No. 25-170

IN THE

Supreme Court of the United States

SUNCOR ENERGY (U.S.A.) INC., *et al.*,

Petitioners,

v.

COUNTY COMMISSIONERS OF BOULDER COUNTY, *et al.*,

Respondents.

On Writ of Certiorari
to the Supreme Court of Colorado

BRIEF OF CLIMATE ECONOMISTS AS *AMICI CURIAE* IN SUPPORT OF RESPONDENTS

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INTEREST OF *AMICI CURIAE*[1]

Amici curiae are **Lawrence H. Goulder**, Shuzo Nishihara Professor in Environmental and Resource Economics (Emeritus) at Stanford University; **Vijayendra Rao**, Roberta Buffett Distinguished Scholar-Practitioner in Residence at Northwestern University; and **Gernot Wagner**, climate economist at Columbia Business School and faculty director of its Climate Knowledge Initiative.

Amici are economists whose research addresses environmental economics, climate policy, and economic development. They have published extensively on the theory of externalities, the design and evaluation of policy instruments to address the impacts of externalities, and the economics of institutions and public action.

Amici submit this brief in support of Respondents to address the discrete economic premise advanced by Petitioners and other *amici* that allowing damages liability in this setting would impose destabilizing costs on the energy sector and the national economy. *Amici*'s interest is to ensure that the Court's consideration of that premise proceeds from an

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[1] Pursuant to Supreme Court Rule 37.6, *amici curiae* state that no counsel for any party authored this brief in whole or in part, and that no entity or person other than *amici curiae* or their counsel made any monetary contribution toward the preparation and submission of this brief.

accurate understanding of the economic concepts the parties and other *amici* invoke. The legal questions before the Court—whether federal law precludes Respondents' state-law claims, and whether this Court possesses statutory and Article III jurisdiction—turn on materials outside *amici*'s professional expertise. This brief instead provides foundational economic information relevant to the arguments advanced in the case: the nature of externalities, the role of tort liability among the instruments used to address them, the status of climate change as an unpriced externality, and the economic costs of internalizing it.

SUMMARY OF ARGUMENT

Externalities arise when some or all of the costs of an activity fall on parties outside the transactions that generate it. They are a well-established source of market inefficiency, recognized in economics for over a century. When neither producers nor consumers bear the full social cost of a product, the resulting externalities and their associated harms exceed the economically efficient level. Economists have long identified a standard toolkit for correcting this failure, including corrective taxes, tradable permits, regulation, and liability for damages. Tort law predates the formal economic identification of the concept of externalities and remains one of the oldest instruments through which legal systems require those who cause harm to bear its cost.

Climate change is a well-documented example of an externality not fully borne by the producers and

consumers who contribute to it. Anthropogenic greenhouse gases in the atmosphere impose costs, through effects on health, agriculture, property, and infrastructure, that are borne globally and across generations. The federal government's most recent comprehensive assessment, conducted by the Environmental Protection Agency in 2023 under procedures recommended by the National Academies of Sciences, Engineering, and Medicine, estimated this cost at $120 (at a near-term market interest rate of 2.5 percent) to $340 (1.5 percent) per metric ton of carbon dioxide released in 2020. Environmental Protection Agency, *Report on the Social Cost of Greenhouse Gases: Estimates Incorporating Recent Scientific Advances* 2, 4 (2023).[2] Today, the vast majority of climate change-causing activities in the United States are not priced to reflect these costs.

Finally, the economic evidence does not support the claim that internalizing the climate externality through damages liability would destabilize the American economy. That conclusion follows from three related points. Oil and gas companies support measures that would internalize costs, and they have adopted policies that anticipate such measures in the future. Because compensatory damages are necessarily limited to responding only to measurable and provable harms, they are minimal relative to the revenues of the Petitioners and to national output. And

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[2] Available at: https://www.epa.gov/system/files/documents/2023-12/epa_scghg_2023_report_final.pdf.

perhaps most crucially, in the limiting case in which every jurisdiction required producers to bear the full social cost of carbon, the peer-reviewed modeling literature finds aggregate effects on economic output that are modest: reductions in the growth rate measured in fractions of a percentage point, within an economy that continues to grow substantially in every modeled scenario. This stands in contrast to the economic effects of unabated climate change itself, which models show would have a negative impact.

