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Amicus Brief in STATE OF CALIFORNIA, et al. v. UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

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ORAL ARGUMENT NOT SET

No. 08-1178 (consolidated)

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

STATE OF CALIFORNIA, et al.,
Petitioners,

v.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY,
Respondent.

On Petition for Review of Final Action
of the United States Environmental Protection Agency

**JOINT AMICI CURIAE BRIEF OF CLIMATE SCIENTISTS
(JAMES HANSEN, MARK Z. JACOBSON, MICHAEL KLEEMAN,
BENJAMIN SANTER, STEPHEN H. SCHNEIDER), MONTEREY BAY
AQUARIUM FOUNDATION, AND JEWISH ORGANIZATIONS
(AMERICAN JEWISH COMMITTEE, JEWISH COUNCIL FOR PUBLIC
AFFAIRS, JEWISH RECONSTRUCTIONIST FEDERATION, HADASSAH,
THE WOMEN'S ZIONIST ORGANIZATION OF AMERICAN, INC., AND
UNION FOR REFORM JUDAISM)
IN SUPPORT OF PETITIONERS**

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CERTIFICATE AS TO PARTIES, RULINGS, AND RELATED CASES

Pursuant to Circuit Rule 28(a)(1), Amici file to following statement:

PARTIES AND AMICI

All parties, intervenors, and amici appearing in this court are listed in the Petitioners and Petitioner-Intervenors' Joint Opening Brief.

RULING UNDER REVIEW

References to the rulings at issue appear in the Petitioners and Petitioner-Intervenors' Joint Opening Brief.

RELATED CASES

Case No. 08-1178 has been consolidated with two related cases, Nos. 08-1179 and 08-1180. EPA's decision was the subject of an earlier, now dismissed challenge in this Court. *See California v. EPA*, No. 08-1063 (D.C. Cir. filed Feb. 19, 2008). The automobile industry has filed preemption challenges to California's regulations in non-D.C. federal district courts, two of which are pending on appeal. *See Green Mountain Chrysler Dodge Jeep v. Crombie*, 508 F. Supp. 2d 295 (D. Vt. 2007), *appeal pending* Nos. 07-4342 & 07-4360 (2d Cir. briefing completed Aug. 21, 2008); *Cent. Valley Chrysler-Jeep, Inc. v. Goldstene*, 529 F. Supp. 2d 1151 (E.D. Cal. 2007), *appeal pending* No. 08-17378 & 08-17380 (9th Cir. under consideration for mediation Nov. 10, 2008).

CORPORATE DISCLOSURE STATEMENT

Pursuant to Federal Rule of Appellate Procedure 26.1, *amici curiae* Monterey Bay Aquarium Foundation, American Jewish Committee, Jewish Council for Public Affairs, Jewish Reconstructionist Federation, Hadassah, the Women's Zionist Organization of America, Inc., and Union for Reform Judaism are non-profit organizations, have no parent companies, and have not issued shares of stock. No publicly held company owns any stock in these organizations.

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* *Authorities upon which we chiefly rely are marked with asterisks.*

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GLOSSARY OF ABBREVIATIONS

Aquarium	Monterey Bay Aquarium Foundation
AJC	American Jewish Committee
CO ₂	Carbon Dioxide
COEJL	Council on Environment and Jewish Life
EPA	United States Environmental Protection Agency
GHG	Greenhouse Gas
IPCC	Intergovernmental Panel on Climate Change
JCPA	Jewish Council for Public Affairs
JRF	Jewish Reconstructionist Federation
PM	Particulate Matter
URJ	Union for Reform Judaism

STATUTES AND REGULATIONS

All applicable statutes, etc., are contained in the Petitioners and Petitioner-Intervenors' Joint Opening Brief.

INTERESTS AND IDENTITIES OF THE *AMICI CURIAE*

Amici James Hansen, Mark Z. Jacobson, Michael Kleeman, Benjamin Santer, and Stephen H. Schneider are climate scientists who research changes to the Earth's climate from anthropogenic emissions of greenhouse gases (GHGs) or study climate change impacts on California air quality. Any policy statements in this brief are personal statements and not of the organizations to which they belong. The scientists wish to provide to this Court accurate information about climate change and its impacts because the Environmental Protection Agency's decision to deny California's request for a waiver has grave implications for the Earth's climate and climate change impacts, including those unique to California. Dr. Kleeman the Argument relating to air pollution because of his particular expertise.

Amicus Monterey Bay Aquarium Foundation is a California non-profit 501(c)(3) public benefit corporation with a mission to inspire conservation of the oceans in part by engaging in advocacy to promote sustainable ocean policies. The Aquarium joins this brief because of the threat climate change poses to California's valuable ocean and coastal resources.

