Administrator may promulgate such regulations as he deems appropriate....

H.R. Rep. No. 101-490, at 309-10 (1990) (emphasis added). This confirms that the drafters intended the phrase "emissions ... referred to in paragraph (2)" to mean simply emissions of CO, NOx, and VOCs, without regard to whether such emissions do or do not significantly contribute to CO or ozone concentrations in more than one nonattainment area.

EPA protests that the reading of § 213(a)(4) that we adopt today leaves a "gap" in its regulatory authority. It precludes the Agency from addressing pollution problems, other than CO or ozone nonattainment, caused by CO, VOCs, and NOx emissions from nonroad engines - for instance, the potential contribution of NOx emissions to haze or acid deposition. We agree that § 213 would likely permit more comprehensive pollution control if Congress had drafted § 213(a)(4) to authorize regulation of these emissions. But Congress has not done so. Because NOx is an "emission referred to" in § 213(a)(2), we hold that EPA lacks statutory authority to regulate NOx under § 213(a)(4). We therefore vacate the NOx standard.

D. Scope of Implementation of Advanced Technologies

Having disposed of ISMA's claims, we now turn to Bluewater's primary challenge to the Final Rule. Section 213(a)(3) requires EPA to set standards that

achieve the greatest degree of emission reduction achievable through the application of technology which the Administrator determines will be available for the engines or vehicles to which such standards apply, giving appropriate consideration to the cost of applying such technology within the period of time available to manufacturers and to noise, energy, and safety factors associated with the application of such technology.

42 U.S.C. § 7547(a)(3). EPA based its standards on two advanced technologies: DI two-stroke engines and four-stroke engines. The Agency estimated that its Phase 3 standards, effective for the 2012 model year, would require implementation of these technologies in 70% of all new snowmobiles. It declined to set standards requiring full implementation of these technologies, finding that a number of factors - including the effort required to apply advanced technologies to the variety of snowmobile models - made this infeasible within the regulatory lead time.

Bluewater claims that EPA improperly assumed that § 213(a)(3) requires the Agency to set standards at a level sufficiently lenient to allow continued production of all existing snowmobile models. Bluewater appears to read the provision to instead mandate 100%

implementation of technologies that EPA has determined “will be available,” subject only to the proviso that the standards must permit continued production of vehicles satisfying “basic demand.” See Bluewater Br. at 18-19. Alternatively, Bluewater claims that EPA acted arbitrarily and capriciously by failing to explain the basis of its conclusion that manufacturers could not achieve broader application of advanced technology by 2012. We reject Bluewater's statutory challenge as articulated, but we agree that EPA has failed to explain adequately the basis of its decision to set the standards as it did. Accordingly, we remand the standards for EPA to clarify the analysis and *20 **389 evidence upon which the standards are premised.

1. Statutory Claim

[12] Section 213(a)(3) is a “technology-forcing” provision, requiring EPA “to project future advances in pollution control capability ... [and] to press for development and application of improved technology rather than be limited by that which exists today.” Husqvarna AB v. EPA, 254 F.3d 195, 201 (D.C.Cir.2001) (quoting Natural Res. Def. Council v. EPA, 655 F.2d 318, 328 (D.C.Cir.1981) (“ NRDC”)). However, the Agency is not to set standards based solely on a determination that a particular technology “will be available,” as a matter of pure technological feasibility. Rather, in determining the maximum emissions reduction achievable, EPA must also give “appropriate consideration to the cost of applying such technology within the period of time available to manufacturers and to noise, energy, and safety factors associated with the application of such technology.” 42 U.S.C. § 7547(a)(3).

In the Final Rule, EPA found that there was no purely technological obstacle to the application of DI two-stroke and four-stroke engines to snowmobiles, which in fact are already in use in some models. The Agency concluded that, by 2012, “manufacturers could, at least in theory, apply advanced technology across essentially their entire product lines.” 67 Fed.Reg. at 68,273. And it is clear that standards reflecting across-the-fleet application of such technology would result in significantly greater emissions reductions than the standards adopted. However, EPA interprets § 213(a)(3)'s reference to cost and other factors to permit it to set less stringent standards: Standards reflecting across-the-fleet implementation are not “achievable” by 2012, the Agency contends, because of manufacturers' resource constraints and the design and development efforts required to apply new technologies to the variety of different snowmobile models.