ARGUMENT

A. EXTERNALITIES ARE A WELL-RECOGNIZED SOURCE OF MARKET INEFFICIENCY, AND LIABILITY FOR DAMAGES IS A LONGSTANDING INSTRUMENT FOR CORRECTING THEM

An externality is a cost or benefit of an activity that falls on parties who are not participants in the transactions generating that activity. The concept is among the oldest and least controversial in economics. Arthur Pigou formalized it more than a century ago, observing that when private and social costs diverge, market prices transmit inaccurate signals and resources are misallocated. A. C. Pigou, *The Economics of Welfare* (1920).[3] A factory that emits smoke without bearing the cost of soiled laundry and impaired health in the surrounding neighborhood will produce more

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[3] Available at: https://oll.libertyfund.org/titles/pigou-the-economics-of-welfare.

smoke, and more of the underlying product, than an accounting of all costs would justify.

It is well-settled that externalities cause market inefficiencies. The First Fundamental Theorem of Welfare Economics, which states that competitive markets allocate resources efficiently, expressly assumes the absence of externalities. *See, e.g.*, Robert A. Becker, *Fundamental Theorems of Welfare Economics in Infinite Dimensional Commodity Spaces in Equilibrium Theory in Infinite Dimensional Spaces* 124 (M. Ali Khan & Nicholas C. Yannelis, eds., Springer-Verlag Berlin Heidelberg GmbH, 1991)[4]; J.-J. Laffont, *Externalities in Allocation, Information and Markets* 112 (John Eatwell, Murray Milgate & Peter Newman, eds., Palgrave Macmillan, 1989).[5] When that assumption fails, markets fail with it, and there is no presumption that the resulting allocation of resources is efficient. This is a statement about the logic of markets rather than a policy preference; it is taught in every introductory economics course and disputed by no serious school of economic thought.

The same basic economic logic underlies the principal instruments economists recognize for restoring the alignment between private and social costs. Each shifts costs back to producers and consumers, thereby reducing the burden associated with

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[4] Available at: https://link.springer.com/chapter/10.1007/978-3-662-07071-0_5.

[5] Available at: https://link.springer.com/chapter/10.1007/978-1-349-20215-7_11.

externalities that third parties would otherwise bear. Corrective taxes set a per-unit charge equal to marginal external damage, raising the internal price of the harmful activity and discouraging overproduction. Chris Lane and Amanda Glassman, *Corrective Taxes to Save Lives*, Center for Global Development, Nov. 17, 2021, https://www.cgdev.org/blog/corrective-taxes-save-lives. Cap-and-trade systems fix the aggregate quantity of the harmful activity, such as emissions, and let markets set the price for allowances within that cap. *How cap and trade works*, Environmental Defense Fund, Jan. 22, 2020, https://www.edf.org/climate/how-cap-and-trade-works. This limits total externalities through the cap while encouraging efficient allocation of abatement among producers. Command-and-control regulation prescribes technologies or performance standards, requiring producers to invest in reduction of externalities and thereby raising internal costs. *Command-and-Control Regulation* in Principles of Economics (Rice University, 2016), https://pressbooks-dev.oer.hawaii.edu/principlesofeconomics/chapter/12-2-command-and-control-regulation/. Tort liability follows the same logic. It requires those who cause harm to compensate those who suffer it; as Judge Guido Calabresi's foundational work recognized, tort liability can best be understood as a mechanism for placing the costs of harmful activity on the parties best positioned to weigh those costs against the benefits of the activity. Guido Calabresi, *The Costs of Accidents* (1970); *see also* Ronald Coase, *The Problem of Social Cost*, 3 J.L. & Econ. 1 (1960).

