

No. 12-1272

In The Supreme Court of the United States

CHAMBER OF COMMERCE OF THE UNITED
STATES OF AMERICA, ET AL.,

Petitioners,

v.

ENVIRONMENTAL PROTECTION AGENCY,
ET AL.,

Respondents.

**On Petition for a Writ of Certiorari
to the United States Court of Appeals for the
District of Columbia Circuit**

**BRIEF OF ECONOMISTS THOMAS C.
SCHELLING, VERNON L. SMITH, AND
ROBERT W. HAHN AS *AMICI CURIAE* IN
SUPPORT OF PETITIONERS**

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INTEREST OF *AMICI CURIAE*¹

Amici professors of economics Thomas C. Schelling, Vernon L. Smith, and Robert W. Hahn all have significant experience analyzing the costs, benefits and effects of regulation, including environmental regulation.

Thomas C. Schelling is a Distinguished University Professor Emeritus at the University of Maryland. Among the vast body of scholarly literature Professor Schelling has produced over more than sixty years, he has written extensively on environmental and energy regulation, including the regulation of greenhouse gas emissions. He was awarded the Nobel Prize in Economics in 2005.

Vernon L. Smith is the George L. Argyros Endowed Chair in Finance and Economics, Chapman University. His research over more than fifty years includes work on environmental economics and regulation. Among other highly regarded texts, he is the author of *Rationality in Economics*:

¹ No counsel for any party authored this brief in whole or in part, and no person or entity, other than the Judicial Education Project (an *amicus* party in this case) has made a monetary contribution intended to support the preparation or submission of this brief. *Amici* professors received no compensation for offering the views expressed in this brief. The Judicial Education Project expresses no opinion on the views reflected herein. Pursuant to this Court's Rule 37.2, counsel of record for all parties received timely notice of the intent to file this brief. While the vast majority of parties consented, several interested parties (noted in the motion for leave) did not respond.

Constructivist and Ecological Forms. He was awarded the Nobel Prize in Economics in 2002.

Robert W. Hahn is Director of Economics and Professor, Smith School of Enterprise and the Environment, University of Oxford. Professor Hahn's publications on regulation include *The Impact of Economics on Environmental Policy* and *Government Analysis of the Benefits and Costs of Regulation*.

The *amici* economics professors gratefully acknowledge a monetary contribution from the Judicial Education Project ("JEP") that enabled the preparation and printing of this brief. The views expressed in the brief are solely those of the *amici* economics professors. Those views should not be attributed to JEP, or to any institution with which the *amici* economics professors are now, or have in the past been, affiliated.

Amici are convinced that the challenged regulations are likely to produce unnecessary, and potentially substantial, costs on the public. Accordingly, we write in support of the Petitioners and respectfully suggest that the Court grant review.

To be sure, as economists, *amici* lack the expertise to assess the legal issues in the case. We do understand that the Environmental Protection Agency ("EPA") contends that the Clean Air Act and this Court's decision in *Massachusetts v. EPA*, 549 U.S. 497 (2007), *compelled* the programs at issue. If that is correct, proper resort may be to the Legislature, not to this Court. If, however, the regulations are not so compelled (as Petitioners contend), and if a proper disposition permits or requires a more comprehensive accounting and

precise consideration of the costs and/or benefits of the rules at issue, we believe there is a wide gulf between the proposed regulations and available, more sensible approaches to the issue the agency would like to address.

SUMMARY OF ARGUMENT

Economists who study the costs and benefits of environmental regulation typically begin by assessing whether the regulatory subject is best addressed by one of two potential modes (setting aside cases in which no regulation is necessary or appropriate): (i) “command-and-control” regulation, with governing rules set forth by a central authority; and (ii) “incentive-based” regulation, which is less prescriptive regarding the approaches firms and individuals may use to meet a given social objective. Over time, the majority of economists who analyze these questions have concluded that the second mode, based on incentives, best serves the interests of regulator and regulated alike, by enhancing the likelihood that regulatory goals will be achieved at the lowest cost to society.²

To address the issue of GHGs, however, EPA has selected the former mode, that of command-and-control. If implemented, this regulatory choice will

² This brief takes as an *assumption* that policymakers have elected to regulate greenhouse gases, and analyzes, based on that assumption, whether the mode of regulation chosen by EPA is superior versus an incentive-based system. We do not suggest that any one mode of regulation is superior to another in all cases.

impose substantial, yet avoidable, costs on society, while reducing the potential that the problem identified will be resolved.

