ORAL ARGUMENT NOT YET SCHEDULED

IN THE UNITED STATES COURT OF APPEALS
FOR THE DISTRICT OF COLUMBIA CIRCUIT

No. 09-1322 and consolidated cases (Complex)

COALITION FOR RESPONSIBLE REGULATION, *et al*.,

Petitioners,

v.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY AND LISA P. JACKSON, ADMINISTRATOR,

***Respondents*.**

ON CONSOLIDATED PETITIONS FOR REVIEW OF FINAL ACTIONS
BY THE UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

BRIEF FOR STATE AND ENVIRONMENTAL INTERVENORS IN SUPPORT OF RESPONDENTS

Sean H. Donahue
Donahue & Goldberg, LLP
2000 L St., NW, Suite 808
Washington, DC 20036
(202) 277-7085

Howard I. Fox
David S. Baron
Earthjustice
1625 Mass. Ave., NW, Suite 702
Washington, DC 20036

Megan Ceronsky
Vickie L. Patton
Peter Zalzal
2060 Broadway, Suite 300
Boulder, CO 80302

Counsel for Environmental Defense Fund

MARTHA COAKLEY
Attorney General of Massachusetts
Carol Iancu
Tracy Triplett
William L. Pardee, Chief
Assistant Attorneys General
Environmental Protection Division
One Ashburton Place, 18th Floor
Boston, MA 02108
(617) 963-2428

Counsel for the
Commonwealth of Massachusetts

Additional Counsel Listed on Inside Cover

KAMALA D. HARRIS
Attorney General of California

Mark Breckler
Chief Assistant Attorney General
Kathleen A. Kenealy
Senior Assistant Attorney General

Marc N. Melnick
Nicholas Stern
Daniel Lucas
Deputy Attorneys General
1515 Clay Street, 20th Floor
P.O. Box 70550
Oakland, CA 94612
(510) 622-2133

Counsel for the State of California

GEORGE JEPSEN
Attorney General of Connecticut

Kimberly P. Massicotte
Matthew I. Levine
Scott N. Koschwitz
Assistant Attorneys General
55 Elm Street
P.O. Box 120
Hartford, CT 06106
(860) 808-5250

Counsel for the State of Connecticut

JOSEPH R. BIDEN, III
Attorney General of Delaware

Valerie M. Satterfield
Deputy Attorney General
Delaware Department of Justice
102 West Water Street, 3rd Floor
Dover, DE 19904
(302) 739-4636

Counsel for the State of Delaware

LISA MADIGAN
Attorney General of Illinois

Matthew J. Dunn
Gerald T. Karr
Assistant Attorneys General
69 West Washington Street, Suite 1800
Chicago, Illinois 60602
(312) 814-3369

Counsel for the State of Illinois

THOMAS J. MILLER
Attorney General of Iowa

David R. Sheridan
Assistant Attorney General
Environmental Law Division
Lucas State Office Building
321 E. 12th Street, Ground Flr.
Des Moines, IA 50319
(515) 281-5351

Counsel for the State of Iowa

WILLIAM J. SCHNEIDER
Attorney General of Maine

Gerald D. Reid
Assistant Attorney General
Chief, Natural Resources Division
6 State House Station
Augusta, ME 04333-0006
(207) 626-8545

Counsel for the State of Maine

DOUGLAS F. GANSLER
Attorney General of Maryland

Mary E. Raivel
Assistant Attorney General
Office of the Attorney General
Maryland Department of the Environment
1800 Washington Boulevard, Suite 6048
Baltimore, MD 21230
(410) 537-3035

Counsel for the State of Maryland

LORI SWANSON
Attorney General of Minnesota

Jocelyn F. Olson
Assistant Attorney General
Atty. Reg. No. 0082016
445 Minnesota Street, Suite 900
St. Paul, Minnesota 55101-2127
(651) 757-1244 (Voice)
(651) 296-1410 (TTY)

Counsel for the State of Minnesota

MICHAEL A. DELANEY
Attorney General of New Hampshire

K. Allen Brooks
Senior Assistant Attorney General
33 Capitol Street
Concord, NH 03301
(603) 271-3679

Counsel for the State of New Hampshire

GARY K. KING
Attorney General of New Mexico

Stephen R. Farris
Seth T. Cohen
Assistant Attorneys General
P.O. Box 1508
Santa Fe, NM 87504-1508
(505) 827-6087

Counsel for the State of New Mexico

ERIC T. SCHNEIDERMAN
Attorney General of New York

Benjamin Gutman
Assistant Solicitor General
Michael J. Myers
Yueh-Ru Chu
Assistant Attorneys General
Environmental Protection Bureau
The Capitol
Albany, NY 12224
(518) 402-2594

Counsel for the State of New York

PETER F. KILMARTIN
Attorney General of Rhode Island

Gregory S. Schultz
Special Assistant Attorney General
Rhode Island Dept. of Attorney General
150 South Main Street
Providence, RI 02903
(401) 274-4400 x 2400

Counsel for the State of Rhode Island

JOHN KROGER
Attorney General of Oregon

Paul Logan
Assistant Attorney-in-Charge, Natural Resources Section
1515 SW Fifth Avenue, Suite 410
Portland, OR 97201
(971)-673-1943

Counsel for the State of Oregon

WILLIAM H. SORRELL
Attorney General of Vermont

Thea J. Schwartz
State of Vermont
Office of the Attorney General
109 State Street
Montpelier, VT 05609-1001
(802) 828-3186

Counsel for the State of Vermont

ROBERT M. MCKENNA
Attorney General of Washington

Leslie R. Seffern
Assistant Attorney General
Washington State Office of the Attorney General
P.O. Box 40117
Olympia, WA 98504-0117
(360) 586-6770

Counsel for the State of Washington

FOR THE CITY OF NEW YORK
MICHAEL A. CARDOZO
Corporation Counsel for the City of New York

Carrie Noteboom
Christopher King
Assistant Corporation Counsel
100 Church Street
New York, New York 10007
(212) 788-0771

Counsel for the City of New York

Ann B. Weeks
Helen D. Silver
Clean Air Task Force
18 Tremont Street, Suite 530
Boston, MA 02108

Counsel for Conservation Law Foundation, Inc.,

David Doniger
Meleah Geertsma
Natural Resources Defense Council
1152 15th Street, NW, Suite 300
Washington, DC 20005

Counsel for Natural Resources Defense Council

Morgan Butler
Frank W. Rambo
Southern Environmental Law Center
201 West Main Street, Suite 14
Charlottesville, VA 22902

Counsel for Wetlands Watch

Joseph Mendelson III
National Wildlife Federation
901 E Street, NW
Suite 400
Washington, DC 20004

Counsel for National Wildlife Federation

Craig Holt Segall
Sierra Club
50 F Street NW, Eighth Floor
Washington, DC 20009

Joanne Spalding
Sierra Club
85 Second Street, Second Floor
San Francisco, CA 94105

Counsel for Sierra Club

CERTIFICATE AS TO PARTIES, RULINGS, AND RELATED CASES

Pursuant to D.C. Circuit R. 28(a)(1), Intervenors in Support of Respondents United States Environmental Protection Agency ("EPA") and Lisa P. Jackson, submit this certificate as to parties, rulings and related cases.

(A) Parties and amici: The parties and amici to this action are those set forth in the certificates filed with the Joint Opening Brief of Non-State Petitioners and Supporting Intervenors (hereinafter "Industry Brief" or "Ind. Br."), the Brief of Texas for State Petitioners and Supporting Intervenors (hereinafter "Tx. Br."), and the Opening Brief for State Petitioners Texas and Virginia on Denial of Reconsideration of the Endangerment Finding and of State Petitioners and Supporting State Intervenors on Endangerment Finding Delegation Issues (hereinafter "Va. Br."), with the two exceptions noted in the certificate preceding the Brief for Respondents ("EPA Br.").

(B) Rulings under review: This case is a set of consolidated petitions for review of EPA's Endangerment and Cause or Contribute Findings for Greenhouse Gases Under Section 202(a) of the Clean Air Act; Final Rule, 74 Fed. Reg. 66,496 (Dec. 15, 2009), and its denial of petitions to reconsider that action, 75 Fed. Reg. 49,556 (Aug. 13, 2010).

(C) Related cases: Each of the petitions for review consolidated under No. 09-1322 is related. In addition, pursuant to this Court's prior orders, this case (No.

09-1322) will be argued before the same panel as the consolidated actions in Nos. 10-1167, 10-1092, and 10-1073.

DATED: September 16, 2011

/s/ *Carol Iancu*
Carol Iancu

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GLOSSARY

ANPR	Advance Notice of Proposed Rulemaking
AR4	Fourth Assessment Report (Intergovernmental Panel on Climate Change, 2007)
CAA	Clean Air Act or the Act
CAFE	corporate average fuel economy
CO_2	carbon dioxide
CO_2e	carbon dioxide equivalent
CRU	University of East Anglia's Climate Research Unit
EPA	Respondent United States Environmental Protection Agency
EPA Br.	Brief of Respondent United States Environmental Protection Agency
IPCC	Intergovernmental Panel on Climate Change
Ind. Br.	Joint Opening Brief of Non-State Petitioners and Supporting Intervenors
JA	Joint Appendix
NAAQS	national ambient air quality standards
NRC	National Research Council of the National Academies
PM	particulate matter
PSD	prevention of significant deterioration
RTC	Response to Comments
RTP	Response to Petitions to Reconsider Endangerment Finding

TSD	Technical Support Document
Tx. Br.	Brief of Texas for State Petitioners and Supporting Intervenors
UNFCCC	United Nations Framework Convention on Climate Change
USGCRP	United States Global Change Research Program
USGCRP 2009	Global Climate Change Impacts in the United States (USGCRP, 2009)
Va. Br.	Opening Brief for State Petitioners Texas and Virginia on Denial of Reconsideration of the Endangerment Finding and of State Petitioners and Supporting State Intervenors on Endangerment Finding Delegation Issues
VOCs	volatile organic chemicals
W/m^2	watts per square meter
WGI	Working Group I: The Physical Science Basis (Intergovernmental Panel on Climate Change, 2007)
WGII	Working Group II: Impacts, Adaptation, and Vulnerability (Intergovernmental Panel on Climate Change, 2007)

INTRODUCTION

In December 2009 – ten years after being petitioned to set standards for greenhouse gas emissions from motor vehicles under Section 202(a)[1] of the Clean Air Act – EPA issued its long-overdue "Endangerment Finding." EPA determined that vehicular greenhouse gas emissions "contribute to the total greenhouse gas air pollution, and thus to the climate change problem, which is reasonably anticipated to endanger public health and welfare." 74 Fed. Reg. 66,496, 66,499 (Dec. 15, 2009).

In making the Endangerment Finding, EPA's Administrator strictly adhered to the Clean Air Act and the Supreme Court's rulings in *Massachusetts v. EPA*, 549 U.S. 497 (2007). She relied on a comprehensive scientific record to determine "whether greenhouse gas emissions contribute to climate change," the analysis required by the text of Section 202(a)(1) of the Act. *Massachusetts*, 549 U.S. at 532-33. This Court should decline Petitioners' invitations to stray from *Massachusetts*' rulings concerning the unambiguous requirements of Section 202(a)(1) and reject their efforts to import into that provision an array of extraneous policy considerations that have no basis in the statutory text.

Petitioners attack the Endangerment Finding for unleashing a chain of supposedly unwieldy agency actions. *See* Ind. Br. 1. In reality, however, EPA has

[1] 42 U.S.C. § 7521(a) (hereinafter, "Section 202(a)").

done only the routine work of applying its technical expertise to a body of scientific information to assess whether a statutory threshold for regulatory action has been met. That is a straightforward process and is subject to well-established rules of judicial review and deference to agency technical and scientific expertise.

EPA addressed a "very large and comprehensive base of scientific information" developed by the global scientific community over many years, as well as the varying degrees of certainty associated with different aspects of that scientific information. 74 Fed. Reg. at 66,506. In exercising her judgment under Section 202(a)(1), the Administrator focused EPA's extensive analysis on the scientific evidence that greenhouse gases in the atmosphere are responsible for a multitude of observed and projected adverse impacts on public health and welfare. This approach and the Administrator's ultimate determination are consistent with the text of Section 202(a)(1), the mandate of *Massachusetts*, and the overwhelming scientific evidence.

STATEMENT OF JURISDICTION

Petitioners invoke this Court's jurisdiction to review certain final actions of the Administrator under the Clean Air Act, 42 U.S.C. § 7607(b). Petitioners have not demonstrated their Article III standing as to certain claims, *see* Part III, p. 48, *infra*, and, as to other claims, failed to comply with the requirements of 42 U.S.C. § 7607(d)(7)(B), *infra* pp. 52 n.33, 56.