Tort liability is therefore not an economic outlier. Economists recognize that the expectation of tort liability operates as a cost for a producer whose activity creates an externality. Daniel P. Kessler, *The Economic Effects of the Liability System*, Hoover Institution, June 1, 1999, https://www.hoover.org/research/economic-effects-liability-system. A producer facing the prospect of a damages award equal to the harm its activity causes will incorporate that expected liability into its costs the same way it incorporates the price of labor or raw materials. Legal systems have long relied on liability to achieve this effect. *See William Aldred's Case*, 9 Co. Rep. 57b, 77 Eng. Rep. 816 (K.B. 1611) (holding that odors from a neighbor's pigsty constituted an actionable nuisance). Nuisance, trespass, and related doctrines have for centuries performed the function that economists later described analytically: requiring polluters, in appropriate circumstances, to bear costs they would otherwise impose on neighbors. Which institutions may deploy this instrument, and under what circumstances, are policy and legal questions on which *amici* take no position.

B. CLIMATE CHANGE IS A WELL-DOCUMENTED EXAMPLE OF AN UNPRICED EXTERNALITY

Impacts from greenhouse gas emissions fit the textbook definition of an externality. Carbon dioxide mixes uniformly in the atmosphere, so effects from local activities are spread across the globe and persist for centuries. *See, e.g.*, *Understanding the basics of*

carbon dioxide, NOAA Research, June 28, 2024.[6] Producers capture the full benefits of the activities that generate these effects while bearing only a vanishing fraction of their costs. Those costs are extensively documented in the scientific and economic literature: heat-related mortality and morbidity, reduced agricultural yields, sea-level rise and coastal damage, increased wildfire and extreme-weather losses, and expenditures on adaptation by households and governments. Environmental Protection Agency, *Report on the Social Cost of Greenhouse Gases: Estimates Incorporating Recent Scientific Advances* 52, 87 (2023). Monetarily, these externalities are reflected in increased consumer prices, costs of government responses to climate disasters, costs of local governmental initiatives to address the effects, and projected losses to local economies. *See, e.g.*, Kimberly A. Clausing, et al., *How much is climate change costing US households?* Brookings, Oct. 23, 2025;[7] *Billion-Dollar Weather and Climate Disasters*, National Centers for Environmental Information, 2025;[8] Susan Crawford & Daevan Mangalmurti, *Managing Climate*

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[6] Available at: https://research.noaa.gov/understanding-the-basics-of-carbon-dioxide/.

[7] Available at: https://www.brookings.edu/articles/how-much-is-climate-change-costing-us-households/.

[8] Available at: https://www.ncei.noaa.gov/access/billions/.

Risk: Implications for Local Governments, Carnegie Endowment for International Peace, Aug. 20, 2025.[9]

Economists summarize these costs in a single metric, the social cost of carbon (SCC). The SCC is defined as the monetized value of the net harm to society from adding one additional metric ton of carbon dioxide to the atmosphere in a given year. *See, e.g.*, *The Social Cost of Greenhouse Gases (Carbon Dioxide, Methane, Nitrous Oxide)*, Harvard Law School Environmental & Energy Law Program, Jan. 30, 2026.[10] The SCC has been developed through over four decades of peer-reviewed research and was used in federal regulatory analysis systematically from 2010 until President Donald Trump issued Executive Order 14154 in January 2025, which eliminated such calculations from federal permitting or regulatory decisions. *See* Howard Shelanski, *Refining Estimates of the Social Cost of Carbon*, The White House: President Barack Obama, Nov. 1, 2013, https://obamawhitehouse.archives.gov/blog/2013/11/01/refining-estimates-social-cost-carbon; *EPA Announces Action to Address Costly Obama, Biden "Climate" Measurements (Social Cost of Carbon)*, Environmental Protection Agency, Mar. 12, 2025, https://www.epa.gov/newsreleases/epa-announces-action-address-costly-obama-biden-climate-

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[9] Available at: https://carnegieendowment.org/research/2025/08/managing-climate-risk-implications-for-local-governments.

