Comment to the Environmental Protection Agency

Proposed Rule: Performance Standards and Emission Guidelines for Greenhouse Gas Emissions From New, Modified, Reconstructed, and Existing Fossil Fuel-Fired Electric Generating Units

Benjamin Zycher*
Senior Fellow, American Enterprise Institute
August 8, 2023

Docket EPA-HQ-OAR-2023-0072
RIN 2060-AV09

Submitted through the federalregister.gov portal at
https://www.federalregister.gov/documents/2023/05/23/2023-10141/new-source-performance-standards-for-greenhouse-gas-emissions-from-new-modified-and-reconstructed#open-comment

This comment is submitted to the Environmental Protection Agency on its proposed rule on performance standards and emission guidelines for greenhouse gas emissions from fossil fuel-fired electric generating units.[1] At the most general level, the proposed rule is fatally flawed, and should not be finalized. This comment is organized as follows:

* Senior fellow, American Enterprise Institute. The views expressed are solely those of the author.
[1] The proposed rule is at https://www.govinfo.gov/content/pkg/FR-2023-05-23/pdf/2023-10141.pdf.

Summary

The asserted climate "benefits" of the proposed rule are an illusion; under the explicit EPA assumptions and estimates as published, the temperature effect of the proposed rule would be 0.001°C to 0.0016°C by 2050, and less than 0.003°C to 0.023°C by 2100. Because the standard deviation of the surface temperature record is 0.11°C, those effects would not be detectable. Accordingly, the present value of the monetized climate benefits of the proposed rule, asserted by EPA at $30 billion, also is an illusion.

EPA attempts to circumvent this obvious problem by substituting in place of any such analysis an application of the "social cost of carbon" to the asserted reductions in GHG emissions attendant upon implementation of the proposed rule, as estimated on an interim basis by the Biden Administration Interagency Working Group. The interim IWG estimates are deeply flawed, in that they (1) distort the actual economic growth predictions produced by the integrated assessment models, (2) base predictions of future climate phenomena on climate models that cannot predict the past or the present, (3) incorporate "co-benefits" in the form of a reduction in the emissions of other criteria and hazardous air pollutants already regulated under different provisions of the Clean Air Act, (4) incorporate the asserted benefits of GHG reductions on a global basis, and (5) employ discount rates that are inconsistent and inappropriate.

The EPA application of discount rates is incorrect because the regulatory reallocation of resources in pursuit of increased economic efficiency is an investment, the opportunity cost of which is the marginal social return to investment. The common argument that a low discount rate is needed to further the goal of intergenerational equity is not correct. Future generations prefer to receive a bequest of an aggregate capital stock both natural and manmade more- rather than less valuable, an objective that requires efficient resource allocation by the current generation, and therefore the application of the correct discount rate.

The proposed rule establishes a carbon capture and sequestration requirement of 90 percent by 2035, but none of the notional CCS projects cited in the proposed rule has achieved that standard. That there is no such commercial CCS plant in the U.S., and only one internationally, demonstrates that CCS technology has not been adequately demonstrated.

EPA asserts that "The increasing concentrations of GHGs in the atmosphere are, and have been, warming the planet, resulting in serious and life-threatening environmental and human health impacts. The increased concentrations of GHGs in the atmosphere and the resulting warming have led to more frequent and more intense heat waves and extreme weather events, rising sea levels, and retreating snow and ice, all of which are occurring at a pace and scale that threatens human welfare."

Those assertions are not supported by the evidence. There is no evidence of a climate "threat" or "crisis" in terms of temperature trends, polar sea ice, tornadoes, tropical cyclones, wildfires, drought, flooding, or ocean alkalinity. The Intergovernmental Panel on Climate Change is deeply dubious about the various severe effects often asserted as prospective impacts of increasing atmospheric concentrations of GHG. Moreover, NASA reports significant planetary greening as a result of increasing atmospheric concentrations of carbon dioxide, and data from the

United Nations Food and Agriculture Organization show that global per capita food production increased 46 percent between 1961 and 2020, and 20 percent for 2000-2020.

The "crisis" narrative is derived wholly from climate models that cannot predict the actual temperature record. In particular, the suite of climate models underlying the IPCC 5th and 6th Assessment Reports overstate the mid-troposphere temperature record by factors of about 2.5. Moreover, the models are fine-tuned in such a way as to deny the importance of natural influences on climate phenomena, but that is inconsistent with a large body of evidence, in particular the substantial warming observed from 1910 to 1945, and the close correlation between the satellite temperature record and the El Niño/Southern Oscillation.

The "environmental justice" concept is too narrow. Environmental quality is one component of "health" broadly defined, and it is clear from the scholarly literature that "health" is a "normal" good, that is, one the consumption of which rises with income or wealth. This is true for individuals and for economies as a whole. Lower-income individuals and households, precisely because their incomes are lower, consume less environmental quality, lower-quality diets, *ad infinitum*. Therefore, it is unsurprising that lower-income individuals and households tend to be located in areas with lower environmental quality; that is what they can afford. This is a reality regardless of the impacts of differences in environmental quality on "health," that is, mortality and morbidity. More broadly, EPA fails to define the "environmental justice" concept, undoubtedly because it is wholly subjective, and thus not measurable in any "objective" sense, leaving the definitions to the imaginations of the regulatory agencies. Nor does EPA explain why we should expect regulatory policies to advance such goals however defined, and the same is true for the longstanding problem traditionally described as the equity/efficiency tradeoff.

The proposed rule is fatally flawed, and should not be finalized.

I. The Purported Climate Benefits of the Proposed Rule Are Illusory and the Social Cost of Carbon Parameter Is Fundamentally Flawed

EPA asserts in the proposed rule that it would yield reductions in carbon dioxide emissions as follows in metric tons: 10 million in 2028, 89 million in 2030, 37 million in 2035, and 24 million in 2040.[2] Let us assume for simplicity a reduction in GHG emissions in carbon dioxide equivalents of 100 million tons per year through 2050.

U.S. emissions of GHG in 2021 were about 6.3 billion metric tons on a CO_2-equivalent basis.[3] In the absence of other policy-driven reductions in GHG emissions, the annual reduction of 100 million tons would be about 1.6 percent. If we apply the EPA climate model in order to estimate the prospective temperature effect, under assumptions that exaggerate the future temperature impacts of emissions cuts, the temperature reduction in 2050 would be 0.001°C. The

[2] See the proposed rule at Table 7, p. 33409.