STATUTES AND REGULATIONS

The pertinent statutes and regulations are set forth in Appendix A to the Industry Brief and in the Statutory Addendum to EPA's Brief.

STATEMENT OF THE CASE

In 1999, various environmental and other organizations petitioned EPA to issue standards under Section 202 of the Clean Air Act for greenhouse gas air pollutants emitted from motor vehicles. The petitioning groups sought a determination that motor vehicle emissions were contributing to climate-changing pollution that "may reasonably be anticipated to endanger public health or welfare" within the meaning of Section 202(a)(1) of the Act, and they asked EPA to set emission standards for various categories of motor vehicles under the remaining provisions of Section 202(a).

In 2003, nearly four years after its filing, EPA denied the petition. 68 Fed. Reg. 52,922 (Sept. 8, 2003). At that time, EPA claimed it had no authority to set standards for greenhouse gases under the Clean Air Act and, therefore, declined to undertake an endangerment analysis. *Id.* at 52,925. EPA also cited a range of "considerations" not within the scope of Section 202(a)(1) – from alleged inefficiency of motor vehicle regulation to a preference for voluntary approaches and international coordination – as rationales for rejecting a regulatory approach even if it had such authority. *Id.* at 52,929-31.

A coalition of States, other governmental entities, and environmental organizations – including many of the intervenor-respondents here – sought review of EPA's denial, which ultimately was reversed by the Supreme Court in *Massachusetts*. The Supreme Court "ha[d] little trouble concluding" that Section "202(a)(1) of the Clean Air Act authorizes EPA to regulate greenhouse gas emissions from new motor vehicles in the event that it forms a 'judgment' that such emissions contribute to climate change." *Massachusetts*, 549 U.S. at 528. Importantly for the present case, the Supreme Court rejected "[t]he alternative basis for EPA's decision – that even if it does have statutory authority to regulate greenhouse gases, it would be unwise to do so at this time" because EPA's 2003 decision had "rest[ed] on reasoning divorced from the statutory text." *Id*. at 532.

The Supreme Court evaluated the "laundry list" of "policy" considerations on which EPA relied and rejected each one. *Massachusetts*, 549 U.S. at 533. It determined EPA had "refused to comply with th[e] clear statutory command" of Section 202(a)(1), which requires EPA to make a "scientific judgment" as to "whether greenhouse gas emissions contribute to climate change." *Id.* at 533-34. The Court further held that considerations that "have nothing to do with whether greenhouse gas emissions contribute to climate change" have no place in EPA's endangerment analysis. *Id*. at 533. Finally, the Court expressly concluded that EPA may not "avoid its statutory obligation" based on "scientific uncertainty"

unless such uncertainty "is so profound that it precludes EPA from making a reasoned judgment as to whether greenhouse gases contribute to global warming." *Id*. at 534.

The Court remanded the matter to this Court, which, in turn, remanded it to EPA on September 14, 2007. Order, Nos. 03-1361, *et al*. (Sept. 14, 2007).

In April 2009, EPA issued a proposed endangerment finding, 74 Fed. Reg. 18,886 (Apr. 24, 2009), which relied upon multiple comprehensive assessments of the scientific research by the foremost scientific assessment organizations and a vast body of peer-reviewed research developed over many decades (*see* Statement of the Case, B, *infra*). After thoroughly responding to thousands of public comments on its proposal, in December 2009, EPA issued the final Endangerment Finding, determining that "emissions of well-mixed greenhouse gases from transportation sources covered under [Clean Air Act] Section 202(a) contribute to the total greenhouse gas air pollution, and thus to the climate change problem, which is reasonably anticipated to endanger public health and welfare." 74 Fed. Reg. at 66,499. In August 2010, after undertaking a careful and comprehensive review, EPA denied ten petitions for administrative reconsideration filed by Petitioners and others, rejecting those petitions' claims that the science underlying the Endangerment Finding was flawed or improperly interpreted or applied by EPA. 75 Fed. Reg. 49,556 (Aug. 13, 2010).

STATEMENT OF FACTS

EPA's Endangerment Finding rests on a massive foundation of scientific evidence developed over decades by thousands of scientists in a range of fields. Thousands of peer-reviewed scientific publications comprise an enormous body of research that has been further reviewed and rigorously analyzed and compiled into scientific assessments by the global scientific community as well as by scientific groups of the United States government. EPA reviewed these assessments and the underlying literature and subjected its own analysis to further expert review and a public comment process.[2]

A. The Scientific Assessment Organizations and Their Review Processes.

The United States Congress and various executive branch departments and agencies have played central roles in the development of the climate science on which EPA relied for its Endangerment Finding.

For its part, Congress has created entities and processes that have produced key climate change assessments, has funded or otherwise supported efforts of federal agencies to participate in those assessment processes, and has instructed EPA to draw upon the resulting science in developing policies to address climate change. For example, as early as 1978, in the National Climate Program Act, Congress emphasized the need to "coordinat[e] . . . with the climate programs of

[2] We refer to EPA's decision documents using the same conventions as does EPA.

other nations and international agencies and organizations" in developing climate change research. *See, e.g.*, Pub. L. No. 95-367, 15 U.S.C. § 2901 *et seq.*, 15 U.S.C. § 2904(f)(2). *See also* Global Climate Protection Act of 1987, Title XI of Pub. L. No. 100-204, § 1103(a)(2), 101 Stat. 1331, 1408 (codified at 15 U.S.C. § 2901). Then, in 1990, Congress created the U.S. Global Change Research Program ("USGCRP")[3] to serve as "a comprehensive and integrated United States research program which will assist the Nation and the world to understand, assess, predict, and respond to human-induced and natural processes of global change," Global Change Research Act of 1990, Pub. L. No. 101-606, 15 U.S.C. § 2931(b), and urged EPA and other policymakers to use its work to formulate "a coordinated national policy on global climate change," *id.* § 2938(b)(1)-(2). *See also* 15 U.S.C. § 2934(d)(3) (directing the USGCRP to "combine and interpret data from various sources to produce information readily usable by policymakers attempting to formulate effective strategies for preventing, mitigating, and adapting to the effects of global change").

Congress also provided funds to support the Intergovernmental Panel on Climate Change ("IPCC")[4] – an entity established in 1988 by the United Nations

[3] The USGRCP was formerly referred to as the U.S. Climate Change Science Program ("CCSP"). For ease of reference, we use the more recent acronym.

[4] *See* IPCC Secretariat, *IPCC Trust Fund Programme and Budget* 3 (2011), *available at* www.ipcc.ch/meetings/session33/doc02_p33_trust_fund_programme_budget.pdf.

Environment Programme and the World Meteorological Organization. The first IPCC report served as the scientific basis for negotiation of the United Nations Framework Convention on Climate Change ("UNFCCC"), in which the United States agreed to mitigate the "dangerous anthropogenic interference" with the climate system by limiting emissions of greenhouse gases. Art. 2, 4, ¶ 2(a). The Senate unanimously ratified the UNFCCC in 1992. S. Treaty Doc. No. 102-38 (1992).

Moreover, the International Cooperation in Global Change Research Act of 1990, Pub. L. No. 101-606, 15 U.S.C. § 2951 *et seq.*, directed the Secretary of State and the committee that oversees the USGCRP (which includes a representative from EPA) to promote "international projects to . . . combine and interpret data from various sources to produce information readily usable by policymakers attempting to formulate effective strategies for preventing, mitigating, and adapting to possible adverse effects of global change." 15 U.S.C. §§ 2932(b)(4), 2952(a)(5). It further provides that the United States "should help provide leadership in developing" this "international global change research program." *Id.* § 2951(a)(4). Congress, in other words, provided for U.S. engagement with international climate change research collaborations.

In making the Endangerment Finding, EPA relied on the analyses of current climate change research developed by the IPCC, the USGCRP, and the National

Research Council ("NRC").[5] Those synthesis reports undergo rigorous peer review. IPCC assessment reports, for example, undergo extensive peer review within the scientific community and are also reviewed by the scientific agencies of participating nations' governments. The 2007 IPCC assessment report involved more than 500 scientists as lead authors and 2000 others as expert reviewers. IPCC Fourth Assessment Report ("AR4"), Synthesis Report at iii (JA XX). Each section of an IPCC report is compiled by subject matter experts, and the Lead Authors must "clearly identify disparate views." RTC 1-14 (JA XX-XX). A separate group of scientists with relevant expertise and scientists nominated by governments and stakeholders reviews the draft chapters. *Id*. Finally, governments, the public, and additional outside experts review the draft. *Id.*

Notices of draft IPCC reports appear in the Federal Register, providing an opportunity for public comment. RTC 1-14 (JA XX-XX). Review Editors of IPCC draft reports, who are independent of the report authors, ensure that the report's authors address comments and describe any significant differences of

[5] When making other endangerment findings under the Act, EPA has similarly relied upon assessments prepared by leading national and international scientific organizations, *e.g.*, 73 Fed. Reg. 78,705, 78,709 (Dec. 23, 2008) (relying on Scientific Assessment Panel and the Environmental Effects Assessment Panel created by the United Nations Environment Programme under the Montreal Protocol); 62 Fed. Reg. 25,356, 25,358 (May 8, 1997) (IPCC, United Nations Environment Programme, and World Meteorological Organization); 44 Fed. Reg. 76,738, 76,739 (Dec. 27, 1979) (National Academy of Sciences, U.N. Scientific Committee on the Effects of Atomic Radiation, and International Commission on Radiological Protection).

scientific opinion in an annex to each Report. RTP 2.2.2 (JA XX-XX). *See also* RTC Vol. 1 App. A (detailed IPCC peer review and editing procedures) (JA XX-XX).

The congressionally-chartered NRC, on which EPA also relied, writes its reports using committees explicitly selected to "ensure that the relevant points of view are . . . reasonably balanced so that the committee can carry out its charge objectively and credibly." RTC 1-2 (JA XX-XX). Its reports, too, are subject to "an independent review by anonymous experts who were not involved in the report's preparation." RTC Vol. 1 App. C (NRC peer review and editing procedures) (JA XX). *See also* 75 Fed. Reg. at 49,580 (noting that "Ten NRC reports are cited in the Endangerment Finding and TSD") (JA XX).

The USGCRP's assessment reports are likewise prepared according to an exacting process that includes a round of peer review, a round of public review, and review by the interagency committee that governs the program. RTC 1-25 (JA XX). The comment period is noticed in the Federal Register and all comments are publicly available. *Id*. *See also* RTC Vol. 1 App. B (USGCRP peer review and editing procedures) (JA XX).

As EPA explained, the USGCRP, NRC, and IPCC reports "provide exactly the kind of information required" for the endangerment inquiry by "bring[ing] together and synthesiz[ing] the numerous individual studies in the scientific

literature" through a "rigorous and transparent peer-review process." 75 Fed. Reg. at 49,581. The credibility of the work of these three major assessment bodies is enhanced because the "organizational and personnel differences" between them, along with the "detailed and robust" distinct review processes each entity uses, maintains their independence from one another. *Id.* at 49,579-80. That each of the assessments reaches similar conclusions on the existence, causes, and impacts of climate change "provides evidence of the strength of the science." *Id. Cf. Ethyl Corp. v. EPA*, 541 F.2d 1, 38 n.80 (D.C. Cir. 1976) (en banc) ("inferences drawn from independent sources, different from each other, but tending to the same conclusion, not only support each other, but do so with an increased weight") (citation and internal quotation marks omitted); *Al-Adahi v. Obama*, 613 F.3d 1102, 1105-06 (D.C. Cir. 2010).

B. EPA's Review of Climate Change Research.

EPA's review of climate science has been years in the making, and the depth of that review is evident in the exhaustive discussions of the science in the administrative record before for the Court. *See* EPA Br. 11-14. EPA's involvement in assessing climate change includes not just the summaries provided in the notice and comment processes on the Endangerment Finding and the earlier Advance Notice of Proposed Rulemaking ("ANPR"), 73 Fed. Reg. 44,354 (July 30, 2008), but also years of work touching nearly every aspect of climate science.