[10] Available at: https://eelp.law.harvard.edu/tracker/the-social-cost-of-carbon/.

measurements-social-cost; Exec. Order 14154, 90 Federal Register 8353 (2025).

However, the analysis produced shortly before Executive Order 14154 offers guidance on recent and accepted SCC estimates. In November 2023, the Environmental Protection Agency issued its most recent comprehensive estimates, following recommendations of the National Academies of Sciences, Engineering, and Medicine and external peer review. That assessment placed the social cost of a metric ton of carbon dioxide released in 2020 at $120, $190, or $340, depending on the discount rate applied to future damages (2.5, 2.0, and 1.5 percent, respectively), with the $190 figure serving as the central estimate. Environmental Protection Agency, *Report on the Social Cost of Greenhouse Gases: Estimates Incorporating Recent Scientific Advances* 4 (2023). Other more recent examples from experts, such as one from December 2024, place the mean cost at $283 per ton for 2020. Frances C. Moore, et al., *Synthesis of evidence yields high social cost of carbon due to structural model variation and uncertainties*, Proceedings of the National Academy of Sciences (2024).[11]

Amici do not suggest or ask the Court to adopt any particular value for the social cost of carbon, nor do they endorse the estimates mentioned for carbon prices or proxy pricing. Administrations and experts differ in the estimates they employ for such

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[11] Available at: https://www.pnas.org/doi/epub/10.1073/pnas.2410733121.

calculations. That uncertainty, however, does not affect the economic point relevant here. The damages from greenhouse gases are real economic costs, measurable within recognized bounds of uncertainty, and large in aggregate. Without a price, tax, or liability corresponding to these costs, the wedge between the private cost and the social cost of fossil fuel energy is, from an economic standpoint, a subsidy conferred by the absence of internalization, with the difference borne by third parties, including local governments that fund adaptation and disaster response.

C. INTERNALIZING THE CLIMATE EXTERNALITY WOULD NOT DESTABILIZE THE UNITED STATES ECONOMY

Parties and *amici* in climate litigation, including certain *amici* in support of Petitioners here, frequently assert that permitting damages claims of the kind at issue here would impose ruinous costs on the energy sector and, by extension, the national economy. *See, e.g.,* Brief for the Petitioners, *Suncor Energy (U.S.A.) Inc. v. County Commissioners of Boulder County* (2026) (No. 25-170); Brief of Washington Legal Foundation, et al. as *Amici Curiae* Supporting Petitioners, *Suncor Energy (U.S.A.) Inc. v. County Commissioners of Boulder County* (2026) (No. 25-170); Brief of Amicus Curiae Professor Jason Johnson in Support of Petitioners, *Suncor Energy (U.S.A.) Inc. v. County Commissioners of Boulder County* (2026) (No. 25-170); Amicus Curiae Brief of the Buckeye Institute in Support of Petitioners, *Suncor Energy (U.S.A.) Inc.*

v. County Commissioners of Boulder County (2026) (No. 25-170).

The industry trends and economic modeling do not support the conclusion that disruption of that magnitude would occur. The point is not that internalization is costless; it is that the evidence does not support the leap from internalization to economic destabilization. First, oil and gas companies themselves support carbon pricing as a way to internalize SCC costs. Second, even absent that measure at the federal level in the United States, such companies have accounted for anticipated SCC internalizations in their investment pricing. Finally, models show minor overall impact of internalized SCC on the U.S. economy, and that the benefits in terms of avoided climate damages significantly outweigh the costs.