[3] See https://www.epa.gov/ghgemissions/inventory-us-greenhouse-gas-emissions-and-sinks#:~:text=In%202021%2C%20U.S.%20greenhouse%20gas,sequestration%20from%20the%20land%20sector. U.S. GHG emissions in 2005 on a CO_2-equivalent basis were about 7.5 billion metric tons; see Table ES-2 at https://www.epa.gov/system/files/documents/2023-04/US-GHG-Inventory-2023-Chapter-Executive-Summary.pdf.

effect by 2100 would be less than 0.003°C.[4] Because the standard deviation of the surface temperature record is 0.11°C, those effects would not be detectable.[5]

The Biden administration policy goal Is net-zero emissions by 2050.[6] Again applying the EPA climate model that policy would yield a global temperature reduction of 0.062°C by 2050, and 0.173°C by 2100. The cumulative reduction in U.S. emissions under the net-zero policy, from 6.3 billion metric tons in 2021 to net zero by 2050, would total about 88.2 billion metric tons. For the 2028-2050 time period assumed here relevant in the proposed rule, the cumulative reduction at 100 million tons per year 2.3 billion tons, a cumulative emissions reduction equal to about 2.6 percent of the total envisioned in the Biden net-zero policy, which as just noted, would yield a reduction in global temperatures of 0.173°C by 2100. A linearity assumption is not strictly correct, but it is wholly appropriate for purposes of close approximation. The "climate benefit" of the proposed rule, under the explicit EPA assumptions and estimates, would be about 0.0016°C by 2050, and 0.023°C by 2100. Those effects again would not be detectable.

Accordingly, the present value of the monetized climate benefits of the proposed rule, asserted by EPA at $30 billion, is an illusion.[7] EPA attempts to circumvent this obvious problem by substituting in place of any such analysis an application of the "social cost of carbon" (SC-GHG) to the asserted reductions in GHG emissions attendant upon implementation of the proposed rule, as estimated on an interim basis by the Biden Administration Interagency Working Group.[8]

> We estimate the climate benefits from these proposed rules using estimates of the social cost of greenhouse gases (SC– GHG), specifically the SC–CO2. The SC– CO2 is the monetary value of the net harm to society associated with a marginal increase in CO2 emissions in a given year, or the benefit of avoiding that increase. In principle, SC–CO2 includes the value of all climate change impacts (both negative and positive), including (but not limited to) changes in net agricultural productivity, human health effects, property damage from increased flood risk natural disasters, disruption of energy systems, risk of conflict, environmental migration, and the value of ecosystem services. The SC–CO2, therefore, reflects the societal value of reducing emissions of the gas in question by one metric ton and is the theoretically appropriate value to use in conducting benefit-cost analyses of policies that affect CO2 emissions.[9]

The interim IWG estimates are deeply flawed, in that they (1) distort the actual economic growth predictions produced by the integrated assessment models, (2) base predictions of future

---

[4] Author computations using Model for the Assessment of Greenhouse Gas Induced Climate Change (MAGICC), version 7.0, at https://magicc.org/. Assumes equilibrium sensitivity of the climate system at 4.5°, with global baseline emissions path A1B from the IPCC 4th Assessment Report. A1B is an emissions path somewhat higher than Representative Concentration Pathway 6.

[5] See https://agupubs.onlinelibrary.wiley.com/doi/pdf/10.1029/1999JD900835.

[6] See https://www.whitehouse.gov/briefing-room/statements-releases/2023/04/20/fact-sheet-president-biden-to-catalyze-global-climate-action-through-the-major-economies-forum-on-energy-and-climate/#:~:text=President%20Biden%20has%20set%20an,by%20no%20later%20than%202050.

[7] See Table 10 at p. 33416.

[8] See the proposed rule at p. 33411. The interim estimates are at https://www.whitehouse.gov/wp-content/uploads/2021/02/TechnicalSupportDocument_SocialCostofCarbonMethaneNitrousOxide.pdf.

[9] See the proposed rule at p. 33411.

climate phenomena on climate models that cannot predict the past or the present, (3) incorporate "co-benefits" in the form of a reduction in the emissions of other criteria and hazardous air pollutants already regulated under different provisions of the Clean Air Act, (4) incorporate the asserted benefits of GHG reductions on a global basis, and (5) employ discount rates that are inconsistent and inappropriate.[10]

The available analysis suggests that the prospective economic growth risks of anthropogenic climate change, at least in the aggregate, are much smaller than many assert. Consider the predictions from the integrated assessment models, a central one of which is the Dynamic Integrated Climate and Economy Model, for which William D. Nordhaus won the Nobel Prize in Economics in 2018.[11] Under DICE, global gross domestic product (GDP) in 2100 varies by about 3 percent across policy scenarios, including no climate policies at all, a figure that is both very small and almost certainly not statistically significant given the vagaries of economic forecasting and the number of years remaining before the end of this century. (I exclude here Nordhaus' "Stern discounting" policy scenario, as it assumes a discount rate effectively equal to zero, a fundamental analytic error.[12]) Per capita consumption varies only by about 1.3 percent across policy scenarios, also a very small number and almost certain not to be statistically significant.

The IPCC — even in its most alarmist analyses — arrives at a conclusion very close to that reported in the DICE analysis. In its "1.5 Degree C" report, it finds that the damage from anthropogenic climate change unmitigated by policy initiatives will reduce global GDP by 2.6 percent by 2100.[13] By that year, IPCC projects that individual incomes on average will be at least 400 percent greater than is the case today.[14]

The interim estimates of the SCC are driven by damage functions predicted by the various climate models — the EPA model in particular — the track records of which are poor.[15] McKitrick

---

[10] See Benjamin Zycher at https://scholarship.law.tamu.edu/cgi/viewcontent.cgi?article=1154&context=lawreview. The issue of discount rates is addressed in section IV.

[11] See William Nordhaus and Paul Sztorc, "DICE 2013R: Introduction and User's Manual," Yale University, Department of Economics, October 2013, Figure 4 and Table 1, http://www.econ.yale.edu/~nordhaus/homepage/homepage/documents/DICE_Manual_100413r1.pdf. See also Benjamin Zycher, "The Climate Left Attacks Nobel Laureate Willian D. Nordhaus," monograph, American Enterprise Institute, July 2020, at https://www.aei.org/wp-content/uploads/2020/07/The-Climate-Left-Attacks-Nobel-Laureate-William-D.-Nordhaus.pdf.