The agency, for instance, has participated in the USGCRP and in writing and reviewing many domestic and international climate reports. 74 Fed. Reg. at 66,511. EPA was the lead agency for three USGCRP reports on sea-level rise, ecosystem adaptation, and "the effects of global change on human health and welfare." *Id*. EPA also "complete[d] an assessment addressing . . . climate change impacts on U.S. air quality." *Id.*

EPA subjected its own expert understanding of the science to still more scrutiny before finalizing the Endangerment Finding. RTP 3-2 (JA XX-XX). EPA built its technical support document ("TSD") for the finding on 28 "core references" – key scientific reports synthesizing decades of research – including three recent IPCC reports, 17 USGCRP reports (including the reports that EPA had authored and a comprehensive report on climate change impacts on the United States), two EPA reports (including an inventory of U.S. emissions and an assessment report describing climate change's impacts on U.S. air quality), the National Oceanic and Atmospheric Administration's "State of the Climate" report, the Arctic Climate Impact Assessment, and four reports of the National Research Council. TSD at 6 (JA XX). The agency then put the TSD through "three rounds of technical review by . . . 12 federal experts," "three rounds of internal EPA review," and "two rounds of public comment." RTC 1-10 (JA XX). The agency's careful consideration of and exhaustive response to public comments on the

proposed endangerment finding and TSD occupies 11 volumes – and EPA prepared equally detailed and exhaustive responses to the petitions for reconsideration.

As the massive body of analysis performed in this proceeding attests, the Administrator exercised her independent judgment in executing her responsibilities under Section 202(a)(1). *See, e.g.*, 74 Fed. Reg. at 66,510-12 (describing EPA's evaluation of the literature, the "active part" it takes in climate research, and its many expert reviews); *id.* at 66,517-19 (discussing the "compelling" scientific evidence EPA considered); TSD at 2 (describing the drafting and review process) (JA XX).

C. The Climate Science in the Administrative Record.

A vast record supports EPA's Endangerment Finding, and shows that emissions of greenhouse gases from the burning of fossil fuels, and from deforestation and other land use changes, have transformed the chemistry of the Earth's atmosphere – and that transformation is ongoing.[6] Temperature records

[6] CO_2 concentrations have increased by approximately 38% since the Industrial Revolution (a net addition of 3.2 to 4.1 billion metric tons of carbon annually over the last 25 years), and methane concentrations have increased 149%; current atmospheric concentrations of CO_2 and CH_4 are significantly higher than they have been for the last 650,000 years. TSD at ES-1-ES-2 (JA XX-XX); AR4, WGI at 512 (JA XX). Increased atmospheric concentrations of CO_2 have caused global average sea surface pH to drop by approximately .1 pH units since the Industrial Revolution (equivalent to a 30% increase in acidity), as a result of the carbonic acid formed when CO_2 dissolves in water. AR4, WGI at 793 (JA XX); TSD at 38

show that average surface temperatures have risen by 1.3 ± 0.32°F over the past 100 years (1906-2005), with the greatest warming occurring during the past 30 years.[7] Climate scientists are confident (90-99% probability) that anthropogenic greenhouse gas emissions are the primary cause of the warming that has occurred since the mid-20th century.[8] Climate models that simulate the impact of natural and anthropogenic "forcings" (factors that change the amount of radiation in the atmosphere) can successfully replicate historical climates, but can replicate the observed temperature rise over the past 40 years only by incorporating both natural forcings, such as solar irradiance and volcanic eruptions, and the additional radiative forcing from anthropogenic greenhouse gas emissions.[9]

Although further warming is certain due to the long-lived greenhouse gases already in the atmosphere, the magnitude of future warming and dangerous climate

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(JA XX); 74 Fed. Reg. at 66,518. *See also* TSD 134 (JA XX) (discussing effects of acidification).

[7] TSD at ES-2, 26-32 (JA XX, XX-XX); USGCRP, Global Climate Change Impacts in the United States ("USGCRP 2009") at 17; AR4, Synthesis Report at 30-31 (JA XX-XX).

[8] TSD at ES-2, 7 (JA XX, XX). *See also* TSD at 47-52 (JA XX-XX) (discussing the multiple lines of evidence linking anthropogenic greenhouse gas emissions and observed climate changes); 74 Fed. Reg. at 66,517-18, 66,522-23; AR4, Synthesis Report at 37-41 (JA XX-XX) (discussing the influence of greenhouse gas emissions relative to other climate variables).

[9] *See* USGCRP 2009 at 19-20 (JA XX-XX); AR4, WGI at 702-03 (JA XX-XX); TSD at 49 (JA XX); 74 Fed. Reg. at 66,518. In addition, only models that include anthropogenic greenhouse gas emissions can replicate the observed *patterns* of warming, including greater warming of the troposphere over land than over water, the warming of the oceans, and the cooling of the stratosphere. TSD at 47-54 (JA XX-XX); USGCRP 2009 at 19-21 (JA XX-XX); 74 Fed. Reg. at 66,518.

impacts will depend on the concentrations of greenhouse gases in the atmosphere and the climate system's sensitivity to rising temperatures.[10] Positive climate feedbacks – such as rising levels of atmospheric water vapor (a heat-trapping gas) caused by increased evaporation as temperatures rise – will amplify the effect of greenhouse gas emissions.[11] Climate models project an increase in global average temperatures of 2.0-11.5°F during the 21st century, with a "best guess" range of 3.2-7.2°F.[12] Depending on future emissions levels and climate feedbacks, most areas of the United States are projected to warm by an average of 1.8-5.4°F between 2010 and 2039, and by 4-11°F by the end of the century.[13]

Warming will have major and wide-ranging consequences for public health and welfare, with the consequences most pronounced under emissions scenarios that do not assume significant emission reductions due to adoption of new

[10] *See* TSD at ES-3, 64 (JA XX, XX).
[11] USGCRP 2009 at 15 (JA XX); TSD at 66 (JA XX). Positive feedbacks are expected to significantly overwhelm the projected negative feedbacks. AR4, WGI at 630-33 (JA XX-XX). *See also* NRC, Radiative Forcing of Climate Change at 11-16 (JA XX-XX); AR4, WGI at 503-04; 629-40 (JA XX-XX, XX-XX).
[12] USGCRP 2009 at 24 (JA XX); 74 Fed. Reg. at 66,519. Reducing greenhouse gas emissions will reduce the pace and magnitude of the temperature rise, and therefore the pace and severity of the climate change impacts discussed above, and lower the risk of triggering a non-linear climate threshold and catastrophic climate impacts. USGCRP 2009 at 9, 26 (JA XX, XX); TSD at 66 (JA XX).
[13] AR4, WGII at 626 (JA XX) (citing warming projections of 1-3°C from 2010-2039); USGCRP 2009 at 29 (JA XX) (end of century temperature rise relative to a 1961-1979 baseline); TSD at 69 (JA XX).

technologies or other factors.[14] Heat waves will be more intense, more frequent, and longer lasting, both in the United States and elsewhere.[15] Rising temperatures will increase emissions of smog precursors and accelerate ozone (and smog) formation, and are also projected to increase the frequency and duration of stagnant air masses that allow pollution to accumulate.[16] The intensified air pollution will increase incidence of respiratory distress and premature death.[17]

Rising temperatures will also lead to increased evaporation, an intensified water cycle, and changes in precipitation patterns. Many currently dry areas are projected to receive less rainfall and less runoff, and increased evaporation with higher temperatures will lead to drier soils in some areas. The increased drying will likely increase the length and severity of droughts, especially in the American

[14] For descriptions of "higher" and "lower" emissions scenarios, *see* USGCRP at 22-23 (JA XX-XX); TSD at 55-63 (JA XX-XX).

[15] IPCC, WGI at 750 (JA XX); 74 Fed. Reg. at 66,524-25; USGCRP 2009 at 33-34, 91 (JA XX-XX, XX). In Los Angeles, annual heat-related deaths are projected to double or triple by the 2090s under a lower emissions scenario and to increase by five to seven times under a higher emissions scenario (relative to a 1990s baseline), even assuming acclimatization to higher temperatures. USGCRP 2009 at 91 (JA XX). Average deaths due to heat waves in Chicago are projected to more than double by 2050 under a lower emissions scenario, and to quadruple under a higher emissions scenario. *Id.* Heat-related deaths already exceed cold-related deaths in the United States, and in a warmer future increases in heat-related mortality are projected to overwhelm reductions in cold-related deaths. *Id.* at 91-92 (JA XX-XX); 74 Fed. Reg. at 66,525.

[16] TSD at 89-93 (JA XX-XX), USGCRP 2009 at 92-94 (JA XX-XX). If emissions of anthropogenic ozone precursors remain at current levels, Red Ozone Alert Days in the 50 largest eastern cities are projected to increase by 68%. USGCRP 2009 at 94 (JA XX).

[17] USGCRP 2009 at 92-94 (JA XX-XX); 74 Fed. Reg. at 66,525.

West.[18] Precipitation events in general and some types of storms, particularly hurricanes, are expected to become more intense, increasing the likelihood of severe flooding.[19]

Global sea levels are likely to rise between seven inches and four feet during the 21st century, both because of ice sheet melting and because seawater expands as it warms.[20] This amount of sea level rise, in combination with more powerful hurricanes, will increase the risks of erosion, storm surge damage, and flooding for coastal communities, especially along the Atlantic and Gulf coasts, Pacific Islands, and parts of Alaska.[21] Under a higher emission scenario, what is currently a once-a-century flood in New York City is projected to be twice as common by mid-century, and 10 times as frequent by the end of the century.[22] With accelerated sea

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[18] USGCRP 2009 at 30, 41-46 (JA XX, XX-XX); AR4, WGI at 262-263, 783 (JA XX-XX, XX); 74 Fed. Reg. at 66,532-34. Rising temperatures will reduce snowpack and accelerate snow melt, threatening water supplies in late summer in the West. USGCRP 2009 at 10, 45-46 (JA XX, XX-XX). *See also* Corrected Brief for Amici America's Great Waters Coalition, *et al.*, at 5-8. In addition, significant reductions in winter and spring precipitation are projected for the South, especially in the Southwest, further imperiling water supplies. USGCRP 2009 at 30 (JA XX); 74 Fed. Reg. at 66,532. Water shortages and heavy precipitation events are likely to further stress flood control, drinking water, and wastewater infrastructure. USGCRP 2009 at 47-51, 132-36 (JA XX-XX, XX-XX); 74 Fed. Reg. at 66,532-33.

[19] USGCRP 2009 at 34-36, 44, 64 (JA XX-XX, XX, XX); TSD at ES-4, 115 (JA XX, XX); AR4, WGI at 783 (JA XX); 74 Fed. Reg. at 66,525.

[20] USGCRP 2009 at 37, 150 (JA XX, XX); AR4, WGI at 750 (JA XX).

[21] USGCRP 2009 at 12, 36, 109-10, 142-43, 149-50 (JA XX, XX, XX-XX, XX-XX, XX-XX).

[22] *Id.* at 109-10 (JA XX-XX).

level rise, portions of major coastal cities, including New York and Boston, would be subject to inundation during storm surges or even during regular high tides.[23] In the Gulf Coast area, an estimated 2,400 miles of major roadways are at risk of permanent flooding within 50 to 100 years due to anticipated sea level rise in the range of 4 feet.[24]

Researchers are increasingly confident that the kinds of impacts discussed above will occur with rising temperatures.[25] In addition, the more temperatures rise, the greater the risk that non-linear climate thresholds could be reached, generating abrupt changes with potentially catastrophic impacts for natural systems and human societies.[26] Such thresholds include rapid ice sheet disintegration with related acceleration of sea level rise, abrupt shifts in drought frequency and duration, severe acidification-related impacts on marine ecosystems, and runaway

[23] *Id.* at 150 (JA XX).
[24] USGCRP 2009 at 62 (JA XX).
[25] The USGCRP has determined that the following harmful climate change-related impacts to American communities each have at least a two-thirds chance of occurring: intensified precipitation events; intensified hurricanes and storm surges; declines in precipitation and runoff in the West; more frequent and severe droughts in some regions; increased frequency and severity of flooding (including catastrophic flooding); reduced crop yields and livestock productivity; increases in fires, insect pests, and disease pathogens; increased risk of illness and death due to extreme heat and heat waves; increased air pollution in cities; increased prevalence of diseases transmitted by food, water, and insects; and increased coastal infrastructure exposure to storms and flooding. USGCRP 2009 at 8-109 (JA XX-XX).
[26] USGCRP at 26 (JA XX); NRC, Abrupt Climate Change, Inevitable Surprises at v, 16, 154 (JA XX, XX, XX); CCSP, Abrupt Climate Change at 10 (JA XX); TSD at 66 (JA XX).

warming due to the release of methane from thawing permafrost and methane hydrates in oceanic sediments.[27]

STATUTORY BACKGROUND

Section 202(a) creates a two-step process for regulating air pollution from motor vehicles. Section 202(a)(1) establishes the threshold for regulatory action. The remainder of Section 202(a) describes how, once the threshold for action has been triggered, EPA should set and implement the standards for various categories of motor vehicles.