Specifically, in the wake of this Court's decision in *Massachusetts v. EPA*, 549 U.S. 497 (2007), EPA first found—pursuant to Section 202(a)(1) of the Clean Air Act, 42 U.S.C. § 7521(a)(1)—that CO₂ and other GHGs may “cause, or contribute to, air pollution which may reasonably be anticipated to endanger public health or welfare.” See *Endangerment and Cause or Contribute Findings for Greenhouse Gases Under Section 202(a) of the Clean Air Act*, 74 Fed. Reg. 66,496 (Dec. 15, 2009). EPA then proposed and subsequently finalized a series of substantive regulations, among them: a “Tailpipe Rule,” which imposes stringent emissions standards for new motor vehicles; a “Triggering Rule,” which stated that the Tailpipe Rule's regulation of motor vehicle emissions triggered stationary source regulations under the Act's PSD and Title V provisions; and a “Tailoring Rule,” which will govern the application of the Clean Air Act's PSD and Title V stationary source permitting programs to GHG emitters and emissions. See *Light-Duty Vehicle Greenhouse Gas Emission Standards and Corporate Average Fuel Economy Standards; Final Rule*, 75 Fed. Reg. 25,324 (May 7, 2010) (Tailpipe Rule); *EPA, Reconsideration of Interpretation of Regulations That Determine Pollutants Covered by Clean Air Act Permitting Programs; Final Rule*, 75 Fed. Reg. 17,004 (Apr. 2, 2010) (Triggering Rule); *Prevention of Significant Deterioration and Title V Greenhouse Gas Tailoring Rule*, 75 Fed. Reg. 31,514 (June 3, 2010) (Tailoring Rule).

The Tailpipe Rule is a classic example of command-and-control regulation; it imposes performance standards on automobile manufacturers. The Tailoring Rule is a second example; it imposes technology standards (*i.e.*, installation of the “best available control technology,” or BACT), on stationary sources of GHG emissions. *See* 42 U.S.C. § 7479(1).

These types of command-and-control mechanisms were standard features of early environmental and health and safety statutes (like the Clean Air Act, enacted in 1970 and amended in relevant part here in 1977). Since the 1970’s, however, economists and policy analysts, following a long period of “blackboard” analysis and careful empirical studies, found that command-and-control regulation often yields disappointing results that are unduly costly. Indeed, in a notoriously contentious profession, that finding has held up strikingly well. Economists now overwhelmingly agree that well-designed incentive-based systems, either in the form of taxes or transferable property rights (*e.g.*, “cap and trade” or carbon taxes) tend to produce better outcomes at far lower cost. *See, e.g.*, Arthur C. Pigou, *Economics of Welfare* (1920), and J.H. Dales, *Pollution, Property, and Prices* (1968). Some of the reasons are briefly summarized below.

To be sure, this consensus position does not cover every environmental problem. For example, incentive-based regulatory systems may be ineffective in dealing with highly concentrated, *localized* pollution or other unwanted externalities; in such “hot spots,” only a direct control (perhaps up

to an outright ban) may be appropriate. But the limited exceptions to the general proposition that incentive-based regulation dominates command-and-control regulation in environmental matters do not apply here.

Indeed, if *any* problem is well-suited to using market-based environmental approaches, it is the control of CO₂ for addressing climate change. That is because, as EPA acknowledges, GHGs are “sufficiently long-lived in the atmosphere” that “they become ‘well-mixed,’” and “essentially uniform.” See U.S. Env'tl. Prot. Agency, EPA-HQ-OAR-2009-0171, Response to Public Comments No. 10: Endangerment and Cause or Contribute Findings for Greenhouse Gases Under Section 202(a) of the Clean Air Act (2009). Put another way, emissions *anywhere* affect GHG concentrations *everywhere*. Because the harms they cause are unrelated to local conditions, each ton of emissions has approximately the same impact regardless of the location of its source. Under the circumstances, a market-based approach to emissions control is preferred.