Amici American Jewish Committee, Jewish Council for Public Affairs, Jewish Reconstructionist Federation, Hadassah, and Union for Reform Judaism ("Jewish Organizations") are concerned by the stark contrast between the

unparalleled threats of climate change and the United States' failure to take meaningful steps to curb GHG emissions. The Jewish Organizations join this brief because Judaism embodies an ethical and equitable commitment to repair and protect the Earth for future generations, eschew wasteful destruction of any kind, and avoid the harms and injustices associated with climate change.

Amici have authority to file this brief based on the Court's leave to file granted September 12, 2008. A more detailed description of *amici* interests is attached in the Addendum.

Amici Climate Scientists submit Parts I and II.A, *amicus* Monterey Bay Aquarium submits Part II.B, and *amici* Jewish Organizations submit Part III of the Argument below, together with the corresponding portions of the Summary of Argument.

SUMMARY OF ARGUMENT

Developments in climate change science underscore the critical need to reduce GHG emissions now. Otherwise, the Earth may reach a tipping point where the level of GHGs in our atmosphere causes the climate system to cross a threshold, triggering abrupt and major changes. Most of the major changes could become unstoppable and, for the foreseeable future, difficult or impossible to reverse.

EPA had no scientific evidence for its conclusion that California suffers generalized, not unique, impacts of climate change. . Climate change disproportionately affects California’s air quality and hydrology. By increasing air pollution, anthropogenic carbon dioxide (CO₂) kills Californians at a rate 2.5 times higher than in the rest of the U.S. GHGs and climate change also affect California’s coastal and marine ecosystems and the services they provide. These impacts amount to compelling and extraordinary circumstances that should have led EPA to grant California’s request for a waiver. California’s efforts to reduce climate change are an important step toward fulfilling the nation’s moral obligation to curb its substantial GHG emissions.

ARGUMENT

I. WITHOUT IMMEDIATE REDUCTIONS OF CO₂, WE RISK UNCONTROLLABLE AND ABRUPT CLIMATE IMPACTS

A. Slight Change in Global Surface Temperature Is Already Causing Unprecedented Climate Impacts

Today’s CO₂ concentration of 385 parts per million is likely the highest in at least a million years. The roughly 35% increase in atmospheric CO₂ since the Industrial Revolution has raised global surface temperature by 0.74°C (1.3°F) in the last 150 years.¹ This temperature change is large for a global average, even

¹ 2007 IPCC Report, Contributions from Working Group I, 2–6 (Cambridge Univ. Press 2007) [hereinafter “2007 IPCC Report WG I”]; Notice of EPA Decision Denying CAA Waiver, 73 Fed. Reg. 12,156, 12,165 (Mar. 6, 2008).

though it may appear small compared to daily and regional temperature variations. The Earth is now within 1°C (1.8°F) of its highest temperature in the past million years.²

This increase in temperature is largely human-induced and has wrought unprecedented changes in many aspects of the climate system. Examples include increases in global sea level, the heat content of the world's oceans, and the moisture content of the atmosphere, and significant changes in rainfall and circulation patterns. All of these changes are consistent with scientific understanding of how the climate system should respond to human-induced GHG increases.

In addition to these changes in the physical climate system, scientists have observed earlier occurrences of spring events in terrestrial ecosystems, geographical shifts in plant and animal ranges (*e.g.*, affecting where wheat can grow), widespread changes in temperature extremes, and a worldwide recession of mountain glaciers (a source of fresh water for hundreds of millions of people).

Other changes that could magnify warming are already at work. Arctic sea ice (frozen ocean water) during the 2007 melt season declined precipitously to the

² See Declaration of James E. Hansen, *Green Mt. Chrysler Plymouth Dodge*, 2006 WL 4761053 (D. Vt. Aug. 14, 2006) ["Hansen Decl."] ¶ 43.

lowest level since satellite measurements began in 1979.³ Beginning in late 2000, the Jakobshavn Isbrae Glacier, which has a major influence over the mass of the Greenland ice sheet, significantly increased its discharge of ice.⁴ Arctic sea ice plays an important role in stabilizing the global climate because it reflects eighty to ninety percent of the solar radiation that the region receives back to space.⁵ The reduction of sea ice reduces reflectivity and causes the ocean to absorb more solar radiation, amplifying the greenhouse effect.

Added to these changes are weather-related disasters such as thunderstorm-related wildfires in California and 500-year flood events in the Midwest. While scientists cannot confidently attribute any specific extreme event to human influences, changes in the likelihood of such extreme events are expected to occur as the global climate changes. These imply that the current level of CO₂ has already placed the planet in a danger zone.

B. Without Immediate Reductions in GHGs, We Risk Reaching a Tipping Point

Evidence points to a critical need for even more stringent GHGs reductions than previously thought necessary. Immediate reductions are necessary to prevent

³ See National Snow and Ice Data Center, Arctic Sea Ice Shatters All Previous Record Lows (Oct. 1, 2007), http://nsidc.org/news/press/2007_seaiceminimum/20071001_pressrelease.html.