At the threshold step – the endangerment and contribution findings – Section 202(a)(1) requires the Administrator to determine whether, "in [her] judgment," "the emission of any air pollutant" from new motor vehicles or new motor vehicle engines "cause[s], or contribute[s] to, air pollution" and the "air pollution" "may reasonably be anticipated to endanger public health or welfare." 42 U.S.C. § 7521(a)(1). If the Administrator makes affirmative determinations as to endangerment and contribution, she then has a mandatory duty to set standards for those emissions under the remaining provisions of Section 202(a). *See id.* (providing that when an endangerment finding is made, the Administrator "shall" establish emission standards for the particular category of motor vehicles). At this second step, Section 202(a)(2) provides that EPA must consider technological

[27] USGCRP 2009 at 26, 155 (JA XX, XX); TSD 75-78, 134, 137-38 (JA XX-XX, XX, XX-XX).

feasibility, economic cost, and lead time for the vehicle rules themselves: standards "shall take effect after such period as the Administrator finds necessary to permit the development and application of the requisite technology, giving appropriate consideration to the cost of compliance within such period." *Id.* § 7521(a)(2).

Petitioners here challenge EPA's determination under Section 202(a)(1) that greenhouse gas pollution "may reasonably be anticipated to endanger public health or welfare." EPA's subsequently adopted vehicle emission standards are before the Court in a separate proceeding, *Coalition for Responsible Regulation v. EPA*, No. 10-1092.

SUMMARY OF ARGUMENT

The record amply supported EPA's comprehensively explained and lawful Endangerment Finding.

Adhering to the Supreme Court's precepts in *Massachusetts v. EPA*, the Administrator's endangerment analysis included a rigorous, thorough, and balanced review of an enormous scientific record and properly focused on prescribed statutory factors. The Endangerment Finding presented the Administrator's "scientific judgment" that greenhouse gases in the atmosphere may reasonably be anticipated to endanger public health and welfare. Her approach conformed to the Supreme Court's rulings concerning the Act's "clear

statutory command," and the Administrator appropriately excluded from her analysis considerations that "have nothing to do with whether greenhouse gas emissions contribute to climate change." *See Massachusetts*, 549 U.S. at 533.

Massachusetts decided what a lawful endangerment determination includes, and what it excludes, and Petitioners may not relitigate those boundaries here: *Massachusetts* forecloses their efforts to inject extraneous considerations into the endangerment inquiry. EPA properly recognized that the endangerment inquiry is distinct from, and involves considerations different from, the subsequent decisions concerning the setting of emissions standards. The text of the statute, its legislative history, and settled judicial precedent all confirm that Congress intended the endangerment inquiry to be a distinct, scientific inquiry focused on public health and welfare, and that standard-setting would be governed by different factors identified elsewhere in the statute. Petitioners' arguments to the contrary are unfounded.

Nor is there merit to Petitioners' various other efforts to alter and amend the endangerment inquiry as described in Section 202(a)(1) and construed by the Supreme Court. Contrary to their arguments, the Act did not require EPA, as a prerequisite to a valid endangerment finding, to make determinations about the probable efficacy of motor vehicle emissions standards that would follow an affirmative finding, or to quantify the hazard.

Similarly, EPA correctly declined to consider alleged future regulatory consequences, costs, or administrative burdens related to regulating greenhouse gases from *stationary sources* – factors that, under Section 202(a)(1) and *Massachusetts*, exceed the lawful scope of the endangerment inquiry. Congress specifically prescribed that certain compliance costs and other potential regulatory consequences would be part of the standard-setting step under provisions like Section 202(a)(2), but these considerations play no part in the Administrator's antecedent determination of whether the air pollution in question endangers public health or welfare. Settled precedent forecloses efforts to import such considerations into Section 202(a)(1).

In addition, EPA properly refrained from construing the Act inconsistently with *Massachusetts*, as Petitioners seek when they urge consideration of "policy judgments" similar to those already rejected by the Supreme Court. *Massachusetts*, 549 U.S. at 533. Consideration of unknown measures that societies may adopt to adapt to or mitigate climate change as a prerequisite to making an endangerment determination is beyond what the precautionary statute requires, and inconsistent with *Massachusetts*.

Petitioners' other attacks on the Administrator's decision are also meritless. The Act expressly permits EPA to define a pollutant as a "combination" of air pollution agents, and EPA reasonably grouped the six long-lived greenhouse gases

as a combined pollutant. Petitioners do not dispute that the six gases share common attributes, nor do they challenge EPA's definition of greenhouse gas *pollution* to embrace the same six compounds. And, EPA's use of CO_2 equivalent is similarly consistent with the underlying environmental realities and was well within its discretion and consistent with common practice.

Petitioners' misleading attacks on EPA's scientific analysis seek to undermine the massive body of rigorously reviewed scientific research supporting the Endangerment Finding by reference to discrete examples of scientific uncertainty inherent in particular aspects of climate science that Petitioners often misstate or take out of context. EPA acknowledged and carefully analyzed and accounted for scientific uncertainty, and concluded (as have the world's top climate science research organizations) that the evidence shows anthropogenic emissions of greenhouse gases are changing the climate and posing a large variety of serious hazards to public health and welfare.

Finally, EPA properly denied reconsideration. As EPA's brief explains, Petitioners do not even address, let alone impeach, the agency's exhaustive and detailed explanations of why none of the grounds asserted warranted reconsideration. Petitioners' claims that hacked emails from the University of East Anglia's Climate Research Unit undermine the Endangerment Finding are baseless, and emblematic of the insubstantial nature of their entire effort to impugn

EPA's Finding and the massive body of scientific research upon which it rests.

For all these reasons, the petitions for review should be denied.

ARGUMENT

I. STANDARD OF REVIEW.

EPA's Endangerment Finding must be upheld unless it was "arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law." 42 U.S.C. § 7607(d)(9). Under the doctrine of *stare decisis*, when reviewing an agency's action for compliance with its statutory obligations, a court must follow a prior judicial determination of the unambiguous meaning of the statute. *Ass'n of Battery Recyclers v. EPA*, 208 F.3d 1047, 1052 (D.C. Cir. 2000) (quoting *Maislin Indus., U.S., Inc. v. Primary Steel, Inc.*, 497 U.S. 116, 131 (1990)). Only where no such controlling precedent exists does a court invoke the familiar *Chevron* two-step framework to evaluate an agency's construction of a statute. *See Chevron U.S.A. Inc. v. NRDC*, 467 U.S. 837, 842-45 (1984). The Supreme Court has already interpreted the pertinent provisions of Section 202 in *Massachusetts* and determined that they are unambiguous. *See, e.g., Massachusetts*, 549 U.S. at 533 (relying on Section 202(a)(1)'s "clear statutory command"). That determination is binding both on EPA and lower courts in subsequent proceedings. *See Nat'l Cable & Telecomm. Ass'n v. Brand X Internet Servs.*, 545 U.S. 967, 982-83 (2005) (prior court decision holding that its construction "follows from the unambiguous terms

of the statute" is binding on subsequent agency decision-making); *Battery Recyclers*, 208 F.3d at 1052.

With respect to the agency's assessment of factual information and its resulting judgments, a court's task is to determine whether the agency has considered the relevant factors and articulated a rational basis for its decision. *Motor Vehicle Mfrs. Ass'n v. State Farm Mut. Auto. Ins. Co.*, 463 U.S. 29, 43 (1983). The "relevant factors" must be defined by reference to the statute at issue, and consideration of factors beyond those intended by Congress normally renders an agency rule arbitrary and capricious. *Id.* at 43. *See also Motor & Equip. Mfrs. Ass'n v. EPA*, 627 F.2d 1095, 1116 (D.C. Cir. 1979). Further, "the reasonableness of the agency's action is judged in accordance with its stated reasons," and it is presumed to have acted in an objective manner. *In re Subpoena Duces Tecum Served on the Office of the Comptroller*, 156 F.3d 1279, 1279-80 (D.C. Cir. 1998). *See also United Steelworkers of Am. v. Marshall*, 647 F.2d 1189, 1208 (D.C. Cir. 1980) (presumption of objectivity cannot be overcome merely by proof that agency "has taken a public position, or has expressed strong views, or holds an underlying philosophy with respect to an issue in dispute.").

The standard of review "is a highly deferential one" that "presumes agency action to be valid." *Ethyl*, 541 F.2d at 34, (citing *Citizens to Preserve Overton Park v. Volpe*, 401 U.S. 402, 415 (1971)). Review is "narrow": a court may not

"substitute its judgment for that of the agency." *Motor Vehicle Mfrs.*, 463 U.S. at 43. This is especially true where the agency's determination is "based upon highly complex and technical matters." *West Virginia v. EPA*, 362 F.3d 861, 867-68 (D.C. Cir. 2004). The deference due EPA's Endangerment Finding is enhanced by the precautionary approach required by Section 202(a)(1)'s "may reasonably be anticipated to endanger" standard, which requires EPA to regulate even in the face of uncertainty to prevent potential harm to public health and welfare, *Massachusetts*, 549 U.S. at 507 n.7; *Ethyl*, 541 F.2d at 13, and that section's requirement that the Administrator make a "judgment," not a specific factual finding, *Ethyl*, 541 F.2d at 27-28. *See also Baltimore Gas & Elec. Co. v. NRDC*, 462 U.S. 87, 103 (1983) ("court must generally be at its most deferential" when the agency is "making predictions, within its area of special expertise, at the frontiers of science").

II. *MASSACHUSETTS* AND OTHER PRECEDENTS FORECLOSE PETITIONERS' ARGUMENTS.

In *Massachusetts*, the Supreme Court ruled that greenhouse gases are Clean Air Act "air pollutants," 549 U.S. at 528-30, and rejected arguments that EPA may rely on the "unique" nature of greenhouse gases to depart from the statutory language of Section 202(a)(1), *id*. at 530-32 (rejecting reliance on *FDA* v. *Brown & Williamson Tobacco Corp.*, 529 U.S. 120 (2000)). The Court then rejected EPA's alternative grounds for refusing to regulate, which it termed a "laundry list"

of "policy" considerations "divorced from the statutory text." *Id.* at 532-33. The Court emphasized that the proper scope of Section 202(a)(1) is endangerment of public health and welfare, and that considerations extraneous to the endangerment inquiry are foreclosed. *See id.* at 532-35. *See also* Part II, A, *infra*.

In the Endangerment Finding, the Administrator adhered to *Massachusetts*. Petitioners do not. Instead, they present their very own "laundry list" of reasons why EPA should have declined to find endangerment. As shown below, *Massachusetts*' construction of Section 202(a), as well as other controlling precedents, forecloses each of Petitioners' arguments.

A. *Massachusetts* Held that the "Clear" Text of Section 202(a)(1) Requires a Science-Based Inquiry Focusing on Endangerment.

In *Massachusetts*, the Supreme Court found the statute "unambiguous[]" and emphasized that the language of the Act is "clear" and provides a "clear statutory command." 549 U.S. at 529, 533. The Court stressed that the Administrator's "reasons for action or inaction must conform to the authorizing statute," *id.* at 535 (emphasis added), and that she must exercise her judgment within "defined statutory limits," *id.* at 533. The Court identified those limits: A valid endangerment inquiry under Section 202(a)(1) requires a "judgment [that] must relate to whether an air pollutant 'cause[s], or contribute[s] to, air pollution which may reasonably be anticipated to endanger public health or welfare.'" *Id.* at 532-33 (quoting 42 U.S.C. § 7521(a)(1)). The Supreme Court distilled the issue to

"whether greenhouse gas emissions contribute to climate change," and emphasized that the statute forecloses considerations that "have nothing to do with whether greenhouse gas emissions contribute to climate change." *Id.* at 533.

The Supreme Court further ruled that the Section 202(a)(1) inquiry necessarily entails a "scientific" assessment of the harm, or risks of harm, that the air pollution poses. *Massachusetts*, 549 U.S. at 533-34 (EPA's 2003 rationale did not "amount to a reasoned justification for declining to form *a scientific judgment*") (emphasis added). The Court also made clear that EPA must take a preventative, precautionary approach in assessing the public health and welfare impacts of greenhouse gases. As the Court explained, by adding the "may reasonably be anticipated to endanger" standard in 1977, in place of the prior "endangers" standard, Congress approved this Court's holding in *Ethyl* "that the Clean Air Act 'and common sense . . . demand regulatory action to prevent harm, even if the regulator is less than certain that the harm is otherwise inevitable.'" *Id.* at 507 n.7 (quoting *Ethyl*, 541 F.2d at 25). Accordingly, the Supreme Court rejected EPA's defense that inaction was justified by "uncertainty surrounding various features of climate change," and explained that EPA may decline to form a judgment only if the scientific uncertainty "is so profound that it precludes EPA from making a reasoned judgment as to whether greenhouse gases contribute to global warming." *Id.* at 534.