We agree that EPA may rely on cost and other statutory factors to set standards at a level less stringent than that reflected by across-the-fleet implementation of advanced technologies. This court noted in Husqvarna that “[t]he overriding goal of [§ 213] is air quality and the other listed considerations, while significant, are subordinate to that goal.” 254 F.3d at 200. Nevertheless, as the court emphasized in reflecting on very similar language in § 202(l) of the CAA, the provision “does not resolve how the Administrator should weigh all [the statutory] factors in the process of finding the ‘greatest emission reduction achievable.’ ” Sierra Club v. EPA, 325 F.3d 374, 378 (D.C.Cir.2003).

We find nothing in the statute requiring EPA to set standards at a level of stringency that would require discontinuation of all vehicles other than those satisfying “basic demand.” Bluewater derives the “basic demand” formula from our decision in International Harvester Co. v. Ruckelshaus, 478 F.2d 615, 640 (D.C.Cir.1973), which involved statutory provisions and regulations that are very different from those at issue in this case.

Instead, the relevant question here is whether, based on “appropriate consideration” of cost and the other factors enumerated in § 213(a)(3), EPA could reasonably determine that the standards it adopted reflect the “greatest degree of emission reduction achievable.” Nothing in § 213(a)(3) prevents EPA from setting standards sufficiently lenient to permit continued production of all existing models, so long as EPA's decision is based upon appropriate consideration of these factors.

*21 **390 2. “Arbitrary and Capricious” Claim

[13] Although we agree with EPA that the statute permits it to balance technological feasibility against cost and other factors in setting standards, we conclude that the Agency has not adequately explained its exercise of that discretion in this case.

First, EPA expected that manufacturers would apply advanced technologies on an engine-family-by-engine-family basis, and concluded that, by 2012, advanced technologies could be applied to models accounting for roughly 70% of new snowmobiles, but not the remaining models. See 67 Fed.Reg. at 68,273. Implicit in this conclusion is an assumption that no existing models could be eliminated. In other words, EPA assumed that manufacturers could not discontinue or replace any of the models - collectively accounting for roughly 30% of new snowmobiles - to which advanced technology could not be applied by 2012. That assumption, if it is to stand, must be grounded in “appropriate consideration” of the relevant statutory factors. EPA argues before this court that its position was based on cost considerations. However, we can find nothing in the record indicating that the Agency evaluated or reached any conclusions as to the cost of discontinuing models to which advanced technology could not be applied by 2012. Absolute certainty and precision on this point are not required, but a reasonable explanation clearly is necessary. Accordingly, we direct the Agency on remand to clarify the statutory and evidentiary basis of its position.

Second, even assuming that EPA correctly concluded that no models could be discontinued, the Agency failed to explain adequately how it arrived at the specific standards adopted. EPA did articulate several general reasons for its conclusion that greater emissions reductions could not be achieved by 2012. Most important, EPA found that, because of the wide variety of snowmobile models, the design and development work necessary to apply advanced technologies to all models would require significant time and investment. Id. The Agency noted that snowmobile manufacturers are “resource constrained,” and that those relying on external engine suppliers would find it more difficult to undertake rapid development of new technologies. Id.

This generalized discussion of the limiting factors does not explain how the Agency arrived at the specific conclusion that emissions reductions corresponding to application of advanced technologies to 70% of new snowmobiles were the most that could be achieved by 2012. The Agency's explanation of its reasoning could just as well support standards corresponding to 30% or 100% application in that time frame. And we find nothing in the record before us explaining the analysis and evidence underlying EPA's conclusions.

[14] We emphasize that we do not view the standards adopted as facially unreasonable, nor have we found evidence in the record contradicting the Agency's ultimate decision. But in order to determine whether that decision reflects a “rational connection between the facts found and the choice made,” Motor Vehicle Mfrs. Ass'n, 463 U.S. at 43, 103

S.Ct. at 2866, a reasonable explanation of the specific analysis and evidence upon which the Agency relied is necessary. “With its delicate balance of thorough record scrutiny and deference to agency expertise, judicial review can occur only when agencies explain their decisions with precision, for ‘[i]t will not do for a court to be compelled to guess at the theory underlying the agency's action....’ ” Am. Lung Ass'n v. EPA, 134 F.3d 388, 392 (D.C.Cir.1998) (quoting SEC v. Chenery Corp., 332 U.S. 194, 196-97, 67 S.Ct. 1575, 1577, 91 L.Ed. 1995 (1947)).