1. Oil and Gas Companies Support Other Efforts to Internalize the Social Cost of Carbon, Indicating Those Efforts Are Economically Viable

As discussed in Part A, liability is one of several instruments through which producers can internalize the costs of externalities, but there are other options as well. In the oil and gas sector, one widely discussed option is "carbon pricing," *i.e.*, a fee or tax on emissions—a policy adopted by most advanced economies (but not the U.S.). Ellen Chang & James Stock, *The future of carbon pricing in the U.S.*, Harvard Business

School, Dec. 10, 2024.[12] Industry participants and experts are widely aligned in their support of such measures, indicating that they view these costs as economically manageable. For example, supporters include the Climate Leadership Council (CLC), a United States-based coalition of environmental organizations, bipartisan "opinion leaders," and companies such as Shell Oil Company, TotalEnergies, and ConocoPhillips, *Our History,* Climate Leadership Council, https://clcouncil.org/about/our-history/ (last visited July 31, 2026); *Partners*, Climate Leadership Council, https://clcouncil.org/about/partners/ (last visited July 29, 2026).[13] The CLC credited the carbon tax as "the most cost-effective lever to reduce carbon emissions at the scale and speed that is necessary," therefore "correcting a well-known market failure." *Economists'*

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[12] Available at: https://www.hbs.edu/bigs/the-future-of-carbon-pricing-in-the-us.

[13] ExxonMobil was also a founding member, but was suspended in 2021 over an Exxon lobbyist's comments indicating the company wasn't fully dedicated to carbon pricing. Exxon suspended from climate advocacy group it helped form, *Reuters*, Aug. 6, 2021, https://www.reuters.com/business/exxon-suspended-climate-advocacy-group-it-helped-form-2021-08-06. An Exxon spokesman said the suspension would "in no way deter our efforts to advance carbon pricing that we believe is a critical policy requirement to tackle climate change." *Exxon Mobil suspended from the Climate Leadership Council, following secret Greenpeace recording*, Washington Post, Aug. 6, 2021, https://www.washingtonpost.com/business/economy/exxon-mobil-suspended-from-the-climate-leadership-council-following-secret-greenpeace-recording/2021/08/06/2db6da3e-f6a6-11eb-9068-bf463c8c74de_story.html.

Statement on Carbon Dividends, Climate Leadership Council (Jan. 17, 2019), https://clcouncil.org/economists-statement/. Among the Four Pillars of its carbon dividends plan, the CLC includes a carbon fee, with net proceeds "returned to the American people." *The Four Pillars of Our Carbon Dividends Plan*, Climate Leadership Council, (Sept. 2019), https://clcouncil.org/archive/our-plan/. Specifically, it recommends a $40 per ton fee on emissions starting in 2017, which would then increase every year at five percent above inflation. *The Four Pillars of Our Carbon Dividends Plan*, Climate Leadership Council, (Sept. 2019), https://clcouncil.org/archive/our-plan/.

In 2021, Petitioner ExxonMobil likewise voiced support for the American Petroleum Institute's steps to put a price on carbon:

> An explicit price on carbon would be transparent, incentivize behavior to reduce emissions, allow the market to function efficiently, and stimulate the cross-sector opportunities needed to uncover the largest emission reduction opportunities at the lowest cost.

Darren W. Woods, *Why ExxonMobil supports carbon pricing,* ExxonMobil (Mar. 29, 2021), https://corporate.exxonmobil.com/news/viewpoints/supports-carbon-pricing.

2. Oil and Gas Companies' Policies Anticipate Internalized Costs, Indicating They Are Prepared for Internalized Costs

Even in the absence of federal carbon pricing in the United States, oil and gas companies have anticipated an increase in internalized costs in the future, again showing that the industry is prepared for and can withstand liability. Oil and gas companies have adopted "proxy" or "shadow" pricing, meaning they have built expected future costs into their assessments, such as for potential investments. Vanora Bennett, *What is shadow carbon pricing?* European Bank for Reconstruction and Development, https://www.ebrd.com/home/news-and-events/news/2019/what-is-shadow-carbon-pricing.html. Indeed, as the Supreme Court of New York recognized, in the mid-2010s Petitioner ExxonMobil used an $80 per ton proxy carbon cost, which was meant to incorporate the potential impacts of climate policies:

> The evidence adduced at trial, including the testimony of former ExxonMobil CEO Rex Tillerson, confirmed that for planning and budgeting purposes, ExxonMobil incorporates proxy costs with its assessment of future energy demand, and the proxy cost is therefore embedded in the price bases that are used to evaluate new investment opportunities.