⁴ 2007 IPCC Report WG I at 338, 368.

⁵ See John Abatzoglou, *A Primer on Global Climate Change and Its Likely Impacts*, in CLIMATE CHANGE 11, 20 (Joseph F.C. DiMento & Pamela M. Doughman eds., MIT Press 2007) [“Abatzoglou”].

further warming and irreversible destabilization of the climate system, which can occur when GHG concentrations reach an as yet unknown, critical level.

1. Even without any added CO₂, the Earth will continue to warm from historic GHG emissions

Even if we stop emitting GHGs now, additional warming will occur because of past emissions. To date, only half of the eventual surface warming from historic emissions of GHGs has been realized because two fundamental properties of the climate system have partially delayed the eventual impact of the current level of GHGs.

The first property is thermal inertia of the oceans. Oceans warm slowly in response to atmospheric CO₂ (which trap heat) because of their immense mass. But oceans will continue to warm, even if atmospheric CO₂ levels remain the same. Warming oceans expand, resulting in sea level rise and further melting of ice sheets and sea ice. Slow feedbacks, the second property, are changes within the climate system that slowly intensify the climate's response to GHGs. Slow feedbacks that amplify warming include expanding vegetation and increased wetness and disintegration of the Greenland and West Antarctic ice sheets, both of which cause darkening of the Earth's surface and increase absorption of solar energy.

Even with the delay in the climate's response, the Earth is now within 1°C (1.8°F) of its highest temperature in the past million years.⁶ Further warming largely attributable to slow feedbacks is estimated to increase the global surface temperature by about 2°C (3.6°F).⁷ It is thus critical to reduce GHG emissions now.

2. We risk reaching a tipping point, where abrupt and irreversible changes can occur

Scientists were surprised to see some of the climate change impacts occur in this decade, earlier than climate impact models had suggested. In several cases, models predicted less change than has actually occurred, in part because they did not account for all of the amplifying feedbacks that scientists are trying to better understand now. Because of this limitation, it is instructive to examine the Earth's climate history. Paleoclimate data confirm that our climate is indeed very sensitive.

Paleoclimate data provide evidence that major climate change can occur in decades, and that the consequences would be much more severe, and even violent, if a 2°C (3.6°F) change occurs over decades rather than hundreds of years.⁸ These kinds of changes can happen if we reach a tipping point, where the level of

⁶ Hansen Decl. ¶ 43.

⁷ James Hansen et al., *Target Atmospheric CO₂: Where Should Humanity Aim?*, *The Open Atmospheric Sci. J.*, vol. 2, 217, at 225, http://pubs.giss.nasa.gov/docs/2008/2008_Hansen_etal.pdf.

⁸ Abatzoglou at 38.

atmospheric GHGs is high enough to trigger abrupt and major changes at a speed determined not only by the level of GHGs and other primary causes of climate change but also the internal dynamics of the climate system itself. Most of the major changes could become unstoppable and, for the foreseeable future, difficult or impossible to reverse.

Although points of no return are difficult to define because the Earth's system does not respond linearly, we can no longer wait to act. If fossil-fuel use continues to increase, scientists expect an increase of at least 3°C (5°F)—far more than the worrisome 2°C—by the end of this century.⁹ Without a fundamentally different energy pathway, we are inevitably heading toward a tipping point.

Reducing GHG emissions from vehicles is particularly important because they are the single most rapidly growing source of CO₂ emissions.¹⁰ California's vehicle program will bring immediate reductions from one of the largest sources of GHGs in the most populous state in the nation. Secondly, the program will set a precedent for immediate action elsewhere and influence public opinion, which we believe can bring about further reductions.

⁹ Hansen Decl. ¶ 6.

¹⁰ California's transportation sector produces about sixty percent of the state's GHG emissions, and these emissions are likely to continue to increase. *See Initial Statement of Reason*, California Air Resources Board, EPA-HQ-OAR-2006-0173-0010.44 at ii; EPA, Transportation and Climate, <http://www.epa.gov/otaq/climate/>.

II. GREENHOUSE GAS AND CLIMATE CHANGE IMPACTS ON CALIFORNIA AMOUNT TO EXTRAORDINARY AND COMPELLING CIRCUMSTANCES

A. California Suffers Disproportionately from Climate Change Impacts in Air Pollution and Hydrology

Human-induced changes in air pollution and in the hydrology of the western U.S. already impact California disproportionately. Information based on peer-reviewed scientific studies contradict EPA’s assumption—made without and contrary to record evidence—that California impacts “are not sufficiently different compared to the nation as a whole.” 73 Fed. Reg. at 12,168.