*22 **391 In defense of its limited explanation for its decision, EPA refers us to a line of cases in which we have deferred to the Agency's predictions that a particular control technology will be available in the future. See Nat'l Petrochemical & Refiners Ass'n v. EPA, 287 F.3d 1130, 1144 (D.C.Cir.2002); Natural Res. Def. Council v. Thomas, 805 F.2d 410, 432-34 (D.C.Cir.1986); NRDC, 655 F.2d at 333. These cases stand for the proposition that, “[i]n the absence of theoretical objections to the technology, the agency need only identify the major steps necessary for development of the device, and give plausible reasons for its belief that the industry will be able to solve those problems in the time remaining.” Nat'l Petrochemical & Refiners Ass'n, 287 F.3d at 1144 (quoting NRDC, 655 F.2d at 333).

The issue here is different. In this case, EPA's decision does not involve a prediction about the development of a technology that is not yet available. Rather, it concluded that technology that is currently available could not be applied to all models within the available lead time. This decision was apparently based, not on technological obstacles per se, but rather on the cost and time required to “optimize” advanced technology for each snowmobile model on the market. Indeed, it is not clear whether there is any meaningful distinction between time and cost here; it may be that the pace of implementation is simply a function of the level of investment. Naturally, there will be some uncertainty in any estimate of how much money and time is needed to apply advanced technologies to each model or engine family and, accordingly, what scope of implementation is actually feasible in the time available. But this does not excuse EPA from offering any estimate whatsoever. We can defer to the Agency's prediction of the feasible pace of implementation only if it has adequately explained the basis of that prediction. As this court stated in NRDC, “[t]he Clean Air Act requires EPA to look to the future in setting standards, but the agency must also provide a reasoned explanation of its basis for believing that its projection is reliable. This includes a defense of its methodology for arriving at numerical estimates.” 655 F.2d at 328 (citing Int'l Harvester Co., 478 F.2d at 629).

E. Catalyst Technology and Other Claims

1. Catalyst Technology

[15] EPA declined to adopt emissions standards based on the application of catalyst technology, which is widely used in exhaust aftertreatment devices to reduce emissions from automobiles and other engines. Bluewater challenges this decision, claiming that it was based on an impermissible interpretation of the statute and is arbitrary and capricious. We reject this claim.

As noted above, § 213(a)(3) requires adoption of standards based on technology that EPA determines “will be available.” Bluewater asserts that EPA violated this mandate by

basing its decision on a finding that catalyst technology is not already available for snowmobiles. The premise of this argument is unsupported. EPA determined that there were significant technical barriers to development of catalyst technology for snowmobiles, including difficulties with achieving full oxidation of “rich exhaust” and overcoming space constraints. See SAC at V-25, J.A. 104. EPA concluded that it could not, at this time, predict that these hurdles could be overcome or that such technology would be available by 2012. Id. Therefore, EPA's decision was based on the lack of evidence to support a prediction that catalyst technology “will be available” within the relevant*23 **392 lead time, not on the mere fact that such technology is not available now.

Bluewater contends, in the alternative, that EPA's determination that catalyst technology will not be available by 2012 is not supported by the record. Bluewater first challenges EPA's reliance on the “rich exhaust” barrier to development of catalyst technology for snowmobiles. Bluewater asserts that DI two-stroke and four-stroke engines have comparatively low CO and HC emissions and that application of these engine technologies would therefore eliminate the “rich exhaust” problem. In other words, EPA should have considered standards based on the simultaneous development and application of advanced engines and catalyst technology. We cannot agree that EPA's failure to analyze this scenario was arbitrary and capricious. Having concluded that advanced engine technologies alone could not be fully implemented in the available lead time, the Agency was not required, on its own motion, to consider whether simultaneous development and application of catalyst technology would be feasible. Cf. Nat'l Petrochemical & Refiners Ass'n, 287 F.3d at 1145 (noting that EPA is entitled to some deference in choosing the technological basis of its standards).

Bluewater also challenges EPA's position that space constraints posed a barrier to adoption of catalyst technology. This challenge is premised primarily on EPA's statements elsewhere in the record indicating that space constraints can be overcome for many large-SI and recreational-vehicle engines. See Regulatory Support Document (“RSD”) at 3-19, J.A. 177. But the record indicates that snowmobiles present some unique problems, see Written Testimony of the Manufacturers of Emission Controls Association at 9, J.A. 272, so these statements do not present the fatal contradiction suggested by Bluewater. Similarly, Bluewater cites EPA's finding in an earlier proceeding that catalysts can be built into handheld lawn and garden equipment engines. We fail to see how this finding undermines EPA's conclusion with regard to snowmobiles, given the significant differences between the two types of engines and applications, see 67 Fed.Reg. at 68,260; Husqvarna, 254 F.3d at 197 n. 1.