[12] See Nicholas Stern, *The Economics of Climate Change: The Stern Review* (Cambridge, UK: Cambridge University Press, January 2007), https://www.cambridge.org/us/academic/subjects/earth-and-environmental-science/climatology-and-climate-change/economics-climate-change-stern-review?format=PB. On the contrast between the climate predictions made by the Stern model and the actual record, see https://rogerpielkejr.substack.com/p/off-target-an-evaluation-of-the-stern?utm_source=substack&publication_id=119454&post_id=104480671&utm_medium=email&utm_content=share&triggerShare=true&isFreemail=true. See also David Kreutzer, "Discounting Climate Costs," Heritage Foundation, June 16, 2016, at https://www.heritage.org/environment/report/discounting-climate-costs.

[13] See Marco Bindi, *et. al.*, "Impacts of 1.5°C of Global Warming on Natural and Human Systems," at https://www.ipcc.ch/site/assets/uploads/sites/2/2019/06/SR15_Chapter3_Low_Res.pdf, Chapter 3 of Valerie Masson-Delmotte, *et. al.*, eds., IPCC Special Report, *Global Warming of 1.5°C*, at https://www.ipcc.ch/site/assets/uploads/sites/2/2019/06/SR15_Full_Report_High_Res.pdf.

[14] This implies average annual growth in per capita GDP of less than 1.5 percent for the rest of this century.

[15] The specifics of the CMIP5 and CMIP6 models, respectively, can be found at https://pcmdi.llnl.gov/mips/cmip5/ and https://pcmdi.llnl.gov/CMIP6/.

and Christy summarize the contrast between their predictions and the actual satellite record as follows:

> The tendency of climate models to overstate warming in the tropical troposphere has long been noted. Here we examine individual runs from 38 newly released Coupled Model Intercomparison Project Version 6 (CMIP6) models and show that the warm bias is now observable globally as well. We compare CMIP6 runs against observational series drawn from satellites, weather balloons, and reanalysis products. We focus on the 1979–2014 interval, the maximum span for which all observational products are available and for which models were run using historically observed forcings. For lower-troposphere and midtroposphere layers both globally and in the tropics, all 38 models overpredict warming in every target observational analog, in most cases significantly so, and the average differences between models and observations are statistically significant. We present evidence that consistency with observed warming would require lower model Equilibrium Climate Sensitivity (ECS) values.[16]

Because no policy to reduce GHG emissions can satisfy any plausible benefit/cost test — their attendant future climate effects for the most part would approach zero — federal agencies often have included purported "co-benefits," that is, the benefits of reductions in other pollutants, as factors to be considered in the evaluation of proposed regulations and projects. This is particularly the case for the asserted health benefits of reductions in the emissions of fine particulates (PM2.5).[17] Like many of the other pollutants included in the co-benefits methodology, fine particulates are a "criteria" pollutant,[18] as distinct from "hazardous air pollutants (HAP)." EPA already limits ambient levels of PM2.5 in a separate regulation, and is required under the CAA to determine every five years whether that standard "accurately reflects the latest scientific knowledge" on the health effects of exposure to particulates.[19]

The Clean Air Act explicitly requires the EPA, upon finding that a given criteria pollutant endangers the public health, to promulgate a "national ambient air quality standard" (NAAQS) that "protects the public health" with "an adequate margin of safety."[20] The CAA also empowers

---

[16] See https://agupubs.onlinelibrary.wiley.com/doi/full/10.1029/2020EA001281.

[17] In the proposed rule, emissions of other pollutants are subsumed under "health benefits." The EPA discussion of particulate matter regulatory actions is at https://www.epa.gov/pm-pollution/particulate-matter-pm-implementation-regulatory-actions. For sharp critiques of the EPA analysis of the mortality and morbidity effects of fine particulate matter, see https://www.regulations.gov/document/EPA-HQ-OAR-2015-0072-0260 and https://www.sciencedirect.com/science/article/abs/pii/S0273230017301538. See also https://junkscience.com/2023/06/milloy-sets-off-greens-responds-to-politifact-inquiry-on-wildfire-smoke/#more-108474.

[18] See the EPA summary discussion at https://www.epa.gov/criteria-air-pollutants.

[19] See the EPA requirements for fine particulates at https://www.epa.gov/pm-pollution/implementation-national-ambient-air-quality-standards-naaqs-fine-particulate-matter. The CAA sections are at https://www.epa.gov/clean-air-act-overview/clean-air-act-title-i-air-pollution-prevention-and-control-parts-through-d#ia.

[20] See §7409 (b)(1), "National primary and secondary ambient air quality standards" at https://www.govinfo.gov/content/pkg/USCODE-2013-title42/html/USCODE-2013-title42-chap85-subchapI-partA-sec7409.htm.

the EPA to regulate emissions of HAP. The law mandates that costs not be considered in the establishment of the NAAQS; this means that those standards are likely to be too stringent in a benefit/cost sense. Lowering the emissions of those pollutants even more through insertion of a co-benefits calculation in a new regulation aimed at an entirely different type of emission means that the excess net costs of the regulation are likely to be driven up even more.

OMB Circular A-4 directs federal agencies conducting benefit/cost analysis of regulatory measures as follows: "Your analysis should focus on benefits and costs that accrue to citizens and residents of the United States. Where you choose to evaluate a regulation that is likely to have effects beyond the borders of the United States, these effects should be reported separately."[21] The IWG analysis incorporates explicitly in its benefit/cost calculation the purported global climate benefits from reductions in U.S. GHG emissions, presumably on the grounds that the assumed GHG externality is global in nature.

This argument is fundamentally flawed, in substantial part because the global climate effect of *all* U.S. GHG emissions is very close to zero, as discussed above. Accordingly, the global "benefits" of U.S. GHG emissions reductions would be effectively zero. Neither the IWG nor EPA can dispute this because it is the EPA climate model used directly or indirectly through the IAMs applied to the analysis of the SCC. More generally, it is the EPA climate model that is used throughout the federal government for analysis of climate and energy policies.[22]

Furthermore, the inclusion of purported global benefits in the benefit/cost analysis of U.S. GHG policies would create a very large distortion in terms of an efficient international adoption of climate policies. An efficient promulgation of climate policies internationally would attempt to achieve both an equation of the global marginal benefits and costs of GHG emission reductions, *and* an allocation of emissions reductions that equates the marginal cost of such reductions across economies. If the U.S. is to promulgate domestic policies that equate domestic marginal costs with global marginal benefits, then other countries would have powerful incentives to obtain free rides on U.S. efforts. Given that the marginal cost function for reductions in GHG emissions almost certainly is upward sloping — the marginal cost of GHG reductions rises as such reductions increase — the outcome would be a global effort to reduce GHG emissions more costly than an international effort equating marginal costs across economies.[23] That is the central implication of the imperative incorporated in the IWG analysis of the SCC: Under any assumption about the global benefits of reduced GHG emissions, that cannot be an efficient outcome unless the U.S. is the low-cost source of *all reductions* in GHG emissions, an assumption that simply is not plausible.