People v. Exxon Mobil Corp., 119 N.Y.S.3d 829, 2019 NY Slip Op 51990(U), at *12 (N.Y. Sup. Ct. 2019).

ExxonMobil confirmed this in its 2026 report on "climate solutions," stating that it uses "various tools and assumptions, including a proxy cost of carbon." ExxonMobil, *Advancing Climate Solutions* 35 (2026).[14] For "advanced economies," greenhouse gas emissions prices were set at $9 to $150 per metric ton for the period of 2025 through 2050. ExxonMobil, *Advancing Climate Solutions* 35 (2026). For the period between 2025 and 2030, the pricing was based on "currently stated existing or anticipated policies," while the pricing for 2030 through 2050 "reflect[ed] presumed regional policies for both advanced and emerging economies." ExxonMobil, *Advancing Climate Solutions* 35 (2026).

Likewise, in a 2014 report from Carbon Disclosure Project, Suncor, parent company of Petitioners Suncor Energy (U.S.A.) Inc. and Suncor Energy Sales Inc., was reported to use "a shadow carbon price that is significantly above current regulatory costs and applies a stress test to that price." Carbon Disclosure Project, *Global corporate use of carbon pricing: Disclosures to investors* 41 (2014).[15] In its 2025 Annual Information Form, Suncor noted:

> As part of its ongoing business planning, Suncor estimates future costs associated with

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[14] Available at: https://corporate.exxonmobil.com/-/media/global/files/advancing-climate-solutions/2026/2026-advancing-climate-solutions-report.pdf.

[15] Available at: https://eco-financas.org.br/wp-content/uploads/2014/09/global-price-on-carbon-report-2014.pdf.

> [greenhouse gas, or GHG] emissions in its operations and in the evaluation of future projects. These estimates use the company's outlook for the carbon price under current and pending GHG regulations, and under various plausible scenarios, to test the company's business strategy against a range of policy designs.

Suncor, *Annual Information Form* 31 (2026).[16]

Crucially, the use of these proxy costs means that ExxonMobil and Suncor continue to make investments even after accounting for anticipated carbon costs; the adjusted pricing is not sufficient to dissuade them from pursuing projects, let alone to meaningfully affect corporate profitability. This is not, of course, dispositive on the effects of tort liability. But it is probative of the central economic point: the industry already treats carbon costs of similar magnitude as manageable business inputs rather than existential threats. Damages awards would presumably alter company behavior only if they were significantly higher than the amounts already considered in shadow pricing—and there is no reason to expect that outcome in this litigation.

3. Liability Amounts Will Not Be Sufficiently Large to Negatively Affect the U.S.

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[16] Available at: https://www.suncor.com/-/media/project/suncor/files/investor-centre/annual-report-2025/2025-aif-en.pdf?modified=20260226213040&created=20260225170203.

Economy, Whereas Unabated Climate Change Would Have a Notable Negative Impact

Respondents seek compensatory damages only for their share of local costs of climate adaptation and response. Viewed from a broader economic standpoint, conceivable awards would be negligible relative to the revenues of Petitioners, which are measured in billions of dollars annually.[17] The comparison to carbon pricing reinforces the point. Tort liability would internalize far fewer costs than comprehensive carbon pricing because it applies only where emissions cause measurable and provable harm, and only where plaintiffs are willing and able to initiate costly and often prolonged litigation. By contrast, the CLC's approach of using carbon fees aims at "a net-zero future," *Our Approach*, Climate Leadership Council (last visited July 29, 2026), https://clcouncil.org/archive/our-approach/, meaning that comprehensive pricing would internalize far greater costs than tort liability alone could ever produce.