2. Remaining Claims

Bluewater raised a number of other claims in its briefs. We have carefully considered each of these claims and find no merit in any. We offer our conclusions here in summary form.

[16] Bluewater claims, based on the December 2000 contribution finding for land-based recreational vehicles, that EPA was required to regulate HC and NOx under § 213(a)(3), instead of (a)(4). Bluewater argues that, once EPA found that the category including snowmobiles contributes to ozone pollution in more than one nonattainment area, the Agency was required to regulate snowmobile emissions of ozone precursors under §

213(a)(3). We disagree. EPA reasonably determined that snowmobiles should be considered separately from the recreational vehicle category for purposes of the ozone contribution finding, because snowmobiles are operated in cold weather and ozone is a warm-weather phenomenon. See SAC at II-24, V-31, J.A. 92, 110.

[17] Bluewater also contends that, once EPA made a contribution finding for ozone or CO, it was obligated to regulate both CO and ozone precursors under § 213(a)(3). We seriously doubt that the statute permits this odd reading, but it certainly does not require it. EPA reasonably interpreted § 213(a)(3) to require regulation of ozone precursors under that provision only if it had made a finding that the *24 **393 relevant individual class or category of engines - in this case snowmobiles - contributes to ozone concentrations in more than one ozone nonattainment area.

[18] In addition, Bluewater argues that EPA improperly failed to consider the noise and energy impacts of its decision to adopt standards reflecting continued use of carbureted two-stroke engines in up to 30% of new snowmobiles after 2012. Section 213(a)(3) requires EPA to set standards reflecting the maximum emissions achievable through adoption of technology that will be available, "giving appropriate consideration" to, inter alia, "noise [and] energy ... factors associated with the application of such technology." EPA clearly met this requirement by giving consideration to the (undisputedly positive) noise and energy impacts of basing standards on the adoption of DI two-stroke and four-stroke engine technologies. See RSD at 4-48, J.A. 189. The statute does not require EPA to set standards maximizing energy conservation or noise reduction.

[19] Bluewater next claims that EPA violated § 213(a)(3) by failing to "first consider standards equivalent in stringency to standards for comparable [onroad] motor vehicles or engines (if any) regulated under" § 202 of the Act. See 42 U.S.C. § 7547(a)(3). In response to comments on this point, EPA determined that automobiles are not "comparable" to snowmobiles and that the threshold for "first considering" similar standards therefore was not triggered. See SAC at V-22, J.A. 101. Bluewater argues that EPA should have considered whether onroad motorcycles are "comparable," but this specific claim was not raised in administrative proceedings and therefore was waived.

[20] Finally, Bluewater argues that EPA acted arbitrarily and capriciously by failing to adopt standards based on the exclusive application of four-stroke technology, rather than a mix of DI two-stroke and four-stroke technology. This claim is baseless. EPA reasonably concluded that DI two-stroke engines would achieve greater CO emission reductions than comparably powered four-stroke engines, but would yield somewhat lower HC reductions. 67 Fed.Reg. at 68,272. EPA accordingly concluded that neither technology was obviously superior. In reaching its conclusion, EPA relied on data from personal watercraft (jet skis) to predict expected emissions from high-powered four-stroke engines. RSD at 4-42, J.A. 183. This was appropriate, because EPA reasonably determined that emissions from the two types of engines would be similar, and because there were no data on highpowered four-stroke snowmobile engines available at the time of the rulemaking. See id.; see also, e.g., Am. Iron & Steel Inst. v. EPA, 115 F.3d 979, 1004-05 (D.C.Cir.1997) (upholding the Agency's reliance on a reasonable model to estimate results where no field data were available).

III. Conclusion

For the reasons set forth above, we grant in part and deny in part each of the two petitions for review. We hereby vacate the NOx standard on the ground that EPA lacks statutory authority to regulate NOx emissions under § 213(a)(4). We hold that the Agency acted within its statutory authority in promulgating the CO and HC standards under § 213(a)(3) and (a)(4), respectively. However, we remand the CO and HC standards for EPA to clarify the analysis and evidence upon which the standards are based. Specifically, we direct EPA to clarify (1) the statutory and evidentiary basis of the Agency's assumption that the standards must be sufficiently lenient to permit the continued production of all existing snowmobile models, and (2) the analysis and evidence underlying the Agency's conclusion that advanced technologies can be applied to no more than 70% of new snowmobiles by 2012. We uphold *25 **394 the CO and HC standards in all other respects.

C.A.D.C.,2004.

Bluewater Network v. E.P.A.

370 F.3d 1, 58 ERC 1715, 361 U.S.App.D.C. 370