Thus, as framed by the Supreme Court, a proper endangerment inquiry under Section 202(a)(1) leads to a "scientific judgment" on whether greenhouse gases may endanger public health or welfare. *See Massachusetts*, 549 U.S. at 533-34. These well-considered rulings of the *Massachusetts* Court concerning what a lawful endangerment determination *includes*, and what it *excludes*, are controlling. They are not up for relitigation here. *See* Part I, *supra*. Petitioners systematically ignore the *stare decisis* effect of the *Massachusetts* decision. Yet, as this Court has explained: "Vertical stare decisis – both in letter and in spirit – is a critical aspect of our hierarchical Judiciary headed by 'one supreme Court.'" *Winslow v. FERC*, 587 F.3d 1133, 1135 (D.C. Cir. 2009) (quoting U.S. CONST. Art. III, §1).

Heeding the Supreme Court's rulings that the endangerment inquiry requires a "scientific judgment" linked to the statutory criteria, the Administrator rested her inquiry on a "compelling[]" "body of scientific evidence," 74 Fed. Reg. at 66,497, and faithfully followed the statute and its precautionary approach: "The Administrator is using her judgment, based on existing science, to weigh the threat for each of the identifiable risks, to weigh the potential benefits where relevant, and ultimately to assess whether these risks and effects, when viewed in total, endanger public health or welfare." *Id.* *See also, e.g.*, *id.* at 66,517-19 (discussing the "compelling" scientific evidence EPA considered); *id.* at 66,505-06 (recognizing the Administrator "must be ready to take regulatory action to prevent

harm before it occurs" by exercising her judgment to balance the likelihood and severity of effects in the face of scientific uncertainties); TSD at 2 (describing drafting and review process) (JA XX). Thus, the Administrator acted within Section 202(a)(1)'s "clear . . . command," as required by *Massachusetts*. 549 U.S. at 533.

In contrast, Petitioners urge consideration of extra-statutory, non-scientific, non-endangerment-related policy grounds, among other arguments. All of these considerations are inconsistent with the statute and impermissible under *Massachusetts* because they are "divorced from the statutory text." *Id.* at 532. Indeed, some are bold recapitulations of the policy arguments rejected in *Massachusetts – e.g.*, contentions that Section 202(a)(2) regulations might not effectively or efficiently address climate change. *See* Ind. Br. 28; *but see Massachusetts,* 549 U.S. at 525-26, 533-34. Many are also foreclosed by other relevant precedent, as explained below. This Court should reject Petitioners' "invitation to flout the Supreme Court's decision," *see Winslow,* 587 F.3d at 1135, through adoption of policy considerations that are unrelated to endangerment, just as the *Massachusetts* Court rejected such invitations in that litigation.

B. Petitioners' Arguments Ignore the Act, *Massachusetts,* and Other Precedents.

1. Under the Act, *Massachusetts,* and Other Precedents, the Endangerment Determination and Standard-Setting Steps Involve Distinct Inquiries that Need Not be Conducted Together.

Petitioners fault EPA for separating its Section 202(a)(1) endangerment inquiry from its Section 202(a)(2) vehicle emission standard-setting rulemaking.

While Petitioners seem to acknowledge EPA's procedural discretion to order its own decision-making, Ind. Br. 13; *see Algonquin Gas Transmission Co. v. FERC*, 948 F.2d 1305, 1314-15 (D.C. Cir. 1991) (citing "well-established discretion to 'order [its] own proceedings and control [its] own docket[ ]'"), elsewhere they accuse EPA of erroneously denying itself the "discretion to conduct a unified rulemaking," Ind. Br. 29. EPA did no such thing. *See* 75 Fed. Reg. at 66,504 (recognizing statutory silence gave EPA discretion to conduct endangerment finding and standard-setting in one proceeding or separate ones).

But, underlying all of Petitioners' arguments is their incorrect view of Section 202(a)'s substance. They argue that the endangerment finding and the setting of emissions standards is really "one regulatory undertaking," Ind. Br. 23, in which "risk assessment" and "regulatory response" must "inform" one another, Ind. Br. 13-14, 26, – so that, here, EPA's endangerment inquiry had to consider the nature and efficacy of the emissions regulations that would follow an affirmative finding, and quantify the danger so the standards could be calibrated to meet and

"meaningfully address" the danger. *See* Ind. Br. 27, 29. *See also* Ind. Br. 16-17, 24.

This understanding is contrary to the text of the statute and to cases interpreting it. As *Massachusetts* emphasized, Section 202(a)(1) calls for EPA to decide whether the air pollution in question may reasonably be anticipated to endanger health or welfare and distinguishes between the factors that may be considered as part of the endangerment inquiry (impacts of "air pollution" on "public health or welfare") and those that may be considered during standard setting (including cost and lead time for vehicle manufacturers). *See* 549 U.S. at 531, 533 (recognizing that EPA may consider factors not involved in the endangerment inquiry when subsequently setting the standards). The agency correctly understood that the Act and *Massachusetts* call for "two different decisions to be made," based on "different criteria." *E.g.*, 74 Fed. Reg. at 66,507. Since the endangerment inquiry and formulation of emissions standards are based on sharply different statutory criteria, Petitioners have shown no basis for requiring them to be made in one proceeding.

Decisions of this Court pointedly distinguish between the threshold endangerment inquiry, and the standard-setting step that ensues if endangerment is found. For example, in *Ethyl* this Court stated: "*After* making the 'will endanger' determination . . . , *EPA has complied with the statutory mandate and is free to*

regulate the fuel or fuel additive under Section 211." 541 F.2d at 33 (emphasis added). *See also id.* at 12 (discussing EPA's "*threshold determination* that lead particulate emissions from motor vehicles 'will endanger the public health or welfare'") (emphasis added). In *Small Refiner Lead Phase-Down Task Force v. EPA*, 705 F.2d 506 (D.C. Cir. 1983), the Court distinguished between the "*threshold* standard" that triggers EPA's responsibility to regulate under the Clean Air Act and the "*substantive* standard" that governs the resulting standard-setting. *Id.* at 517 (emphasis in original). The Court noted that this dichotomy exists in multiple sections of the Act, specifically including Section 202. *See id*.

The portion of the 1977 Amendments cited by *Small Refiner* is instructive. Section 401 of those amendments revised seven Clean Air Act provisions – including Section 202(a)(1). Pub. L. No. 95-95 § 401, 91 Stat. 685, 790-91 (1977). These amendments changed the threshold standard for triggering regulation to the current "may reasonably be anticipated to endanger" formulation, without changing the substantive standard under each section for the resulting standard-setting. The committee report explained that the amendments applied the endangerment interpretation expressed in *Ethyl* to "all other sections of the act relating to public health protection," including Sections 108, 111, 112, 202, 211, and 231. H. Rep. No. 95-294, at 49-50 (1977), *reprinted in* 1997 U.S.C.C.A.N. 1077, 1127-28. But as the Court noted in *Small Refiner*, this amendment made no

change in the various "substantive standards" for how pollutants should be regulated under each provision. 705 F.2d at 517.

Thus, Congress deliberately separated the threshold determination of whether to regulate from the factors to be considered subsequently when setting standards. Petitioners' attempt to blur and merge the threshold inquiry into the standard-setting rulemaking has no basis in the statute. As this Court has cautioned,

> there is no such thing as a "general duty" on an administrative agency to make decisions based on factors *other than those Congress expressly or impliedly intended the agency to consider*. The general principles of administrative law and procedure call upon an agency to give reasoned consideration to all facts and issues relevant to the matter at hand, but the determination of what is relevant turns in the first instance on analysis of the express language of the statute involved and the content given that language by implication from the structure of the statute, its legislative history, and the general course of administrative practice since its enactment.

Motor & Equipment Mfrs. Ass'n, 627 F.2d at 1116 (emphasis added). *See also Massachusetts*, 549 U.S. at 533 (even expressly delegated agency "judgment" must be exercised within "defined statutory limits").

2. Neither the Act, Nor *Massachusetts*, Nor Other Precedents, Require EPA to Assess, as Part of the Endangerment Determination, the Efficacy of Future Vehicle Emission Standards.

Nor is there any merit to Petitioners' contentions that EPA was not permitted to find endangerment until it could find that *emissions controls* to be adopted under

Section 202(a) "will have some significant degree of harm reduction or effectiveness in addressing the endangerment." Ind. Br. 28.[28] *See also* Ind. Br. 24, 27-29; Tx. Br. 17.

Massachusetts disposes of these arguments. First, as discussed above, Petitioners' arguments fail because *Massachusetts* held that the statute limits the endangerment inquiry to a science-based analysis focused on the statutory factors. *See* Part II A, *supra*. The efficacy or efficiency of motor vehicle standards to control a category of sources of air pollution is not relevant to whether the air pollution "endangers," and Petitioners do not challenge EPA's *contribution* finding, *see* 74 Fed. Reg. at 66,541-43, in which the agency explained in detail the degree to which motor vehicle emissions contribute to greenhouse gas pollution. EPA properly rejected arguments "that Congress implicitly imposed a third requirement that the future control strategy have a certain degree of effectiveness in reducing the endangerment *before* EPA could make the affirmative findings that

[28] Petitioners base their argument in part on a patent misreading, Ind. Br. 24, of *Small Refiner*, 705 F.2d 506, which involved an unsuccessful challenge to a particular *regulatory standard* – a 1.10/grams-per-leaded-gallon lead content limit for fuel – in which the Court criticized EPA for failing to set forth more clearly "why it chose the level it did." *See* 705 F.2d at 525. This case, in contrast, involves no such standard, but rather a threshold endangerment finding. In subsequently setting emissions standards based on that affirmative finding, EPA did explain its particular standard-setting choices, *see* Vehicle Rule, 75 Fed. Reg. 25,324, 25,405-12 (May 7, 2010), but those choices are not at issue here (and are not even questioned in the challenges to that Rule, No. 10-1092).

would authorize such regulation." 74 Fed. Reg. at 66,508 (citing *Massachusetts*, 549 U.S. at 532-35).

Moreover, the *Massachusetts* Court specifically rejected the argument that Section 202 motor vehicle regulations would be "an inefficient . . . approach" as a basis for refusing to make the threshold finding, holding that this concern had "nothing to do" with the Section 202(a)(1) endangerment inquiry. 549 U.S. at 533. Similarly, the Court also found that concerns about "effective[ness]" of potential motor vehicle standards was an improper consideration during the endangerment inquiry. *Id*. at 534.

The text of Section 202(a)(1) – authorizing regulation based on a "contribution" to dangerous air pollution and setting out an express duty that the Administrator periodically "revise" emissions standards – demonstrates that Congress recognized that pollution problems often stem from a multitude of different source types. Congress did not require that EPA show, before finding endangerment, that emissions standards would be likely to address all, or any specified portion, of the danger. *See Massachusetts*, 549 U.S. at 524 (noting, in reference to Section 202(a), that agencies may legitimately take an "incremental step" toward solving a problem, and that agencies "do not generally resolve massive problems in one fell regulatory swoop").

Even at the standard-setting step, the statute imposes no requirement to demonstrate any specific reduction in the endangerment. Section 202(a)(2) provides for EPA to set standards based on technological, cost, and other specified factors. *See also* 42 U.S.C. § 7521(a)(3)(1)(A), 7521(b)(1)(A), 7521(h).[29] While these standard-setting provisions – similar to others found elsewhere in the Act, *e.g.*, 42 U.S.C. § 7411 (new source performance standards) – aim for emissions reductions, and often seek to "force" the development of new technology that will yield steeper and cheaper reductions down the road, *see Sierra Club v. Costle*, 657 F.2d 298, 364 (D.C. Cir. 1981), they do not peg controls to particular air quality goals such as targeted maximum ambient pollution concentrations.

Ethyl also refutes Petitioners' contentions that EPA had to make a finding that emission standards would "meaningfully address" the endangerment. Ind. Br. 27, 29. In *Ethyl*, industry had argued that lead paint, not air emissions, was the chief health threat. The Court responded that "lead enters the human body from multiple sources, so that the effect of any one source is meaningful only in cumulative terms." 541 F.2d at 30.

Airborne, lead, in and of itself, may not be a threat. But the realities of

[29] In contrast, Section 115 of the Act, which provides remedies for international air pollution, is triggered by a finding of endangerment, 42 U.S.C. § 7415(a), and then requires that the relevant State Implementation Plans be revised "with respect to so much of the . . . plan *as is inadequate to prevent or eliminate the endangerment referred to in subsection (a) of this section.*" 42 U.S.C. § 7415(b) (emphasis added).