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[17] Suncor reported $5.9 billion net earnings in 2025. Suncor, *2025 Annual Report* 12 (2026), https://www.suncor.com/-/media/project/suncor/files/investor-centre/annual-report-2025/2025-annual-report-en.pdf?modified=20260226213013&created=20260225170203. ExxonMobil reported $28.8 billion earnings in 2025. ExxonMobil, *2025 Annual Report* 1 (2026), https://investor.exxonmobil.com/sec-filings/annual-reports/content/0001193125-26-147617/0001193125-26-147617.pdf.

A damages award also differs from an economy-wide loss. In the first instance, it is a transfer from the defendant to the plaintiff, not a destruction of productive capacity. Its broader economic effects operate prospectively through the incentives that expected liability creates. Furthermore, those prospective economic effects do not exist in a vacuum. Consistent with the social costs of carbon discussed in Part B, unabated climate change itself would have a negative economic impact. *See, e.g.,* William Nordhaus & Lint Barrage, *Policies, projections, and the social cost of carbon: Results from the DICE-2023 model*, 121:13 Proceedings of the National Academy of Sciences (2024). Actions undertaken in response to expected liability that would serve to mitigate climate change would also help mitigate climate change's negative economic effects.

The economic viability of damages awards holds even under a far more aggressive internalization scenario. If liability, taxation, and regulation combined to confront every producer with the full social cost of carbon, that scenario would far exceed any outcome available in this litigation. Yet even then, the evidence does not show catastrophic economic effects. The macroeconomic consequences of carbon pricing at this scale have been studied intensively, including in multi-model comparison exercises such as the Stanford Energy Modeling Forum, in analyses by the Congressional Budget Office, and in the integrated assessment literature associated with the Nobel-recognized work of William Nordhaus. *See, e.g.,* John Weyant, *EMF36: Carbon Pricing After Paris (CarPri)*, Stanford

Engineering Energy Modeling Forum [18]; Congressional Budget Office, *Effects of a Carbon Tax on the Economy and the Environment* (2013) [19]; William Nordhaus & Lint Barrage, *Policies, projections, and the social cost of carbon: Results from the DICE-2023 model*, 121:13 Proceedings of the National Academy of Sciences (2024).[20]

The consistent finding is that economy-wide carbon prices reduce the growth of gross domestic product by fractions of a percentage point per year relative to baseline. For example, an Energy Modeling Forum study gathered eleven modeling teams to run stylized scenarios, looking at "how environmental and economic outcomes depend on the initial carbon tax rates, the rate at which the tax escalates, and how the government uses the revenue collected by the carbon tax." James R. McFarland, et al., *Overview of the EMF 32 Study on U.S. Carbon Tax Scenarios*, 9:1 Climate Change Economics (2018).[21] The study found:

> The most important takeaway from this figure is that in every policy scenario, in every model, the U.S. economy continues to grow at or near

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[18] Available at: https://emf.stanford.edu/emf-36-carbon-pricing-after-paris-carpri.

[19] Available at: https://www.cbo.gov/publication/44223.

[20] Available at: https://economics.yale.edu/sites/default/files/2024-03/barrage-nordhaus-2024-policies-projections-and-the-social-cost-of-carbon-results-from-the-dice-2023-model.pdf.

[21] Available at: https://pmc.ncbi.nlm.nih.gov/articles/PMC6913042/.

> its long-term average baseline rate, deviating from reference growth by no more than about 0.1% points. We find robust evidence that even the most ambitious carbon tax is consistent with long-term positive economic growth, near baseline rates, not even counting the growth benefits of a less-disrupted climate or lower ambient air pollution.

James R. McFarland, et al., *Overview of the EMF 32 Study on U.S. Carbon Tax Scenarios*, 9:1 Climate Change Economics (2018).