II. Observations on Discount Rates and the Interests of Future Generations

With respect to the issue of the choice among discount rates, "climate policy" by definition

[21] See OMB Circular A-4, "Regulatory Analysis," September 17, 2003, at https://obamawhitehouse.archives.gov/omb/circulars_a004_a-4/.

[22] See, e.g., Environmental Protection Agency and Department of Transportation, National Highway Traffic Safety Administration proposed rule, "Greenhouse Gas Emissions and Fuel Efficiency Standards for Medium- and Heavy-Duty Engines and Vehicles — Phase 2," July 12, 2015, at https://www.regulations.gov/document/EPA-HQ-OAR-2014-0827-0002.

[23] This is true whether the marginal cost functions across economies are identical or differ, although the latter is far more plausible.

is the allocation of resources away from current consumption and from productive activities that yield consumption goods during the current time period, in favor of a reduction in GHG emissions/concentrations that purportedly would increase the production of consumption goods during some series of future time periods. That is why EPA asserts that the proposed rule would yield positive net benefits in present value terms, that is, increase the present value of the consumption stream. Accordingly, that use of resources during the current time period — again, by definition — is an investment, and it must be evaluated in comparison with the social return to alternative investments.

Therefore, it is the opportunity of cost of capital that is the appropriate discount rate to be applied to the evaluation of the proposed rule, because the allocation — the investment — of resources to such endeavors imposes an opportunity cost in the form of other forgone investments. Because the use of scarce resources for reductions in GHG emissions is an investment, whether promising returns low or high, the appropriate discount rate is the opportunity cost of capital for the economy as a whole. For the period 1928-2020, the average annual before-tax return to investment in the Standard and Poor 500, in real (inflation-adjusted) terms was 8.5 percent.[24] For the period 1960-2020, the figure was 7.61 percent. Such long-run historical figures are consistent with the directive in OMB Circular A-4 that a discount rate of 7 percent be the baseline parameter applied to regulatory analysis by the federal government.

EPA in previous analyses has justified a "consumption rate of interest" defined alternatively at 2.5 percent, 3 percent, or 5 percent, as follows.[25]

> Second, the IWG found that the use of the social rate of return on capital (7 percent under current OMB Circular A-4 guidance) to discount the future benefits of reducing GHG emissions inappropriately underestimates the impacts of climate change for the purposes of estimating the SC-GHG. Consistent with the findings of the National Academies and the economic literature, the IWG continued to conclude that the consumption rate of interest is the theoretically appropriate discount rate in an intergenerational context… and recommended that discount rate uncertainty and relevant aspects of intergenerational ethical considerations be accounted for in selecting future discount rates. As a member of the IWG involved in the development of the February 2021 TSD, EPA agrees with this assessment and will continue to follow developments in the literature pertaining to this issue.

That analytic argument is fundamentally flawed. First: The "consumption rate of interest" is not the correct conceptual discount rate for analysis of the proposed rule because the use of resources for purposes of reductions in GHG emissions is obviously an investment, the opportunity cost of which is the marginal social return to investment. Even if we assume that the "consumption rate of interest" conceptually is the correct parameter for discounting purposes, the relevant metric is the real market rate of interest on intertemporal consumption shifts, one crude measure of which is the market rate of interest on unsecured consumer loans. Even given the recent years of low

---

[24] The data on annual returns for several investment alternatives are reported by the Stern School of Management, New York University, at http://www.stern.nyu.edu/~adamodar/pc/datasets/histretSP.xls.

[S] See the regulatory impact analysis for https://www.govinfo.gov/content/pkg/FR-2021-08-10/pdf/2021-16582.pdf.

interest rates maintained by the Federal Reserve, that market rate appears to be over 7 percent in real terms.[26] For secured loans (new autos), the real interest rate appears to be at least 3 percent,[27] but that is not the correct parameter because there is no collateral insuring against the possibility that government policies mandating reductions in GHG emissions will prove uneconomic. The EPA discount rate argument is fundamentally flawed analytically, and is inconsistent with the data for the U.S. credit market.

Note also that the use of a (low) "consumption rate of interest" for the evaluation of climate policy only would introduce an important bias in the allocation of resources among government policies and between government and private-sector resource use. EPA does not argue that the "consumption rate of interest" should be applied to the benefit/cost analysis of all government investment and regulatory activity; only climate policies are to be so treated, on the grounds of "intergenerational equity," discussed below. Nor would the private sector choose to use an artificially-low discount rate for the evaluation of alternative resource uses. If it is only the climate dimension of investment and consumption choice dynamics that is to be shaped by the use of a low "consumption rate of interest," it is obvious that important distortions would be the central outcome, with a smaller capital stock resulting.

Second: The implicit premise in the EPA discussion of intergenerational analysis and the discount rate is straightforward: Future generations prefer to avoid the damages that they ostensibly will bear because of the climate effects of resource allocation decisions made by the current generation, and because future generations cannot vote during the current time period, it is equitable to force the current generation to bear the costs of anthropogenic climate change that otherwise would be inflicted upon future generations. In the proposed rule, EPA makes this argument explicitly: "As discussed in section 4 of the RIA, consideration of climate benefits calculated using discount rates below 3 percent, including 2 percent and lower, is also warranted when discounting intergenerational impacts."[28]

However seemingly straightforward, that argument is not correct. Future generations prefer to receive a bequest of an aggregate capital stock more- rather than less valuable, an objective very different from a maximization of the value of one dimension — climate phenomena — of that aggregate capital stock. This requires efficient resource allocation by the current generation, and therefore the application of the correct discount rate. Consider a *homo sapiens* baby borne in a cave some 50,000 years ago. Despite the fact that at birth that child would have enjoyed environmental quality effectively unaffected by mankind, and *a fortiori* climate phenomena determined by natural processes only, the baby at birth would have had a life expectancy of only about ten years.[29]