> human lead exposure show that no one source *in and of itself* (except possibly leaded paint) is a threat. Thus, under Ethyl's tunnellike reasoning . . . no regulation could ever be justified.

Id. (emphasis in original). *See also id*. at 40 n.88. The 1977 Amendments specifically endorsed this Court's approach. *See* H. Rep. No. 95-294, at 49-50, 51(1977).

Similar to in *Ethyl*, EPA here has determined that greenhouse gas air pollution endangers public health and welfare, and that motor vehicle emissions contribute to that endangerment. These determinations fit comfortably within the cumulative impact approach endorsed by the 1977 Amendments. *See also Massachusetts*, 549 U.S. at 524 ("[R]educing domestic automobile emissions is hardly a tentative step.").[30]

In connection with their "effectiveness" argument, Petitioners appear to argue that EPA was bound to quantify the endangerment. *See* Ind. Br. 27. But the statute imposes no such requirement, and the case law also defeats their argument.

[30] Though the motor vehicle standards are not before the Court in this action, Petitioners' assertion that they are "ineffective," Ind. Br. 28, is simply baseless. *See Massachusetts*, 549 U.S. at 524 (noting that U.S. vehicles are among the largest source categories in the nation and world); 75 Fed. Reg. at 25,490, Table III.F.1-2 (standards for light duty vehicles will avoid 962 million metric tons of CO_2-equivalent and cut gasoline consumption by 77 billion gallons). *See also* EPA Br. 97 n.54 (noting that EPA's standards are expected to achieve emissions reductions 47 percent greater than CAFE standards alone). Because of those fuel savings, EPA projects that vehicle owners – whether fleet purchasers or individuals – will enjoy a net savings averaging $3000 per vehicle. 75 Fed. Reg. at 25,329.

In *Ethyl*, this Court found that the endangerment inquiry does not require a minimum threshold for either risk or severity of harm. 541 F.2d at 18 ("endangerment" under then-Section 211 "is set not by a fixed probability of harm, but rather is composed of reciprocal elements of risk and harm, or probability and severity").

The Court has since repeatedly rejected efforts to require such quantification where, as here, the "statutory language" did not require it. *See Cement Kiln Recycling Coal. v. EPA*, 493 F.3d 207, 223 (D.C. Cir. 2007); *Nat'l Maritime Safety Ass'n v. OSHA*, 2011 U.S. App. LEXIS 12396, at *17 (D.C. Cir. June 17, 2011) ("Nor is OSHA required to quantify a risk before determining that it is significant."). *See also Am. Trucking Ass'ns v. EPA*, 283 F.3d 355, 369 (D.C. Cir. 2002) (rejecting proposition that EPA must quantify risk in setting National Ambient Air Quality Standards under Section 109 of the Act, in part because such a requirement would "leave hazardous pollutants unregulated unless and until [EPA] completely understands every risk they pose").

3. Neither the Act, Nor *Massachusetts*, Nor Other Precedents, Require EPA to Consider, As Part of the Endangerment Determination, Costs or Administrative Burdens of Regulating Greenhouse Gases from Stationary Sources.

Petitioners also argue that the Endangerment Finding was defective because EPA failed to consider the costs of complying with the *stationary source* permit programs of Section 165 (new source review) and Title V (operating permits), and

because they allege that "EPA's chosen regulatory approach produces 'absurd' regulation of small sources and 'absurd' administrative burdens on government permitting authorities." Ind. Br. 6 (quoting 75 Fed. Reg. at 31,517). *See also* Ind. Br. 6, 16-17, 20-22, 34-36.

The stationary source considerations Petitioners seek to inject here are, once again, utterly "divorced from the statutory text," *Massachusetts*, 549 U.S. at 532, which directs the Administrator to exercise her scientific judgment concerning whether greenhouse gas air pollution endangers public health or welfare, and whether motor vehicle emissions contribute to that pollution. If the answer to these two questions is affirmative, then EPA "shall" set motor vehicle standards. § 202(a)(1); *Massachusetts*, 549 U.S. at 533.

EPA lacks the discretion to consider costs associated with either vehicle or stationary source regulation as part of the endangerment inquiry. Once EPA has found endangerment, the only costs EPA may consider are those pertinent to vehicle manufacturers' compliance with vehicle standards:

> Any regulation prescribed under paragraph (1) of this subsection (and any revision thereof) shall take effect after such period as the Administrator finds necessary to permit the development and application of the requisite technology, giving appropriate consideration to the cost of compliance within such period.

§ 202(a)(2). *See also* § 202(a)(3)(A)(i) (standards for certain heavy duty vehicles shall reflect available technology, "giving appropriate consideration to cost,

energy, and safety factors associated with the application of such technology"). Congress's decision to include specified vehicle-related cost considerations in Section *202(a)(2)*, the substantive standard-setting provision, only emphasizes the absence of any such considerations from Section *202(a)(1)*, the threshold endangerment inquiry provision. *Chicago v. Envtl. Def. Fund*, 511 U.S. 328, 338 (1994) ("It is generally presumed that Congress acts intentionally and purposely when it includes particular language in one section of a statute but omits it in another.") (citation and internal quotation marks omitted); *Tax Analysts v. IRS*, 350 F.3d 100, 103 (D.C. Cir. 2003) ("Subsection 6104(a)(1)(B), *the provision immediately following* subsection 6104(a)(1)(A), demonstrates that Congress knew exactly how to refer to denials and revocations when it so intended.") (emphasis added).

Indeed, in *Whitman v. Am. Trucking Ass'ns*, 531 U.S. 457 (2001), the Supreme Court cited the statutory provisions for the establishment of motor vehicle emission standards under Section 202(a)(2) as one of many CAA provisions expressly allowing consideration of costs, and concluded that the many express provisions allowing consideration of costs counseled against reading the consideration of costs into a CAA provision (Section 109(b)(1)) that did not expressly mention costs:

> We have therefore refused to find implicit in ambiguous sections of the CAA an authorization to consider costs that has elsewhere, and so

> often, been expressly granted.
>
> Accordingly, to prevail in their present challenge, respondents must show a textual commitment of authority to the EPA to consider costs in setting NAAQS under § 109(b)(1).

Id. at 467-68 (citations omitted). *See also Union Elec. Co. v. EPA*, 427 U.S. 246, 257 & n.5 (1976).

Petitioners' argument that EPA must consider costs associated with *stationary sources* is also ruled out by this Court's decision in *Motor & Equipment*, 627 F.2d 1095. There industry argued that Section 202(a)(2) "compels appropriate consideration of the 'social costs' of pollution control." *Id.* at 1117. Specifically, the makers of aftermarket parts sought to persuade the Court that EPA must consider indirect costs falling on them as a result of motor vehicle standards. The Court disagreed, finding § 202(a)(2) is limited to costs associated with *motor vehicle manufacturers*:

> [T]here is no indication that Congress intended section 202's "cost of compliance" consideration to embody "social costs" of the type petitioners advance. Every effort at pollution control exacts social costs. Congress, not the Administrator, made the decision to accept those costs. Section 202's "cost of compliance" concern, juxtaposed as it is with the requirement that the Administrator provide the requisite lead time to allow technological developments, refers to the economic costs of *motor vehicle* emission standards and accompanying enforcement procedures.

Id. at 1118 (emphasis added; citations omitted). *A fortiori*, stationary source costs are not relevant to the scope of Section 202's standard-setting step, let alone to the

threshold endangerment inquiry under § 202(a)(1).

Moreover, Section 165 of the Act specifies how costs are to be considered in stationary source permitting: on a case-by-case basis during the permitting process for each individual source, with the permitting authority selecting the level of control in light of those costs along with other facility- and locality-specific factors and after the opportunity for public comment. *See* 42 U.S.C. §§ 7475(a)(2)-(7), 7479(3). There is simply no way for EPA to discern in advance – let alone in a national rulemaking on motor vehicle standards – what costs will result from future case-by-case stationary source permit proceedings. *See* H.R. Rep. No. 95-294, at 177 (1977), *reprinted in* 1977 U.S.C.C.A.N. 1077, 1256 ("any attempt to determine uniform national costs and benefits" of the Prevention of Significant Deterioration ("PSD") stationary source permitting program "obviously would be meaningless").

Finally, Petitioners' contentions that EPA's Endangerment Finding produced "absurd" regulation of stationary sources, *see* Ind. Br. 15-17, blur and confuse the question before the Court. First, to the extent Petitioners are arguing that EPA should have considered future consequences related to the regulation of greenhouse gases from stationary sources as part of its endangerment analysis, and that doing so would have prohibited it from making an endangerment finding under Section 202(a)(1), that argument lacks merit. *Massachusetts* confirms that

Section 202(a)(1) confines the endangerment inquiry to a scientific judgment about the impacts of air pollution on public health and welfare and the contribution of motor vehicle emissions to that pollution. *See* Part II, A, *supra*.

Second, to the extent Petitioners are suggesting that EPA should have found a way to prevent its actions under Section 202(a) from "triggering" permitting obligations for stationary greenhouse gas sources, *see* Ind. Br. 17 (arguing that Congress "could not have intended EPA to regulate GHG emissions from stationary sources"), that argument also lacks merit. *Massachusetts* rejected a variety of efforts to exempt greenhouse gases from the statute's plain language. The Court held that greenhouse gases are "air pollutants" within the meaning of the Act and that their unique characteristics or the alleged economic consequences of regulation were not a basis to avoid the Act's requirements. *See supra*, pp. 26-27. *See also Massachusetts*, 549 U.S. at 512, 530-31 (rejecting arguments based on *Brown & Williamson* that alleged "economic and political repercussions" of regulating greenhouse gases provided a basis to limit EPA's authority under the Act to regulate those emissions); *Am. Elec. Power Co., Inc. v. Connecticut*, 131 S. Ct. 2527, 2539 (2011) (recognizing that Congress designated EPA as the "expert agency" "best suited to serve as primary regulator of greenhouse gas emissions").[31]

[31] In other cases before this Court, Petitioners attack EPA's longstanding construction that the PSD permitting requirements apply to sources emitting any air pollutant subject to regulation under the Act. *See*, *e.g.*, Petitioners' Joint Br.

Third, Petitioners' arguments that the Endangerment Finding leads to "absurd" consequences related to stationary sources also fail because, as promulgated, EPA's "Tailoring Rule," 75 Fed. Reg. 31,514 (June 3, 2010), resolved any such concerns. There, EPA reasoned that immediately applying permitting requirements to sources of 100 or 250 tons per year of greenhouse gas emissions would impose unintended and unworkable burdens on permitting authorities and smaller sources. *See id.* at 31,516-17. Accordingly, EPA reasonably and lawfully adopted the Tailoring Rule precisely to avoid those burdens. *See* EPA Br. 109-110. As EPA explains, Br. 108-110, the Court should reject Petitioners' attempt to convert a narrowly tailored effort by EPA to address the burdens of permitting as applied to small stationary sources into a basis for ignoring the plain language of the Act's motor vehicle provisions. *Id.* at 109 ("[t]here is nothing absurd about regulating mobile source emissions of greenhouse gases under Section 202").

30-34, *American Chemistry Council v. EPA*, No. 10-1167; Joint Opening Brief of Nonstate Petitioners and Supporting Intervenors, 21-27, *Coalition for Responsible Regulation v. EPA*, No. 10-1073. While we disagree with those arguments, at least they have been brought in cases concerning the regulation of stationary sources. Petitioners here never even attempt to show how *Section 202(a)(1)* – which exclusively concerns the health and welfare predicate for regulating motor vehicles – can be read to accomplish their desired stationary source exemption.

4. Neither the Act, Nor *Massachusetts*, Requires EPA to Consider, As Part of the Endangerment Determination, Adaptation and Mitigation.

Petitioners also argue that EPA must consider the extent to which society may "adapt" to climate change, or "mitigate" its harmful consequences, through means other than adopting emissions standards under Section 202(a). *See* Ind. Br. 37-39; Tx Br. 21-22. This argument is yet another effort to divert EPA from its proper focus on "'whether an air pollutant 'cause[s], or contribute[s] to, air pollution which may reasonably be anticipated to endanger public health or welfare,'" *Massachusetts*, 549 U.S. at 532-33 (quoting 42 USC §7521(a)(1)), as required by the Act and *Massachusetts*.