California’s worst ozone problems, in the Los Angeles Basin and San Joaquin Valley, are due to local conditions—its topography, photochemistry, climate, and the large number of vehicles.¹¹ In Los Angeles, for example, fifteen million people live in a very confined air basin, with the necessary ingredients for ozone formation—sunlight and pollution.¹²

This locally caused air quality problem will worsen with climate change and impact California disproportionately. *Amicus* Dr. Jacobson’s research, funded in

¹¹ See Statement of Dr. Kleeman, EPA-HQ-OAR-2006-0173-0421 [“Kleeman Statement”], at 155–56.

Five of the ten most ozone polluted cities and sixteen of the twenty-five most ozone polluted counties in the nation are in California. See American Lung Association, State of the Air: 2008, <http://www.stateoftheair.org/2008/most-polluted/>, http://www.stateoftheair.org/2008/key-findings/SOTA08_Table3.pdf. See also 40 C.F.R. § 81.305.

¹² Kleeman Statement at 155.

part by EPA, shows that, with 12% of the U.S. population, California currently suffers over 30% of the additional deaths from climate change-induced air pollution: California suffers disproportionately (2.5 times) more deaths than the U.S. as a whole due to global warming.¹³

Quite apart from impacts of global GHG emissions, California suffers from impacts of its own *local* GHG emissions. Continuous emissions of CO₂ accumulate over cities because they do not immediately dissipate, and they additionally increase air pollution, particularly ozone.¹⁴ California is therefore right to be concerned about emissions from motor vehicles within the state.

Climate change disturbances are also increasing particulate matter (PM) pollution in California. California lacks precipitation in the summer, and warmer summers are particularly conducive to expansion of wildfires.¹⁵ Wildfires are

¹³ Mark Z. Jacobson, *Testimony for Hearing on Air Pollution Health Impacts of Carbon Dioxide*, U.S. House of Representatives Select Committee on Energy Independence and Global Warming, at 2–3, <http://www.stanford.edu/group/efmh/jacobson/Testimony0408%202.pdf>. The findings are based on a published paper. See Mark Z. Jacobson, *On the Causal Link Between Carbon Dioxide and Air Pollution Mortality*, 35 *Geophysical Research Letters* L03809 (2008).

¹⁴ *Id.* at 9.

¹⁵ Statement of Stephen H. Schneider, EPA-HQ-OAR-2006-0173-0422 [“Schneider’s Testimony”], at 38. This testimony was based on the 2007 IPCC report. The IPCC report was prepared over some three years by about 100 scientists chosen by world governments, underwent three rounds of peer review, and was finally approved by over 100 governments. *Id.* at 31, 33. IPCC Working Group II assigned a “very high confidence” to the conclusion that North American forests would suffer an extended period of high fire risk and large increases in area

associated with serious air pollution episodes arising from the smoke plumes, a dangerous condition when fires occur close to populated areas, as they have this year.¹⁶

Moreover, California suffers the largest socio-economic and environmental impact from climate-related changes that have occurred in the hydrology of the western U.S. since 1950. Those changes include a trend toward more winter precipitation falling as rain instead of snow, earlier snow melt, and a resulting increase in spring river flow.¹⁷ Scenarios based on scientific studies foretell “water shortages, lack of storage capability to meet seasonally changing river flow, [and] transfers of water from agricultural to urban uses.”¹⁸ Indeed, scientists concluded that they had “every reason to believe” those projections.¹⁹ Thus, local causal factors, in conjunction with climate change, lead to air pollution and water infrastructure problems in California and support the waiver.

burned from disturbances related to climate change (disease, pests). 2007 IPCC Report, Contributions from Working Group II, at 619 (Cambridge Univ. Press 2007) [“2007 IPCC Report WG II”]

¹⁶ See Schneider’s Testimony at 38.

¹⁷ Tim Barnett et al., *Human-Induced Changes in the Hydrology of the Western United States*, 319 *Science* 1080, at 1080 (2008).

¹⁸ *Id.* at 1082.

¹⁹ *Id.*

B. Effects of Climate Change Threaten California's Sensitive Coastal and Marine Ecosystems and the Services They Provide

The impacts on California's coast and ocean from GHGs and climate change amount to compelling and extraordinary circumstances. California's variety of coastal habitats and marine bioregions contribute to some of the richest ecosystems in the world.²⁰ The marine and coastal ecosystems provide services to California residents, including food, recreation, education and research, shoreline stability, flood and disease control, waste processing, water quality, soil formation, nursery habitat for fisheries, nutrient cycling, and CO₂ sequestration.²¹

These services will likely diminish due to climate change. Increased GHG emissions and average global temperatures cause, among other things, increased ocean water temperature, sea level, and ocean acidity.²² These changes have already threatened, and will likely further threaten, biodiversity in and stability of California's marine and coastal ecosystems.

²⁰ California's Ocean Resources: An Agenda for the Future, Chapter 4, at 4-1, 4-9, 4-10 (The Res. Agency of Cal. 1997).