A leading textbook, originally written for law students by then-Professor Breyer, concisely summarizes some of the major reasons:

All serious proposals for a regulatory regime to reduce [GHG] emissions ... would rely on either a carbon tax or a cap and trade regime ... [T]he benefits of economic incentives are especially salient here: The costs of reduction vary enormously, and therefore the savings to be had from getting reductions from those able to do so least expensively are likewise

enormous ... At the same time, perhaps the most significant problem with economic incentives—the danger of “hot spots”—does not arise because GHGs are “perfectly mixed” pollutants; where they are emitted simply [does] not matter.

Stephen G. Breyer et al., *Administrative Law and Regulatory Policy* 293 (7th ed. 2011).³

Notwithstanding this modern, and largely settled, understanding regarding the economics of GHG regulation, we understand that absent the Court’s intervention the regulatory process will proceed and generate a complex, highly prescriptive command-and-control regime. This brief highlights why the mismatch between the problem identified and solution proposed is likely to impose significant, yet avoidable costs on the public without attendant benefits.

³ Observation of the mismatch between climate change problems and command-and-control measures is not limited to economists and policy experts. To our knowledge, no legislature in the world has seriously contemplated a large command-and-control system for regulating GHGs. In fact, then-EPA Administrator Lisa Jackson stated in 2010 that “the *best* way to address” GHG emissions “is through a gradual move to a *market-based program* like cap and trade.” *The President’s Proposed EPA Budget For FY 2010 Before The S. Comm. On Env’t & Public Works*, 111th Cong. (2009) (statement of Lisa Jackson, Administrator, Environmental Protection Agency)(emphasis added).

ARGUMENT

In Part I below, we describe the command-and-control nature of the challenged programs, and the special problems they may give rise to with respect to controlling emissions of GHGs. In Part II, we explain why GHG problems are better addressed using incentive-based regulation. We conclude by respectfully suggesting that the Court, if it agrees that economic analysis is germane to determining the legality of the challenged measures, consider that there are more effective, lower costs regulatory options available to EPA than the regime chosen.

I. The Contemplated Regime For The Regulation Of Stationary GHG Emissions Is Economically Inefficient.

The Tailpipe and Tailoring Rules constitute command-and-control regulation of a sweeping nature. Economic theory suggests that the measures are likely to impose outsized costs on society.

A. EPA Has Imposed A Command-and-Control Approach For Regulating Greenhouse Gases.

We understand that EPA has not yet implemented its regulatory program, and aspects of each regulation remain in development. Nonetheless, we are able to offer certain observations based on prior analysis, and what is known about the program presently. Scholars have studied extensively the existing PSD program, and other programs using command-and-control approaches to environmental regulation. Insights gleaned from this work cast light on what a GHG regulatory program might look like.

EPA has also offered guidance on how the proposed regime is intended to operate. *See* PSD and Title V Permitting Guidance for Greenhouse Gases, EPA-457/B-11/001, (March 2011) (“Permitting Guidance”), <http://www.epa.gov/nsr/ghgdocs/ghgpermittingguidance.pdf>. At its core, the Regime’s stationary source aspects would impose “best available control technology” (BACT) standards by means of the statutory permitting process. We understand that, in the ordinary case, once a major source has become subject to PSD, the source must apply BACT, demonstrate compliance with air quality related values and PSD increments, address impacts on special Class I areas (for example, national parks), and assess impacts on soils, vegetation, and visibility. *Id.* at 6. Nonetheless, we understand that EPA expects to eliminate the impact on soils, vegetation, and visibility as well as on special Class I areas for GHG emissions because with current technology, these measurements for GHGs are not feasible. *Id.* at 48. Hence, emission levels with BACT will be the EPA’s primary assessment tool for GHGs.

Furthermore, we understand EPA plans to use the same BACT determination method for GHGs as for other pollutants. Under that plan, the permitting authority determines the emissions limitation based on the maximum degree of emissions reduction possible when BACT is employed at that source. This includes a five-step process for determining the BACT for a given source: (i) the identification of all control technologies; (ii) the elimination of technically infeasible options; (iii) the ranking of remaining technologies in descending order of effectiveness; (iv)

the evaluation of the most effective controls; and (v) the selection of the BACT.⁴

The process described above constitutes classic command-and-control regulation. The regulator leaves the regulated entity with relatively little scope for how to comply with a regulation.