Possible future adaption to the effects of pollution and possible mitigation of that pollution or its effects through alternative means are the kind of extraneous, non-scientific "policy" considerations that have already been rejected by the Supreme Court. *Massachusetts*, 549 U.S. at 533 (citing 68 Fed. Reg. at 52,931-32); 549 U.S. at 533 (rejecting "policy judgments" that "have nothing to do with whether greenhouse gas emissions contribute to climate change" and "[s]till less do they amount to a reasoned justification for declining to form a scientific judgment"). Adaptation and mitigation are measures that society may choose to undertake as a *response* to present danger or in hopes of reducing or avoiding future harms. These measures are based on "policy judgments" that will have to be

made by local, state, and federal government officials at some point in the future. *See* 74 Fed. Reg. at 66,513. Making "reasoned projections" of such responses involves considerations of how good a job society will do in addressing climate change, rather than the seriousness of the pollution problem at issue. *Id*. *See also Massachusetts*, 549 U.S. at 533 (rejecting arguments based on efficacy of "voluntary Executive Branch programs" as alternatives to Clean Air Act regulation as having "nothing to do" with requirements of Section 202(a)(1)). Turning Section 202(a)(1)'s protective focus on its head, Petitioners insist that EPA may regulate only as a last resort – after determining that the hazard will not go away through other possible future means.[32] EPA was right to reject such arguments.

As EPA notes, Br. 113, Petitioners do not provide any examples of the kinds of mitigation or adaptation they suggest might prevent an endangerment finding – aside from the observation that "Americans live comfortably in both Buffalo and

[32] There are fundamental problems with Petitioners' theory beyond its patent inconsistency with Section 202(a)(1). For example, many harms from climate change are already well underway, *e.g*., 74 Fed. Reg. at 66,532-33 (noting that "climate change has already altered . . . the water cycle" and that "coastal communities are now endangered by human-induced climate change"); USGCRP 2009 at 10 (noting that "[s]ome of the impacts of climate change will be irreversible, such as species extinctions and coastal land lost to rising seas."). *See also* TSD at 133 (noting that some species and ecosystems "often have nowhere to migrate") (JA XX); TSD at 134 (discussing harms to coral reefs from ocean acidification and rising sea surface temperatures); *Corrected Brief for Amici America's Great Waters Coalition, et al*. at 6-8.

Phoenix," Ind. Br. 37, which wholly misses the point that temperature effects are but one aspect of climate change. Americans will *not* live comfortably with inadequate water supplies, permanently inundated coastal properties, or the host of other inhospitable or uninhabitable conditions that are predicted. The public health effects of some forms of air pollution, for example, could be mitigated by a policy of prohibiting outdoor activities, requiring the wearing of protective equipment, or subsidizing vulnerable residents to move to safer regions. Yet, nothing in the statute allows (let alone requires) EPA to consider such possibilities before finding that air pollution "endangers" public health.

III. EPA'S DEFINITION OF AIR POLLUTANT IS REASONABLE.

There is no merit to Petitioners' attack on EPA's definition of the relevant air pollutant "as the aggregate of the well-mixed greenhouse gases." 74 Fed. Reg. at 66,519. This definition accords with the Administrator's finding that the air *pollution* at issue is the "combined mix of six key directly-emitted, long-lived and well-mixed greenhouse gases . . . which together, constitute the root cause of human-induced climate change and the resulting impacts on public health and welfare," *id*. at 66,516 – a definition Petitioners do not challenge.

EPA ably refutes each of Petitioners' arguments challenging the reasonableness of its definition of the air pollutant here. EPA Br. 78-83.

Intervenor-Respondents make the following points to further underscore how groundless Petitioners' arguments are.

"'[A] plaintiff must demonstrate standing for each claim he seeks to press.'" *See Payne v. Salzar*, 619 F.3d. 56, 61 (D.C. Cir. 2010) (quoting *DaimlerChrysler Corp. v. Cuno*, 547 U.S. 332, 352, (2006)). *See also* D.C. Cir. R. 28(a)(7). Here, as EPA notes, Br. 81 n.46, there is no showing that any petitioner is harmed by EPA's inclusion of perfluorocarbons and sulfur hexafluoride in the pollutant definition. *See also* 75 Fed. Reg. at 66,541 (noting that inclusion of the two gases did not affect EPA's subsequent contribution finding). Nor have Petitioners identified any petitioning entity harmed by the use of carbon dioxide equivalent units as the metric. *See* Ind. Br. 31-32.

In any event, Petitioners' challenges are meritless. As EPA demonstrates, Br. 80, the Act defines an "air pollutant" as "any air pollution agent *or combination of such agents*." 42 U.S.C. § 7602(g) (emphasis added); *cf. Massachusetts*, 529 U.S. at 532 (characterizing this definition as "capacious"); EPA Br. 80. The Act does not limit EPA's discretion to combine agents – and EPA supplied a sound rationale for defining the six substances as a common pollutant because of their shared attributes. *See* 74 Fed. Reg. at 66,517-18 (observing that these gases share common properties regarding their climate effects, they are the primary drivers of human induced climate change, and they are

the common focus of climate change research and policy analysis, among other similarities).

Furthermore, the Act provides no basis for Petitioners' novel contention, Ind. Br. 30, that each regulated source category must emit every constituent agent of a combined air pollutant. Section 302(g)'s "pollutant" definition applies throughout the Act ("as used in this Chapter"), 42 U.S.C. § 7602(g), and it is certainly reasonable for EPA to define a pollutant consistently, in terms of its environmental characteristics, rather than providing a welter of different definitions for each particular program or source category. *See* EPA Br. 82 (noting challenges that would be presented by using a multiplicity of pollutant definitions).

EPA's use of a CO_2 equivalent ("CO_2e") metric, Ind. Br. 31-32, to ensure consistent evaluation of each constituent gas was reasonable, and is the very sort of scientific and technical judgment that lies at the core of EPA's technical expertise and administrative experience. *See Appalachian Power Co. v. EPA*, 249 F.3d 1032, 1051-52 (D.C. Cir. 2001). Because the CO_2e metric reflects the relative contribution of various compounds to the underlying environmental harms, use of this metric is "common practice" within the scientific community and in regulatory decisionmaking of the United States and other countries. 74 Fed. Reg. at 66,519. *See also, e.g.*, 42 U.S.C. § 13212 (f)(3)(C). EPA reasonably exercised its discretion here.

EPA's approach is likewise consistent with past agency actions defining combined pollutants such as volatile organic compounds ("VOCs") and particulate matter ("PM") groupings based on shared, harmful attributes and without regard to the source categories from which they originate. *See* RTC 10-4 (JA XX-XX). *See also* 74 Fed. Reg. at 66,514 (noting that PM and VOCs are emitted by a variety of sources, but that any given source of VOCs or PM is unlikely to emit every constituent substance included within the definition). EPA's decision was reasoned and lawful.

IV. PETITIONERS' ARGUMENTS DISPUTING EPA'S SCIENTIFIC ANALYSIS ARE INSUBSTANTIAL.

Petitioners offer a misplaced set of arguments, pieced together from out-of-context citations, to dispute EPA's conclusion that anthropogenic greenhouse gas emissions are causing global warming. *See, e.g.*, Ind. Br. 44-57. EPA has addressed Petitioners' specific arguments and explained why they are meritless. *See* EPA Br. 43-65.[33] At core, however, Petitioners' arguments fail because the uncertainties they raise regarding particular aspects of climate science – for which EPA has already fully accounted – do not undermine the central scientific

[33] As EPA observes, EPA Br. 55 n.32, several of petitioners' arguments – including much of their argument about uncertainty related to cloud feedbacks – appear for the first time in their appellate brief, and so are barred. *See* 42 U.S.C. § 7607(d)(7)(B).

conclusions.[34] *See also Ethyl*, 541 F.2d at 37. The Court in *Massachusetts* held that "uncertainty surrounding various features of climate change" could justify a refusal to determine endangerment only if the uncertainty "is so profound that it precludes EPA from making a reasoned judgment as to whether greenhouse gases contribute to global warming." 549 U.S. at 534. EPA thoroughly explained why uncertainties concerning various features of climate change did not prevent it from making the judgment required by the statute. TSD at 23-26 (JA XX-XX).

Petitioners primarily point to uncertainties in the influence of the sun and in the effects of clouds. As EPA's analysis of these uncertainties shows, none of their contentions undermines the agency's conclusions.

Solar Effects. Petitioners suggest, Ind. Br. 45, that global warming could be caused by increases in the sun's brightness. Petitioners are in error; it is well-settled that changes in solar output cannot explain the observed global warming of the last 30 years. Indeed, as EPA has explained, solar irradiance has *declined* in recent years, and the sum of solar and volcanic forcing of the past half-century would likely have produced "cooling, not warming." RTC 3-23, 3-24 (JA XX,

[34] For example, Petitioners point to an IPCC table providing uncertainty assessments of radiative forcing agents as undermining EPA's Endangerment Finding. Ind. Br. 45, citing AR4, WGI at 201-02 (JA XX-XX). Yet the next page of the report, *id.* at 203 (JA XX), is a summary of the magnitudes and uncertainties associated with each radiative forcing agent. It shows that the anthropogenic contribution to observed warming is clear even after the uncertainties associated with other forcing agents have been taken into account.

XX).

Remaining uncertainties about the precise magnitude of the sun's long-term influence do not shake EPA's conclusions. Although the precise magnitude of the effect of changes in solar brightness on climate is uncertain, the approximate magnitude of these effects is known, and so is the scope of the uncertainty. As EPA explains, Br. 45-46, the changes in the sun's irradiance between 1750 and 2005 are too small to account for the scale of observed warming. *See also* IPCC AR4, WGI at 690-91 ("greenhouse warming dominates over solar warming.") (JA XX-XX).

Cloud Effects and Feedbacks. Petitioners argue that uncertainties related to the feedback effects of clouds on climate "greatly outweigh the modest direct effect of [greenhouse gas] warming," Ind. Br. 48, and undermine EPA's conclusions. This argument repeats Petitioners' error with solar energy: it inflates the importance of uncertainty in one climate factor, while ignoring that EPA has considered the uncertainty and concluded that when the relevant uncertainty range is taken into account, it remains clear that the climate has warmed and will continue to warm due to anthropogenic greenhouse gas emissions.

Petitioners argue that the Endangerment Finding is erroneous because it relies on climate feedbacks that "magnify [greenhouse gases'] direct warming impacts [and] produce the estimates of temperature increases several times higher

than [the] 1.2°C" warming projected to result from a doubling of greenhouse gases in the absence of feedback effects. Ind. Br. 47. Petitioners characterize this temperature rise as "relatively minimal" and not warranting an endangerment finding. *Id.* Petitioners argue that the endangerment finding depends on the operation of various feedbacks because, without positive feedbacks, doubling the concentration of greenhouse gases in the atmosphere would raise global average temperatures by only a "relatively minimal" 1.2°C (2.2°F), Ind. Br. 47, which they suggest would not warrant an endangerment finding. In fact, such a temperature increase would itself have serious consequences – EPA documents a wide range of serious effects that have already occurred with the 0.7°C (1.3°F) increase already experienced. *See, e.g.* TSD at ES-2 - ES-3, 32-46 (JA XX-XX, XX-XX).

Worse, as EPA points out, Petitioners misstate the evidence in the record related to cloud feedback uncertainty. *See e.g.* EPA Br. 55-56 (noting that Petitioners' claim of a -25 watts per square meter ("W/m^2") uncertainty for cloud feedback is wrong, and relies on a misreading of a single graph from the IPCC's extensive supplementary materials).[35] In fact, warming projections account for

[35] The figure upon which Petitioners rely, *see* Ind. Br. 48 (citing AR4, WGI, Ch. 8 Supplementary Material, 8-27 – 8-28, Fig. S8.5 (JA XX-XX), does not show uncertainty in cloud feedbacks. Rather, the figure shows how climate models have calculated Earth's *existing* albedo (its reflectivity) – which includes reflection from ice and land surfaces, as well as clouds – as compared to observed albedo. The figure is silent as to how the albedo will change over time or how well models predict that change. The IPCC assessment clearly states that the uncertainty in the

uncertainty in the magnitude of cloud and other feedbacks. When all feedbacks and their associated uncertainty ranges are incorporated into climate models, the average of climate sensitivity estimates – the climate's projected response to a doubling of greenhouse gas concentrations over pre-industrial levels – is 3.2°C +/- 0.7 °C (5.8°F +/- 1.3°F). *Id.* at 633 (JA XX). Accordingly, it is clear that the greenhouse gas forcing and all feedbacks acting together will cause significant warming, even though we do not know the precise magnitude of the cloud feedback.