²¹ See United Nations Env't. Programme, Marine & Coastal Ecosystems & Human Well-Being 7-17 (2006). California recognizes the value of these services; last year, the state provided \$647 million to protect beaches, bays and coastal waters and to support its coastal protection agencies. See Governor's Budget 2007-08, Calif. Strategic Growth Plan, <http://2007-08.archives.ebudget.ca.gov/BudgetSummary/INF/26635645.html>; *id.* Resources, <http://2007-08.archives.ebudget.ca.gov/StateAgencyBudgets/3000/agency.html>.

²² 2007 IPCC Report WG II at 234, 236, 323.

As ocean temperatures increase, marine habitats in California will likely shift northwards.²³ Similarly, the mix of species within habitats may change.²⁴ Increased temperatures could also cause destruction of habitat or the establishment and spread of introduced or invading species, leading to significant and possibly irreversible changes in ecosystem structure and function.²⁵ In most habitats, pathogens thriving in warmer temperatures will cause more disease among marine species.²⁶ Warmer ocean temperatures also cause increased toxic algal blooms, which kill marine species and are responsible for half of human seafood poisoning in the United States.²⁷ Warmer waters may cause many marine species' basic food source, plankton, to shift or decrease.²⁸ Similarly, some of California's salmon and steelhead species could decline or become extinct.²⁹

²³ Christopher D.G. Harley et al., *The Impacts of Climate Change in Coastal Marine Systems*, 9 Ecology Letters 233 (2006).

²⁴ See, e.g., Victor S. Kennedy et al., *Coastal & Marine Ecosystems & Global Climate Change: Potential Effects on U.S. Resources* 10 (Pew Center on Global Climate Change 2002).

²⁵ See Harley et al. at 232, 234–35.

²⁶ *Id.* at 235.

²⁷ See 2001 IPCC Report, Contributions from Working Group II, 354 (Cambridge Univ. Press 2001); Frances M. Van Dolah, *Marine Algal Toxins: Origins, Health Effects, & Their Increased Occurrence*, 108 *Envtl. Health Perspectives* 133, 136 (Nat'l Inst. Env'tl. Health Sci. 2000).

²⁸ See 2007 IPCC Report WG II at 236; Harley et al. at 231.

²⁹ See Robert Wilkinson, *Preparing for a Changing Climate: The Potential Consequences of Climate Variability and Change* 4-2-25, 4-2-29 (Cal. Reg'l Assessment Group 2002); Kennedy, et al., at 30 (Bering Sea may become only habitable region for Pacific salmon).

Sea level rise will likely exacerbate California's coastal erosion and loss of beaches, mudflats, coastal wetlands, and intertidal zones.³⁰ Rising sea levels could also increase the salinity of coastal wetlands, salt marshes and estuaries, reducing breeding, nursery, and feeding habitat for many marine species.³¹ Impacts from rising sea levels may be especially intense during storm events at high tides.³² For example, a 12-inch rise in sea level could cause 100-year high storm surges in the San Francisco Bay to increase 10-fold and become 10-year events.³³ Finally, the expected increase in ocean acidity resulting from atmospheric CO₂ concentration may be unprecedented over the last several hundred million years and could lower the survivability of numerous marine invertebrates.³⁴

Overall, biodiversity and species' distribution and production in coastal ecosystems are highly sensitive to variations in weather and climate.³⁵ Climatic impacts upon one or a few "leverage" species could alter an entire ecosystem.³⁶ Because California's species are vulnerable due to other stressors, protecting its

³⁰ See 2007 IPCC Report WG II at 92, 324; Harley et al. at 232; Wilkinson at 4-2-33.

³¹ See 2007 IPCC Report WG II at 328; Wilkinson at 4-2-25, 4-2-29.

³² Wilkinson at 4-2-33.

³³ *Id.* at 4-2-29, 4-2-33 (rising sea levels and increased storm frequency could also result in sewage treatment plant failures and coastal sewage spills).

³⁴ Harley et al. at 233; see 2007 IPCC Report WG II at 236.

³⁵ 2007 IPCC Report WG II at 335.

³⁶ Harley et al. at 234-35.

biodiversity from the effects of climate change is especially important.³⁷ Reduced biodiversity in marine and coastal habitats impairs the capacity of the ecosystems to provide food, maintain water quality, and recover from disturbances.³⁸ The threats to California's coast and ocean resources from GHGs and climate change support a waiver for California's GHG regulations.