B. The Contemplated Regime Is Unprecedented, Sweeping, And Costly.

An economic assessment of the impact of the GHG rules must take account of the rules' *scope*. EPA's permitting guidance document explains that the intended approach will impact how energy consumption is regulated, manufacturing processes are regulated, and permits are evaluated and awarded. As this guidance makes clear, the command-and-control approach is far-reaching.

Indeed, the new regulations appear to sweep new categories of equipment, facilities, manufacturing methods, and emission types into the regulatory mix. In each case, expansion of the regulatory regime imposes significant costs that should be considered.

In particular, we understand that under current EPA rules, permitting authorities may consider source-wide energy efficiency strategies throughout an entire production process or multiple processes. *See Permitting Guidance*, at 23. As contemplated by

⁴ Under step four, the permit applicant must demonstrate that technical considerations, or energy, environmental, or economic impacts make a technology not achievable. Absent such a showing, the most effective alternative would be selected.

the GHG rules, BACT will apply to more pieces of equipment than with traditional emissions.

We also understand that the new regime will allow EPA to regulate energy consumption in a large number of facilities, and that many aspects of a facility's manufacturing methods are subject to change. The expansion, therefore, of the PSD program for GHG emissions will increase the costs for permitting authorities in determining the proper level of emissions and application of BACT. Permitting itself is made more costly through new substantive and procedural requirements.

Moreover, for GHGs, permitting authorities will assess how reducing GHG emissions at the facility will affect the demand for energy from the electrical grid and offsite emissions as well. *See* Permitting Guidance, at 24. In fact, EPA intends to rely increasingly on energy efficiency determinations in regulating GHG emissions. *Id.* at 29. This constitutes a significant change from the existing regime for conventional pollutants, for which EPA has interpreted the BACT requirements as *not* applying to *secondary* emissions that occur as a result of the construction or operation of the source but come from offsite locations. *Id.* at 24.

The combination of source-wide regulation, energy efficiency determinations, and the consideration of offsite emissions significantly increases the scope of EPA regulation beyond the parameters within which the PSD program was designed. The impact of the new regime will grow accordingly.

II. Incentive-Based Regulation Is A Superior Method For Regulating Greenhouse Gases.

Command-and-control regulation may be sensible in some settings—for example, in dealing with acute local pollution problems. Concerns of this sort may help to explain the command-and-control mechanisms of the original Clean Air Act, which addressed local, rather than transboundary (let alone global) pollution problems. *See* Thomas Merrill, “Golden Rules for Transboundary Air Pollution,” 46 *Duke L. J.* 931 (1997).

For GHG regulation, however, such reservations have no place. In that context, the economist’s critique of command-and-control regulation applies with full, unqualified force.

A. Incentive-Based Approaches Are Often Preferable To Command-And-Control Approaches For General Air Pollution Problems.

The pathologies of command-and-control regulation and especially of technology standards are described in many economic textbooks, with only minor variations. Five shortcomings receive consistent mention.⁵

⁵ Our exposition here follows Bruce A. Ackerman & Richard B. Stewart, “Reforming Environmental Law: The Democratic Case for Economic Incentives,” 13 *Colum. J. Envtl. L.* 171 (1988). In addition to its concise exposition, the article was written principally about air pollution controls, but before global warming became a prominent concern—dispelling any notion that that such concern drives its analysis.

First, uniform BACT requirements ignore variations among regulated entities in their costs of reducing pollution. This wastes “many billions of dollars annually” compared with incentive-based approaches for environmental protection. Ackerman, 13 Colum. J. Env'tl. L. at 173.⁶

Second, BACT requirements impose higher regulatory burdens on new products and processes, discourage new investment, and penalize growth. Higher environmental standards are imposed on new products and processes, in part, because there is “no risk of shutdown.” *Id.* New investment is discouraged because of uncertainty associated with “length regulatory proceedings to win approval.” *Id.* Economic growth is reduced because disproportionate burdens are imposed on “more productive and profitable industries.” *Id.* at 174.

Third, BACT requirements “do not provide strong incentives for the development of new, environmentally superior strategies and may actually discourage their development.” *Id.* These innovations are essential for long-run economic growth. As we note, below, such innovation is particularly important for addressing the challenge of reducing GHG emissions.