V. PETITIONERS' RECONSIDERATION ARGUMENTS ARE BASELESS.

EPA has thoroughly addressed Petitioners' arguments for reconsideration, first in its response to comments, then, when Petitioners re-raised them in essentially identical form, in its extensive and detailed response to the reconsideration petitions, and, finally, in its response brief. As EPA demonstrates, Br. 65-78, Petitioners' arguments are meritless. In most cases, their objections were available or actually raised, and rightly rejected, before issuance of the Endangerment Finding, *see* 42 U.S.C. § 7607(d)(7)(B), and in all cases, these

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cloud feedback magnitude is +/- 0.38 W/m^2/°C, *not* -25 W/m^2, *see* AR4, WGI at 630 (JA XX). The -25 W/m^2 number to which Petitioners point is the difference between observed and projected albedo from a single model, at a single latitude. *See* AR4, WGI, Ch. 8 Supplementary Material, 8-27 - 8-28, Fig. S8.5 (JA XX-XX). At most latitudes, the difference between the average model results and observations is less than 6 W/m^2. AR4, WGI at 610 (JA XX). *See* EPA Br. 55-56.

arguments are not "of central relevance to the outcome of the rule," *id*. Petitioners do not even attempt to respond to EPA's explanations as to why none of their submissions warranted reconsideration. Instead, they place snippets of their submissions before the Court as if this were a de novo proceeding, not a review of an agency decision.

A brief look at the centerpiece of Petitioners' arguments, the so-called "climategate" emails that were hacked from the University of East Anglia's Climate Research Unit ("CRU"), demonstrates the hollowness of Petitioners' claims.

First, the CRU analysis was not necessary to the Endangerment Finding. CRU researchers prepared "just one of three global surface temperature records that EPA and the assessment literature refer to and cite. National Oceanic and Atmospheric Administration (NOAA) and National Aeronautics and Space Administration (NASA) also produce temperature records, and all three temperature records have been extensively peer reviewed," and agree with one another. 74 Fed. Reg. at 66,504. Moreover, because these records are generated from publicly-available weather station data, and other such sources, anyone can check CRU's work. It took just two days for the Independent Climate Change Email Review (a United Kingdom body looking into the matter) to "write computer code from scratch . . . that produced results similar to the [CRU]

temperature record and other independent analyses, working with publicly accessible data." RTP 1-36 (citing Docket. No. EPA-HQ-OAR-2009-0171-12154 (July 2010) (JA XX). The warming pattern is apparent from the raw data, leaving no room for falsification. *See* Docket No. EPA-HQ-OAR-2009-0171-12154 (July 2010) at 12, 48-49 (JA XX, XX-XX).

Thus, there is no scandal here, and many of Petitioners' assertions are simply inaccurate. For example, Petitioners claim that the emails show that "critical IPCC records were lost or destroyed." Va. Br. 11 (JA XX). This is not true: As EPA explained, the CRU (*not* the IPCC) did not retain some of the "original raw data" used to compile temperature records, *see* RTC 2-39 (JA XX-XX), but there was no reason for it to do so, as 95% or more of that raw data is publicly available, and all of the data is retained by the institutions from which CRU originally obtained it. *Id*. *See also* RTP 1-36 (JA XX-XX).

Similarly, Petitioners claim that "the IPCC data upon which EPA relied were manipulated." Va. Br. 10-11 (JA XX-XX). This too is not true. Temperature records "are built on the data collected from thousands of weather stations around the globe," which "were not originally intended to be used for climate monitoring," meaning that scientists generally must adjust for "artificial biases" such as those created by measurements made at different times of day at different stations or changes in measurement methods over time. RTP 1.3.2 (JA XX). CRU was not

"manipulating" data: It was removing artificial biases and errors. *See, e.g.*, RTP 1-38, 1-40, 1-46 (describing this "legitimate quality control process") (JA XX-XX, XX-XX, XX-XX).

All independent reviews, including EPA's own review, have concluded that claims such as Petitioners' lack merit. *See* 75 Fed. Reg. at 49,557-58, 49,573-74, 49,580-81. The United Kingdom Parliament's review, for instance, concluded that "there is independent verification, through the use of other methodologies and other sources of data, of the results and conclusions of the [CRU]" and that "[e]ven if the data that CRU used were not publicly available—which they mostly are—or the methods not published—which they have been—its published results would still be credible: the results from CRU agree with those drawn from other international data sets; in other words, the analyses have been repeated and the conclusions have been verified." U.K. House of Commons, Science and Technology Committee, *The Disclosure of Climate Data from the Climatic Research Unit at the University of East Anglia* (Mar. 2010), Docket No. EPA-HQ-OAR-2009-0171-12225 at 17-18 (JA XX-XX).[36]

[36] While Petitioners rely primarily on the CRU emails, they also point to a handful of alleged errors in an IPCC report as purportedly impugning the entire IPCC process (and EPA's Finding). But these claims only illustrate the utter insubstantiality of their entire reconsideration effort – the alleged errors either were not errors, or involved impacts entirely irrelevant to the Endangerment Finding, or both. For example, although Petitioners suggest that the IPCC got something wrong with its Amazon rain forest die-off projections, *see* Va. Br. 12, EPA

In sum, the Court should sustain EPA's reasoned decision to deny reconsideration.

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determined that the projections were robustly supported by peer-reviewed literature, RTP at 2-21 (JA XX-XX) and, in any event, EPA *did not rely* upon those projections, *id*. The actual errors cited by Petitioners – errors in the percentage of the Netherlands below sea level and the date by which Himalayan glaciers will have disappeared (both of which were immediately corrected by the IPCC when they were identified) – were inconsequential to the IPCC's conclusions and were not relied upon in EPA's Endangerment Finding. *See* EPA Br. 76-78.

CONCLUSION

The petitions for review should be denied.

Respectfully submitted,

MARTHA COAKLEY
Attorney General of Massachusetts

/s/ Carol Iancu
Carol Iancu
Tracy Triplett
William L. Pardee, Chief
Assistant Attorneys General
Environmental Protection Division
One Ashburton Place, 18th Floor
Boston, MA 02108
(617) 963-2428

Counsel for the
Commonwealth of Massachusetts

/s/ Sean H. Donahue
Sean H. Donahue
Donahue & Goldberg, LLP
2000 L St., NW, Suite 808
Washington, DC 20036
(202) 277-7085

Howard I. Fox
David S. Baron
Earthjustice
1625 Mass. Ave., NW, Suite 702
Washington, DC 20036

Megan Ceronsky
Vickie L. Patton
Peter Zalzal
2060 Broadway, Suite 300
Boulder, CO 80302

Counsel for Environmental
Defense Fund

KAMALA D. HARRIS
Attorney General of California

Mark Breckler
Chief Assistant Attorney General
Kathleen A. Kenealy
Senior Assistant Attorney General

Marc N. Melnick
Nicholas Stern
Daniel Lucas
Deputy Attorneys General
1515 Clay Street, 20th Floor
P.O. Box 70550
Oakland, CA 94612
(510) 622-2133

Counsel for the State of California

GEORGE JEPSEN
Attorney General of Connecticut

Kimberly P. Massicotte
Matthew I. Levine
Scott N. Koschwitz
Assistant Attorneys General
55 Elm Street
P.O. Box 120
Hartford, CT 06106
(860) 808-5250

Counsel for the State of Connecticut

JOSEPH R. BIDEN, III
Attorney General of Delaware

Valerie M. Satterfield
Deputy Attorney General
Delaware Department of Justice
102 West Water Street, 3rd Floor
Dover, DE 19904
(302) 739-4636

Counsel for the State of Delaware

LISA MADIGAN
Attorney General of Illinois

Matthew J. Dunn
Gerald T. Karr
Assistant Attorneys General
69 West Washington Street, Suite 1800
Chicago, Illinois 60602
(312) 814-3369

Counsel for the State of Illinois

THOMAS J. MILLER
Attorney General of Iowa

David R. Sheridan
Assistant Attorney General
Environmental Law Division
Lucas State Office Building
321 E. 12th Street, Ground Flr.
Des Moines, IA 50319
(515) 281-5351

Counsel for the State of Iowa

WILLIAM J. SCHNEIDER
Attorney General of Maine

Gerald D. Reid
Assistant Attorney General
Chief, Natural Resources Division
6 State House Station
Augusta, ME 04333-0006
(207) 626-8545

Counsel for the State of Maine

DOUGLAS F. GANSLER
Attorney General of Maryland

Mary E. Raivel
Assistant Attorney General
Office of the Attorney General
Maryland Department of the Environment
1800 Washington Boulevard, Suite 6048
Baltimore, MD 21230
(410) 537-3035

Counsel for the State of Maryland

LORI SWANSON
Attorney General of Minnesota

Jocelyn F. Olson
Assistant Attorney General
Atty. Reg. No. 0082016
445 Minnesota Street, Suite 900
St. Paul, Minnesota 55101-2127
(651) 757-1244 (Voice)
(651) 296-1410 (TTY)

Counsel for the State of Minnesota

MICHAEL A. DELANEY
Attorney General of New Hampshire

K. Allen Brooks
Senior Assistant Attorney General
33 Capitol Street
Concord, NH 03301
(603) 271-3679

Counsel for the State of New Hampshire

GARY K. KING
Attorney General of New Mexico

Stephen R. Farris
Seth T. Cohen
Assistant Attorneys General
P.O. Box 1508
Santa Fe, NM 87504-1508
(505) 827-6087

Counsel for the State of New Mexico

ERIC T. SCHNEIDERMAN
Attorney General of New York

Benjamin Gutman
Assistant Solicitor General
Michael J. Myers
Yueh-Ru Chu
Assistant Attorneys General
Environmental Protection Bureau
The Capitol
Albany, NY 12224
(518) 402-2594

Counsel for the State of New York

PETER F. KILMARTIN
Attorney General of Rhode Island

Gregory S. Schultz
Special Assistant Attorney General
Rhode Island Dept. of Attorney General
150 South Main Street
Providence, RI 02903
(401) 274-4400 x 2400

Counsel for the State of Rhode Island

JOHN KROGER
Attorney General of Oregon

Paul Logan
Assistant Attorney-in-Charge, Natural Resources Section
1515 SW Fifth Avenue, Suite 410
Portland, OR 97201
(971)-673-1943

Counsel for the State of Oregon

WILLIAM H. SORRELL
Attorney General of Vermont

Thea J. Schwartz
State of Vermont
Office of the Attorney General
109 State Street
Montpelier, VT 05609-1001
(802) 828-3186

Counsel for the State of Vermont

ROBERT M. MCKENNA
Attorney General of Washington

Leslie R. Seffern
Assistant Attorney General
Washington State Office of the Attorney General
P.O. Box 40117
Olympia, WA 98504-0117
(360) 586-6770

Counsel for the State of Washington

FOR THE CITY OF NEW YORK
MICHAEL A. CARDOZO
Corporation Counsel for the City of New York

Carrie Noteboom
Christopher King
Assistant Corporation Counsel
100 Church Street
New York, New York 10007
(212) 788-0771

Counsel for the City of New York

Ann B. Weeks
Helen D. Silver
Clean Air Task Force
18 Tremont Street, Suite 530
Boston, MA 02108

Counsel for Conservation Law Foundation, Inc.,

Joseph Mendelson III
National Wildlife Federation
901 E Street, NW
Suite 400
Washington, DC 20004

Counsel for National Wildlife Federation

David Doniger
Meleah Geertsma
Natural Resources Defense Council
1152 15th Street, NW, Suite 300
Washington, DC 20005

Counsel for Natural Resources Defense Council

Craig Holt Segall
Sierra Club
50 F Street NW, Eighth Floor
Washington, DC 20009

Joanne Spalding
Sierra Club
85 Second Street, Second Floor
San Francisco, CA 94105

Counsel for Sierra Club

Morgan Butler
Frank W. Rambo
Southern Environmental Law Center
201 West Main Street, Suite 14
Charlottesville, VA 22902

Counsel for Wetlands Watch

STATE AND ENVIRONMENTAL INTERVENORS' CERTIFICATE OF COMPLIANCE WITH WORD LIMITATION AND TYPEFACE REQUIREMENTS

State and Environmental Intervenors hereby represent that this brief complies with the type-volume limitation of Fed. R. App. P. 32(a)(7)(B) and the briefing format adopted by the Court for this case because it contains 14,089 words, as counted by Microsoft Word, excluding the signature block and the parts of the brief exempted by Fed. R. App. P. 32(a)(7)(B)(iii), and that it complies with the typeface and type style requirements of Fed. R. App. P. 32(a)(5) and 32(a)(6) because it has been prepared in a proportionally spaced typeface using Microsoft Word in Times New Roman 14-point type.

DATED: September 16, 2011

/s/ *Sean H. Donahue*
Sean H. Donahue

CERTIFICATE OF SERVICE

I hereby certify that copies of the foregoing Brief for State and Environmental Intervenors have been served through the Court's CM/ECF system on all registered counsel this 16th day of September, 2011.

DATED: September 16, 2011

/s/ *Sean H. Donahue*
Sean H. Donahue