III. EPA'S UNFOUNDED DENIAL OF CALIFORNIA'S WAIVER REQUEST UNDERMINES THE UNITED STATES' ETHICAL OBLIGATION TO REDUCE GREENHOUSE GAS EMISSIONS

Emissions from the U.S. have contributed substantially to the atmospheric accumulation of GHGs.³⁹ Because GHGs remain in the atmosphere for decades to centuries,⁴⁰ U.S. emissions will exacerbate climate change for a long time into the future. While the U.S. is already and will be increasingly harmed by climate change, poorer nations—including peoples who have done the least to contribute to this threat—will suffer the most. According to the IPCC, the poor, elderly, and economically disadvantaged are likely most vulnerable to the effects of climate

³⁷ Wilkinson at 4-1-11-12.

³⁸ See Boris Worm et al., *Impacts of Biodiversity Loss on Ocean Ecosystem Services*, 314 *Science* 787 (2006); 2007 IPCC Report WG II at 329.

³⁹ The U.S. has contributed more than any other nation to the accumulation of GHGs in the atmosphere. M. R. Raupach, et al., *Global and Regional Drivers of Accelerating CO₂ Emissions*, 104 *Proc. Nat'l Acad. Sci.* 10288 (published online May 27, 2007).

⁴⁰ T. S. Ledley, et al., *Climate Change and Greenhouse Gases*, 80 *EOS* 453 (Sept. 1999).

change.⁴¹ Less developed countries will have the least capacity to cope with the devastating impacts of extreme weather events, rise in sea level, drought, disruption of water and food supplies, impacts on health, and the destruction of natural resources. The disadvantaged may suffer disproportionately from the physical and economic harms caused by climate change.⁴² Accordingly, the U.S. has an ethical responsibility to do at least its share to reduce its emissions.

The U.S. has yet to make a national commitment to reduce its GHG emissions. EPA has refused to set federal standards for motor vehicle GHG emissions under the Clean Air Act. Although the Supreme Court held in April 2007 that the reasons asserted by EPA lacked legal support, *Massachusetts v. EPA*, 549 U.S. ___, 127 S.Ct. 1438 (2007), EPA has not yet proposed federal standards and in July 2008 indicated its reluctance to do so.⁴³

When the international community met in December 2007 to begin negotiating a successor agreement to the Kyoto Protocol, the United States sought to block a consensus statement. The delegate from Papua New Guinea broke the deadlock by telling the United States:

⁴¹ 2007 IPCC Synthesis Report, at 19 (Cambridge Univ. Press 2007).

⁴² 2007 IPCC Report WG II, at 8–22.

⁴³ Regulating Greenhouse Gas Emissions under the Clean Air Act, 73 Fed. Reg. 44,353 (July 30, 2008) (Advance Notice of Proposed Rulemaking).

[W]e ask for your leadership. But if for some reason you're not willing to lead, leave it to the rest of us. Please get out of the way.⁴⁴

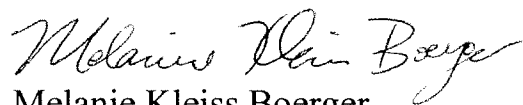
Similarly, EPA should “get out of the way” for California to reduce GHG emissions from mobile sources. Notwithstanding the nation’s role as a substantial emitter of GHGs, the U.S. has not acted domestically or internationally to reduce the nation’s enormous GHG emissions. Moreover, in this case, EPA affirmatively blocked California and numerous other states from implementing GHG emission standards. EPA’s decision contradicts the nation’s ethical obligation to reduce its emissions so as to minimize the damage from climate change to California in particular and to the entire world.

CONCLUSION

Amici respectfully request that this Court grant California’s petition, reverse EPA’s decision, and allow California to implement its emissions standards.

Dated: November 24, 2008

Respectfully submitted,



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⁴⁴ Andrew C. Revkin, *Issuing a Bold Challenge to the U.S. Over Climate*, N.Y. Times, Jan. 22, 2008, at F2.

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CERTIFICATE OF COMPLIANCE WITH RULE 32(a)

This brief complies with the type-volume limitation of Fed. R. App. P. 32(a)(7)(B) and this Court's order dated October 8, 2008, because this brief contains 3,748 words, excluding the parts of the brief exempted by Fed. R. App. P. 32(a)(7)(B)(iii).

This brief complies with the typeface requirements of Fed. R. App. P. 32(a)(5) and the type style requirements of Fed. R. App. P. 32(a)(6) because this brief has been prepared in a proportionally spaced typeface using Microsoft Word 2003 in Times New Roman 14-point font.


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CERTIFICATE OF SERVICE

I hereby certify that on November 24, 2008, I served the foregoing Joint *Amici Curiae* Brief of Climate Scientists, Monterey Bay Aquarium Foundation, and Jewish Organizations in Support of Petitioner State of California on the parties and other *amici curiae* through their attorneys of record, by mailing copies of them, first class, postage pre-paid, to the following addresses, or by email, where an email address is indicated.