Accordingly, it is obvious that given the opportunity to choose, that child would opt for less environmental quality and greater climate risk in exchange for a longer life expectancy engendered by a more valuable aggregate capital stock yielding improved shelter, expanded food supplies, a cleaner water supply, better medical care, *ad infinitum*. Greater wealth is the central objective of any generation, a reality shunted aside by the focus in the RIA upon only the climate

---

[26] See the data reported by the Federal Reserve Bank of St. Louis at https://fred.stlouisfed.org/series/TERMCBPER24NS.
[27] See https://fred.stlouisfed.org/series/RIFLPBCIANM60NM.
[28] See the proposed rule at Table 10, at p. 33416.
[29] This life expectancy observation was provided by Professor Gail Kennedy, Department of Anthropology, University of California, Los Angeles, during a telephone interview conducted February 16, 2011.

dimension of the aggregate capital stock to be bequeathed to future generations.

In short: EPA uses the SCC as a substitute for estimation of the actual prospective climate impacts of its proposed rule because the latter cannot be asserted to be greater than zero operationally or as a matter of statistical significance. But the SCC is fundamentally flawed for the reasons summarized above, and is inconsistent with the evidence on climate phenomena and with the prospective effects of climate policies in the EPA climate model.[30]

III. The Premise That Carbon Capture and Sequestration Technology Has Been Adequately Demonstrated Is Sophistry

Under the Clean air Act, a component of a Best System of Emissions Reduction must be adequately demonstrated. The proposed rule establishes a carbon capture and sequestration requirement of 90 percent by 2035, but none of the CCS projects cited in the proposed rule have achieved that standard.[31] That there is no such commercial CCS plant in the U.S., and only one internationally, demonstrates that CCS technology has not been adequately demonstrated.[32]

IV. Assertions of a Serious Anthropogenic Climate Threat Are Inconsistent with the Evidence

EPA asserts that "The increasing concentrations of GHGs in the atmosphere are, and have been, warming the planet, resulting in serious and life-threatening environmental and human health impacts. The increased concentrations of GHGs in the atmosphere and the resulting warming have led to more frequent and more intense heat waves and extreme weather events, rising sea levels, and retreating snow and ice, all of which are occurring at a pace and scale that threatens human welfare."[33]

That assertion is not correct, even apart from the failure of EPA even to attempt to separate anthropogenic and natural influences on climate phenomena. There is no evidence in support of the "rapidly growing threat" asserted by EPA. Anthropogenic climate change is "real" — increasing GHG concentrations are having detectable effects — and incontrovertible, but that does not tell us the magnitude of the observable impacts, which must be measured empirically.

Temperatures are rising, but as the Little Ice Age ended no later than 1850, it is not easy to separate natural from anthropogenic effects on temperatures and other climate phenomena, as discussed below in section VII.[34] The latest research in the peer-reviewed literature suggests that

---

[30] See https://www.budget.senate.gov/imo/media/doc/Dr.%20Benjamin%20Zycher%20-%20Testimony%20-%20Senate%20Budget%20Committee.pdf.

[31] See thje proposed rule at pp. 33292-33293.

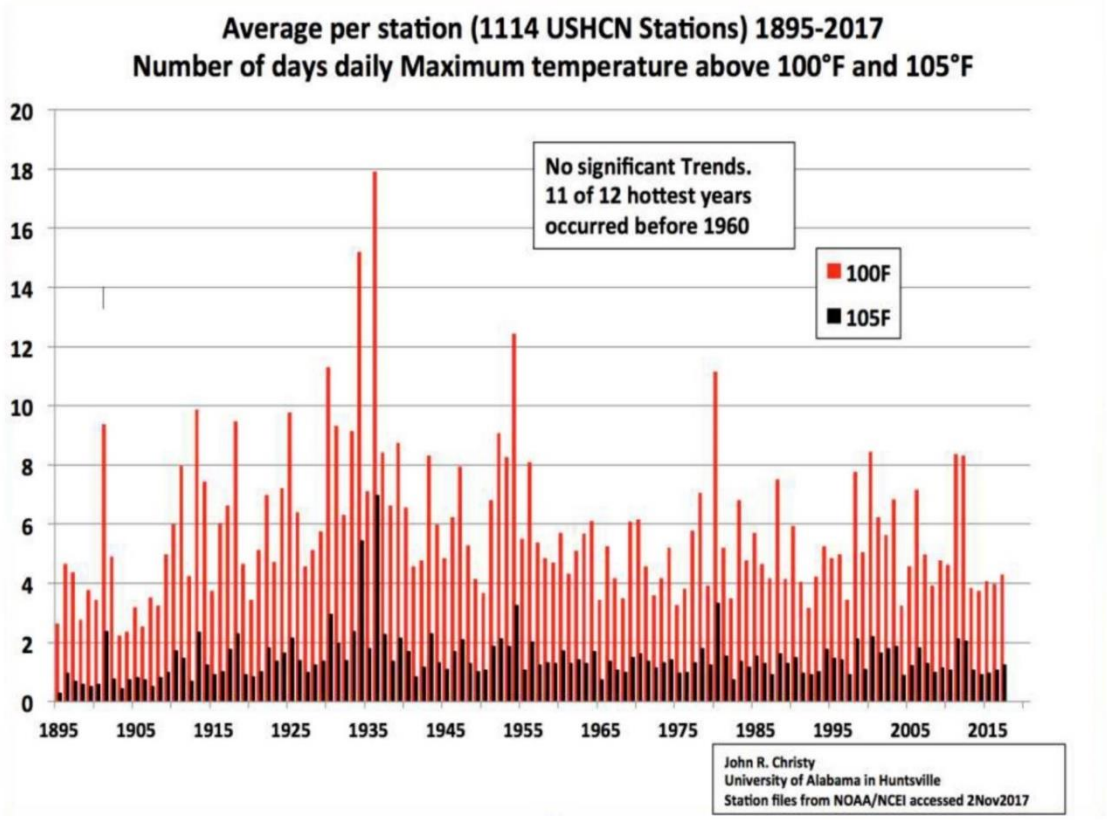
[32] See https://www.saskpower.com/Our-Power-Future/Infrastructure-Projects/Carbon-Capture-and-Storage/Boundary-Dam-Carbon-Capture-Project. "The seven-year-old facility's carbon capture rate in 2021 was less than 37% of the official target of 90%." See https://www.spglobal.com/marketintelligence/en/news-insights/latest-news-headlines/only-still-operating-carbon-capture-project-battled-technical-issues-in-2021-68302671.