Rather than producing substantial effects on the economy as a whole, carbon pricing shifts investment and consumption within the energy sector, including toward renewable energy sources and technologies. James R. McFarland, et al., *Overview of the EMF 32 Study on U.S. Carbon Tax Scenarios*, 9:1 Climate Change Economics (2018). This is unsurprising as a matter of accounting, since fossil fuel extraction and refining constitute a low single-digit share of national output. *Value added by Industry as a Percentage of Gross Domestic Product*, U.S. Bureau of Economic Analysis, last visited July 29, 2026 (showing mining overall as consistently under 1.5 percent of the share of the overall GDP from 2024 to present).[22]

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[22] Available at: https://apps.bea.gov/iTable/?reqid=1603&step=2&Categories=GDPxInd&isURI=1&_gl=1*18yr04m*_ga*MTczNjYyMTM

Meanwhile, the estimated external damages, while large in absolute terms, are modest relative to an over $30 trillion economy. *GDP Update*, United States Congress Joint Economic Committee (last visited Aug. 1, 2026), https://www.jec.senate.gov/public/index.cfm/republicans/gdp-update (showing a $32.475 trillion GDP as of July 30, 2026).

This evidence again underscores why the economic analysis cannot consider internalization costs in isolation. As discussed above, climate change itself would have a negative overall effect on the economy if left unabated:

> The updated results imply a 1.6% GDP-equivalent loss at 3 °C warming over preindustrial temperatures, up from 1.2% in the review for DICE-2016. It is important to note that surveyed studies generally omit many climate change impact channels, such as biodiversity loss, ocean acidification, extreme events, and social unrest.

William Nordhaus & Lint Barrage, *Policies, projections, and the social cost of carbon: Results from the*

5Ni4xNzg1Mjc5MDY2*_ga_J4698JNNFT*czE3ODUy-NzkwNjYkbzEkZzEkdDE3ODUyODAx-MzEkajU1JGwwJGgw#eyJhcHBpZCI6MTYwMywic3RlcHMi-OlsxLDIsNF0sImRhdGEiOlt-bImNhdGVnb3JpZXMiLCJHRFB4SW5kIl0sWyJU-YWJsZV9MaXN0IiwiVFZBMTEwIl1dfQ==.

DICE-2023 model, 121:13 Proceedings of the National Academy of Sciences (2024).

Of course, climate change and global warming come from many sources beyond oil and gas companies. However, arguments that reject internalization of externalities based on feared harm to the overall U.S. economy fail to account for the countervailing economic harm that climate change itself inflicts when costs remain externalized. The relevant economic comparison is therefore not between liability and a cost-free baseline; it is between internalization and continued externalization of climate-related harms.

Amici emphasize what these findings do and do not establish. They do not establish that internalization is costless. A price of $190 per ton is economically meaningful, particularly for emissions-intensive sectors. Nor do the findings speak to which level of government, or which institution, should administer internalization; that allocation is a legal and constitutional question outside *amici*'s expertise. What the findings establish is a bound on the stakes. Arguments premised on the claim that recognizing liability of this kind would destabilize national energy markets or the broader economy assert an empirical proposition, and that proposition is inconsistent with the peer-reviewed evidence on the economic effects of pricing carbon, even at levels of internalization far beyond anything this case could produce. Finally, even if policymakers conclude that some reallocation is

warranted, the economic effects of liability are gradual and bounded—leaving ample room for legislative adjustment. The ramifications of liability will not be so catastrophic as to prevent such a deliberative process.

CONCLUSION

Amici respectfully submit this brief to assist the Court. The questions presented are legal, and economics does not answer them. The Court's resolution of those questions should proceed, however, from an accurate account of the underlying economics: externalities are a standard market failure, liability is a standard corrective instrument, climate change is a substantially unpriced externality, and the aggregate economic effects of internalizing it are bounded and modest, particularly when compared with the costs of leaving climate harms externalized.

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