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ADDENDUM: IDENTITIES OF INDIVIDUAL AMICI CURIAE

Amicus James Hansen, Ph.D., has been head of the National Aeronautics and Space Administration Goddard Institute for Space Studies since 1981. Dr. Hansen is also an Adjunct Professor of Earth and Environmental Sciences at Columbia University's Earth Institute. His research interests include radiative transfer in planetary atmospheres, development of global climate models, current climate trends from observational data, and projections of human impact on the climate. He is a member of the National Academy of Sciences (NAS) and has served on the NAS/National Research Council's Committee on Climate Change.¹ He also qualified as an expert in climatology, including on the subject of tipping point, in a case in which industrial plaintiffs challenged the State of Vermont's adoption of California's vehicle program at issue in this case. *See Green Mt. Chrysler Plymouth Dodge v. Crombie*, 508 F. Supp. 2d 295, 316–20 (D. Vt. 2007). The transcript of his court testimony is contained in the administrative record for this case. EPA-HQ-OAR-2006-0173-1498.1.

Amicus Mark Z. Jacobson, Ph.D., is a Professor of Civil & Environmental Engineering at Stanford University, in Stanford, California. He is Director and co-

¹ NAS is a private, nonprofit “society of distinguished scholars engaged in scientific and engineering research, dedicated to the furtherance of science and technology and to their use for the general welfare.”
http://www.nasonline.org/site/PageServer?pagename=ABOUT_main_page.

founder of the Atmosphere/Energy Program within the Department of Civil & Environmental Engineering. He is a Senior Fellow of the Woods Institute for the Environment at Stanford University. He is one of the leading scientists specializing in quantifying human health effects of CO₂ and constructing weather-climate models for investigating the effects of global climate change on urban air pollution. He is the author of two textbooks, including *Fundamentals of Atmospheric Modeling* (2d ed. Cambridge University Press 2005), and over seventy-five peer-reviewed journal articles. Most recently, he authored “On the Causal Link Between Carbon Dioxide and Air Pollution Mortality,” *Geophysical Research Letters*, Vol. 35 L03809, doi 10.1029/2007GL031101, 2008 (Feb. 12, 2008), showing that Californians die at a higher rate, compared to the national norm, from climate change-induced air pollution. In an earlier version of that paper, which is contained in the record for this case, Dr. Jacobson demonstrated that CO₂ exacerbates ozone pollution more in areas with an already severe ozone problem. See “On the causal link between carbon dioxide and air pollution mortality,” EPA-HQ-OAR-2006-0173-4409.1.

Amicus Michael Kleeman, Ph.D., is a Professor of Civil & Environmental Engineering at the University of California at Davis. He is currently a principal investigator for three projects funded by EPA and the California Air Resources Board studying the impacts of climate change in California. He is the author of

more than sixty papers on urban and regional air pollution problems, with a focus on ozone and airborne particle pollution problems in California. His work established that the Los Angeles and San Joaquin Valley regions are likely to experience a significant increase, between 18% and 60%, depending on the degree of warming due to climate change, in the number of days that are conducive to forming ozone greater than the California one-hour ozone standard of 0.09 parts per million, using current emissions as a reference point. Dr. Kleeman submitted to EPA a paper entitled, “Air Quality and Climate in California” (May 30, 2007), and testified before EPA in support of California’s waiver application. EPA-HQ-OAR-2006-0173-0421; EPA-HQ-OAR-2006-0173-0421.11.

Amicus Benjamin Santer, Ph.D., is a climate researcher at Lawrence Livermore National Laboratory, in its Program for Climate Model Diagnosis and Intercomparison. He specializes in analyzing climate data and identifying the causes of climate change. He pioneered the use of the “fingerprint” method to identify the effects of human-caused changes in GHGs and sulfate aerosol particles on observational surface temperature records. Fingerprint studies search for a model-predicted pattern of climate change (the “fingerprint”) in observational data. Fingerprint studies have greatly enhanced our ability to diagnose cause and effect relationships in the climate system. Through these studies, Dr. Santer showed that accurate model simulations of climate change require inclusion of the effects of

human activities. He is a co-author of Tim Barnett et al., *Human-Induced Changes in the Hydrology of the Western United States*, 319 *Science* 1080 (2008), which this brief cites. He was also the Convening Lead Author of Chapter 8 of the 1995 Intergovernmental Panel on Climate Change (IPCC) Working Group I Report. He has since contributed to the periodic IPCC reports. In 1998, the MacArthur Foundation awarded Dr. Santer a “genius” grant for research supporting the finding that human activity contributes to global warming. He is also a recipient of the Norbert Gerbier-Mumm Award from the World Meteorological Organization, the EO Lawrence Award from the U.S. Department of Energy, and a U.S. Department of Energy Distinguished Scientist Fellowship.