[33] See the proposed rule at p. 33243.

[34] On the Little Ice Age, see Michael E. Mann, "Little Ice Age," in *Encyclopedia of Global Environmental Change, Volume 1: The Earth System: Physical and Chemical Dimensions of Global Environmental Change*, ed. Michael C. MacCracken, John S. Perry and Ted Munn (Chichester, England: John Wiley & Sons, 2002), http://www.meteo.psu.edu/holocene/public_html/shared/articles/littleiceage.pdf.

mankind is responsible for about half of the approximate temperature increase of 1.1 degrees C since 1880.[35]

There is little trend in the number of "hot" days for 1895–2017; eleven of the 12 years with the highest number of such days occurred before 1960, as shown in the following chart.[36]



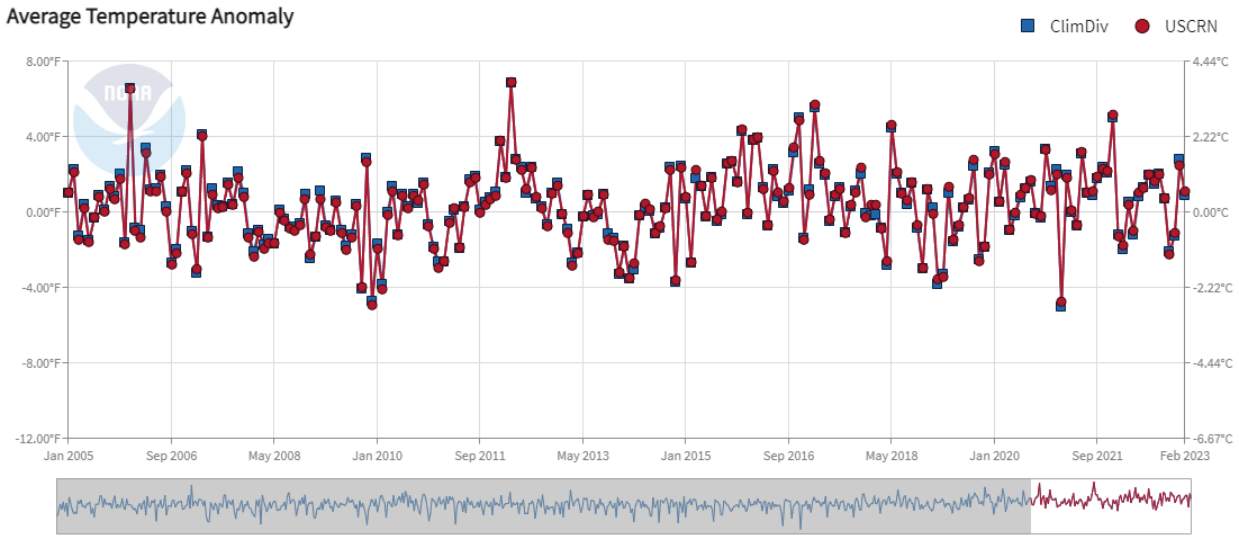
NOAA has maintained since 2005 the U.S. Climate Reference Network, comprising 114 meticulously maintained temperature stations spaced more or less uniformly across the lower 48

---

[35] See, e.g., Nicholas Lewis, "Objectively Combining Climate Sensitivity Evidence," *Climate Dynamics*, September 19, 2022, at https://link.springer.com/article/10.1007/s00382-022-06468-x; Ross McKitrick and John Christy, "A Test of the Tropical 200- to 300 hPa Warming Rate in Climate Models"; Nicholas Lewis and Judith Curry, "The Impact of Recent Forcing and Ocean Heat Uptake Data on Estimates of Climate Sensitivity," *Journal of Climate* 31 (August 2018): 6051–71, https://journals.ametsoc.org/doi/pdf/10.1175/JCLI-D-17-0667.1; and John R. Christy and Richard McNider, "Satellite Bulk Tropospheric Temperatures as a Metric for Climate Sensitivity," *Asia-Pacific Journal of Atmospheric Sciences* 53 (2017): 511–18, https://link.springer.com/article/10.1007/s13143-017-0070-z. For a chart summarizing the recent empirical estimates of equilibrium climate sensitivity as reported in the peer-reviewed literature, see Patrick J. Michaels and Paul C. Knappenberger, "The Collection of Evidence for a Low Climate Sensitivity Continues to Grow," Cato Institute, September 25, 2014, https://www.cato.org/blog/collection-evidence-low-climate-sensitivity-continues-grow.

[36] For the reconstruction of the NASA data, see John R. Christy, "Average per Station (1114 USHCN Stations) 1895–2017: Number of Days Daily Maximum Temperature Above 100˚F and 105˚F," drroyspencer.com, http://www.drroyspencer.com/wp-content/uploads/US-extreme-high-temperatures-1895-2017.jpg.

states, 21 stations in Alaska, and two stations in Hawaii.[37] They are placed to avoid heat island effects and other such distortions as much as possible; the reported data show no trend over the available 2005–2023 reporting period, as shown in the following chart.[38]



Koonin notes for the U.S. as follows for 1900 through 2019:

> … the average coldest temperature of the year has clearly increased since 1900, while the average warmest temperature has hardly changed over the last sixty years and is about the same today as it was in 1900.[39]

A NOAA reconstruction of global temperatures over the past one million years, using data from ice sheet formations, shows that there is nothing unusual about the current warm period.[40]