Fourth, BACT regulations require “centralized, uniform determination of complex scientific, engineering and economic issues involving the feasibility of controls on hundreds of thousands of

⁶ Ackerman and Stewart use the term “BAT,” but we understand that BAT and BACT may be used interchangeably.

pollution sources.” *Id.* The information burdens on administrators are substantial. Furthermore, the high costs of control make it more attractive for industry to litigate and attempt to delay regulation.

Fifth, a BACT “strategy is inconsistent with intelligent priority setting.” *Id.* Agencies have limited resources. Given the “very large administrative and compliance costs” *Id.* at 175, associated with BACT, “agencies will seek to limit the number of substances on the agenda for regulatory action.” *Id.*

B. The Unique Characteristics of GHGs Exacerbate the Problems of Command-and-Control Regulation.

We argued in the preceding section that, for at least five reasons, incentive-based regulation was preferred to command-and-control regulation for a large array of air pollution problems. In this section we explain that incentive-based regulation is especially attractive in the case of limiting GHG emissions, for at least four reasons.

First, in the case of GHGs, it is likely that a (substantially) larger number of sources will need to be controlled. Accordingly, there will be an increase in administrative costs of writing and implementing BACT regulations that could be avoided with incentive-based regulation.

Second, as the number of sources to be regulated grows larger, the variation in the costs of control (versus most conventional pollution problems) broadens. This suggests that the cost savings in moving from a command-and-control regulation could be substantial, and greater than for many

conventional air pollution problems. These savings are likely to be especially large when regulators (as is the case for BACT standards for stationary sources of GHGs), are not designing regulations to get the most bang for the buck, but instead are instructed to regulate “to the hilt.” Ackerman, 13 Colum. J. Envtl. L. at 174.

Third, the inherent *uncertainty* in both costs and benefits associated with GHG reductions favors incentive-based regulation over command-and-control. Uncertainty—as to costs *and* benefits—increases the difficulty for regulators seeking to judge whether a policy gives rise to net benefits to society. At a minimum, the use of a well-designed market-based approach reduces the likelihood that a particular targeted emissions reduction in GHGs will fail a benefit-cost test. This flows from the fact that while any *benefits* from such a targeted emission reduction would be the same under both an incentive-based approach and the command-and-control approach, *costs* are likely to be far lower under the incentive-based approach.

Finally, the nature of climate change as a *political* (and not simply environmental, or economic) issue suggests that substantial reductions in control costs over time will be required to make GHG reductions politically acceptable. Such cost innovations are much more likely to occur with a well-designed market-based approach than with the BACT approach, in light of the profit incentives inherent to well-designed market-based measures. *See* Ackerman, 13 Colum. J. Envtl. L. at 181.

C. The Incremental Approach Adopted By EPA Is Likely To Be Problematic.

There is nothing wrong *in principle* with piecemeal regulation. A well-designed incentive-based system may well have that feature, as when a carbon tax is phased in to avoid shocks to the economy, and to examine and learn from the effects over time. For any such incremental approach, however, the first step must be a *reasonable* step. We are concerned that the approach taken by EPA may be unreasonable.

Consider the case of automobile regulation. This represents a case of sector-specific regulation. Ideally, one would want emission reductions to be achieved (first) by industries and firms that can do so at the least cost. The point of a broad-based incentive-based system is to force the trade-offs and to incentivize lowest-cost reductions across firms and industries. A single-industry performance standard, by definition, cannot accomplish that objective, and will be unnecessarily costly. Yet that is precisely what EPA seeks to impose.⁷

⁷ EPA's "tailored" PSD program raises additional economic issues. Unlike the Tailpipe Rule, it envisions the imposition of technology controls for a new set of pollutants in a wide range of industries and, eventually, for facilities that have never been subject to Clean Air Act permitting requirements. Moreover, the PSD program is not meant to address the key issue of keeping economic costs as low as possible, which should be central to an overarching policy for limiting GHG emissions.

CONCLUSION

The measures challenged, however well-meaning, are unsound economically when compared with measures that would be designed to maximize social welfare. While the issue of global warming may be the subject of some controversy, economic analysis attendant to the regulation of GHGs is not. Accordingly, we respectfully suggest that the Court grant the petition and apply settled economic analysis to the legal issues presented to the extent permissible under law.

Respectfully submitted,

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