Amicus Stephen H. Schneider, Ph.D., is a Professor in the Departments of Biological Sciences, and, by courtesy, Civil and Environmental Engineering at Stanford University. He is a Senior Fellow of the Woods Institute for the Environment at Stanford University. He has served as a consultant to federal agencies and White House staff since the 1970s. In 1992, he was honored with a MacArthur Fellowship for his ability to disseminate information about global climate research through public lectures, classroom teaching, committee work, Congressional testimony, research collaboration with colleagues, and media appearances. He founded the interdisciplinary journal *Climate Change* and continues to serve as its editor. Dr. Schneider is also one of three Coordinating

Lead Authors of the chapter, “Assessing Key Vulnerabilities and the Risk from Climate Change,” in Working Group II’s contribution, “Impacts, Adaptation and Vulnerabilities,” for the 2007 IPCC report. Dr. Schneider submitted a paper entitled, “*The Unique Risks to California from Human-Induced Climate Change*” (May 22, 2007), to EPA and testified before EPA in support of California’s waiver application. EPA-HQ-OAR-2006-0173-0422 and -1260.

Amicus Monterey Bay Aquarium Foundation (“the Aquarium”) is a California non-profit 501(c)(3) public benefit corporation, founded in 1978. The Foundation opened the Monterey Bay Aquarium in 1984. As one of the nation’s premier aquariums, its mission is to inspire conservation of the oceans by educating Californians and visitors alike about coastal and marine habitats and by engaging in advocacy to promote sustainable ocean policies. In 2007, the Aquarium educated nearly 1.9 million visitors about the ocean. The Aquarium has never participated in environmental litigation before. The Aquarium joins this *amicus* brief in support of California’s petition because of the threat climate change poses to California’s valuable ocean resources.

Amicus American Jewish Committee (“AJC”) is a not-for-profit human relations organization founded in 1906. It has approximately 175,000 members and supporters, with chapters throughout the nation, including four in the State of California. Actions directed at mitigating climate change, such as those California

seeks to take in this case, advance AJC's interests in energy security and environmental protection.

AJC is the third largest nonprofit purchaser of green power in the country, and provides cash incentives encouraging its employees to purchase new fuel-efficient cars. For over three decades, AJC has been urging action at the local and national levels to develop policies aimed at a substantial reduction in U.S. dependence on imported oil, a resource that often originates from undemocratic and despotic regimes. AJC believes energy security is essential to the nation's economic and social well-being, to national security, and to the ongoing and future role of the U.S. in world affairs. Actions directed at mitigating climate change, such as California's GHG motor vehicle emission standards at issue in this case, are consistent with AJC's focus on energy security – by reducing our nation's utilization of foreign oil – and environmental protection.

Amicus Jewish Council for Public Affairs (“JCPA”) serves as the consensus voice of the organized Jewish community on matters of public affairs. Established in 1944, JCPA coordinates a network of 14 national and 125 local Jewish community relations organizations, including 10 in California. Since 1993, JCPA has sponsored the Coalition on the Environment and Jewish Life (“COEJL”), representing 29 national Jewish organizations spanning the full spectrum of Jewish religious and communal life, and serving as the voice of the organized Jewish

community on environmental issues. COEJL's Global Climate Change Campaigns educate the Jewish community about climate change, motivate individuals, families, and congregations to take steps to reduce GHG emissions, and advocate for policy changes to achieve a national commitment to stemming the threats of climate change.²

Amicus Jewish Reconstructionist Federation ("JRF") represents the Reconstructionist branch of Judaism. JRF is a New York not-for-profit corporation originally organized in 1955 with over 100 affiliates nationwide representing 17,000 households, including eight affiliates in California. JRF's Resolution on the Environment calls for international efforts to reduce GHG emissions. JRF sponsors both a Sustainable Synagogues Initiative and a Sustainable Communities Initiative, through which JRF congregations and individuals reduce their GHG emissions.³

Amicus Hadassah, the Women's Zionist Organization of America, Inc., founded in 1912, is the largest women's organization and the largest Jewish membership organization in the United States, with over 300,000 members nationwide. In addition to Hadassah's long-standing mission of supporting health care institutions in Israel, Hadassah has a proud history of advocating for the rights

² See COEJL, Global Climate Change Campaigns, <http://www.coejl.org/~coejlor/climatechange/index.php> (last visited Aug. 4, 2008).

³ See JRF, Environment, <http://www.jrf.org/climate> (last visited Aug. 4, 2008).

and interests of the Jewish community in the United States. Hadassah has long been committed to the development of a comprehensive national energy policy that decreases U.S. dependence on foreign sources of oil while advancing alternative energy solutions to protect the environment. Toward this end, Hadassah supports a strong program of energy conservation and restrictions on motor vehicle GHG emissions.

Amicus Union for Reform Judaism (“URJ”) is the congregational arm of the Reform Movement, which is the largest Jewish religious movement in North America. URJ encompasses more than 900 congregations, and has a stated commitment and various programs, through its Religious Action Center, to address climate change and energy independence.