---

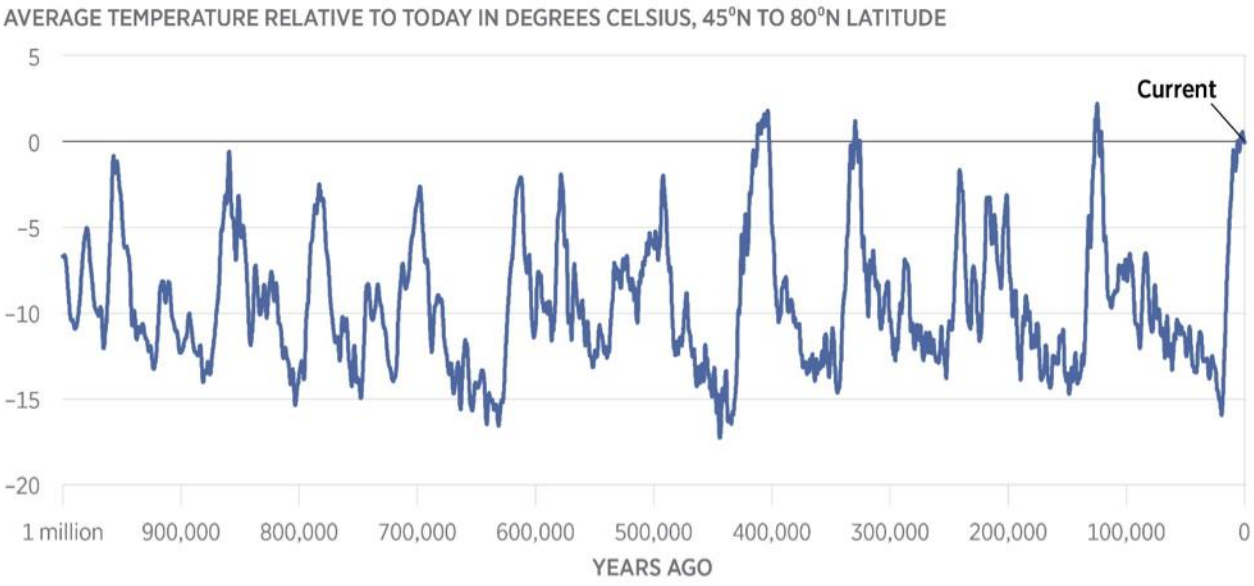
[37] For the Climate Reference Network program description, see National Centers for Environmental Information, "U.S. Climate Reference Network," https://www.ncdc.noaa.gov/crn/.

[38] For a visualization of a prototypical station, see Willis Eschenbach, "NOAA's USCRN Revisited—No Significant Warming in the USA in 12 Years," *Watts Up with That?*, November 8, 2017, https://wattsupwiththat.com/2017/11/08/the-uscrn-revisited/. For the monthly data and charts reported by the National Oceanic and Atmospheric Administration (NOAA), see National Oceanic and Atmospheric Administration, "National Temperature Index," https://www.ncdc.noaa.gov/temp-and-precip/national-temperature-index/time-series?datasets%5B%5D=uscrn&parameter=anom-tavg&time_scale=p12&begyear=2005&endyear=2020&month=8, and the monthly data at https://www.ncei.noaa.gov/access/monitoring/national-temperature-index/time-series/anom-tavg/1/0.

[39] See Steven E. Koonin, *Unsettled: What Climate Science Tells Us, What It Doesn't, and Why It Matters*, Dallas: BenBella Books, 2021, at p. 102.

[40] See https://www.instituteforenergyresearch.org/wp-content/uploads/2020/03/temperature-flucturations.png, from R. Bintanja and R. S. W. van de Wal, "North American Ice-Sheet Dynamics and the Onset of 100,000-Year Glacial Cycles," *Nature* 454, no. 7206 (August 14, 2008): 869–72, https://www.researchgate.net/publication/23171740_Bintanja_R_van_de_Wal_R_S_W_North_American_ice-

Temperature Fluctuations Over the Past Million Years

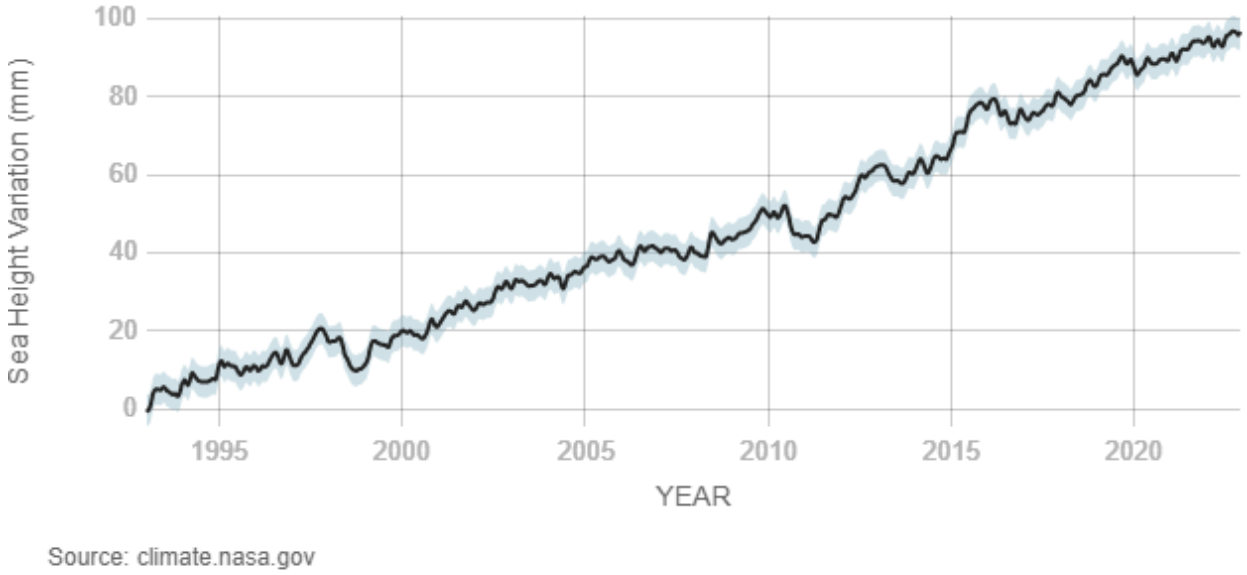


SOURCE: R. Bintanja and R.S.W. van de Wal, "Global 3Ma Temperature, Sea Level, and Ice Volume Reconstructions," National Oceanic and Atmospheric Administration, August 14, 2008, https://www.ncdc.noaa.gov/paleo/study/11933 (accessed April 5, 2016).

Global mean sea level has been increasing at about 3.3 mm per year since satellite measurements began in 1993, as shown in the following chart from NASA.[41] That ongoing sea level rise would be about 13 inches over the course of a century, an outcome very unlikely to prove a "crisis," in particular given the time available for adaptation.

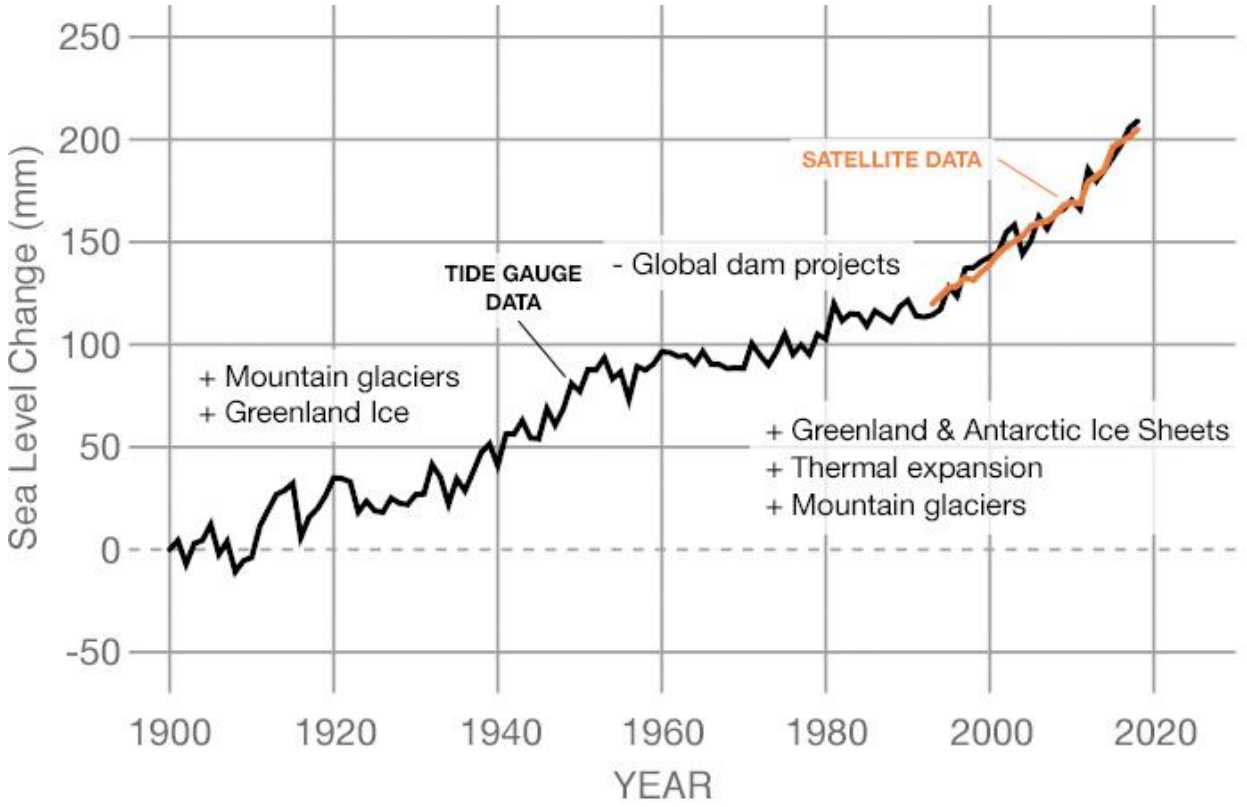
sheet_dynamics_and_the_onset_of_100000-year_glacial_cycles_Nature_454_869-872. NOAA published the underlying data at R. Bintanja and R. S. W. van de Wal, "Global 3Ma Temperature, Sea Level, and Ice Volume Reconstructions," National Oceanic and Atmospheric Administration, August 14, 2008, https://www.ncdc.noaa.gov/paleo-search/study/11933.

[41] NASA reports 96.7 millimeters of sea level rise for the period 1993-2022. See the NASA data at https://climate.nasa.gov/vital-signs/sea-level/.



Source: climate.nasa.gov

The tidal-gauge data before the altimeter era show annual increases of about 1.8 mm per year, as shown in the following chart.[42]



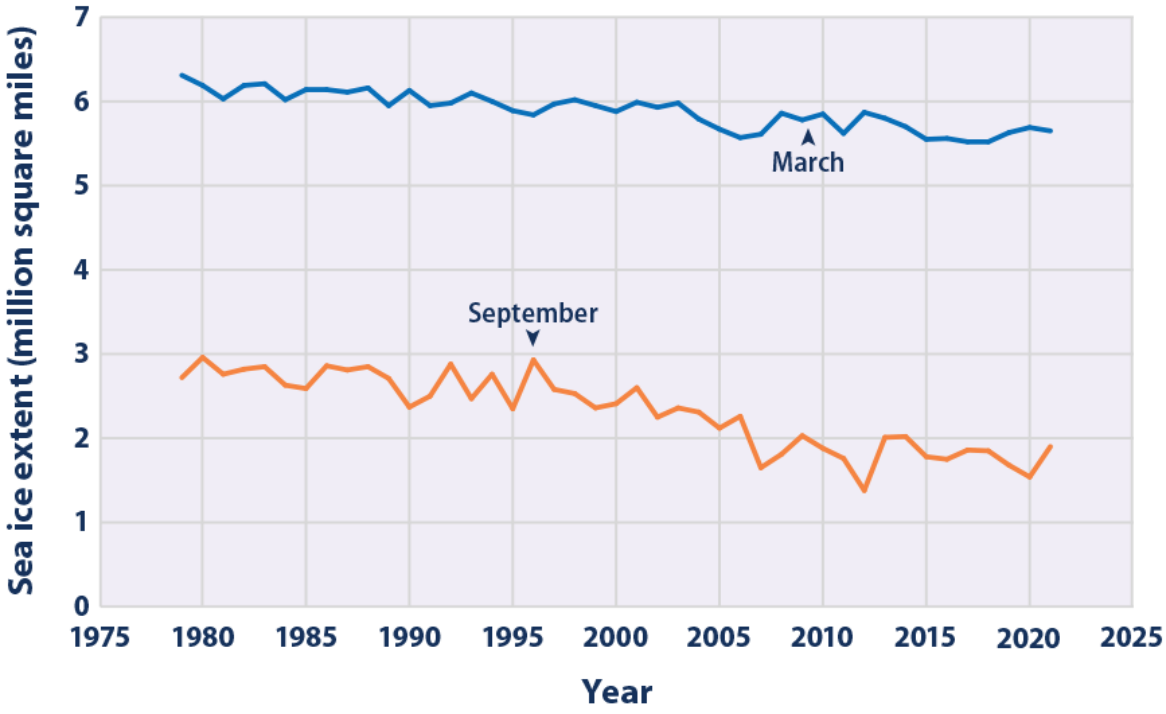
[42] *Ibid.*

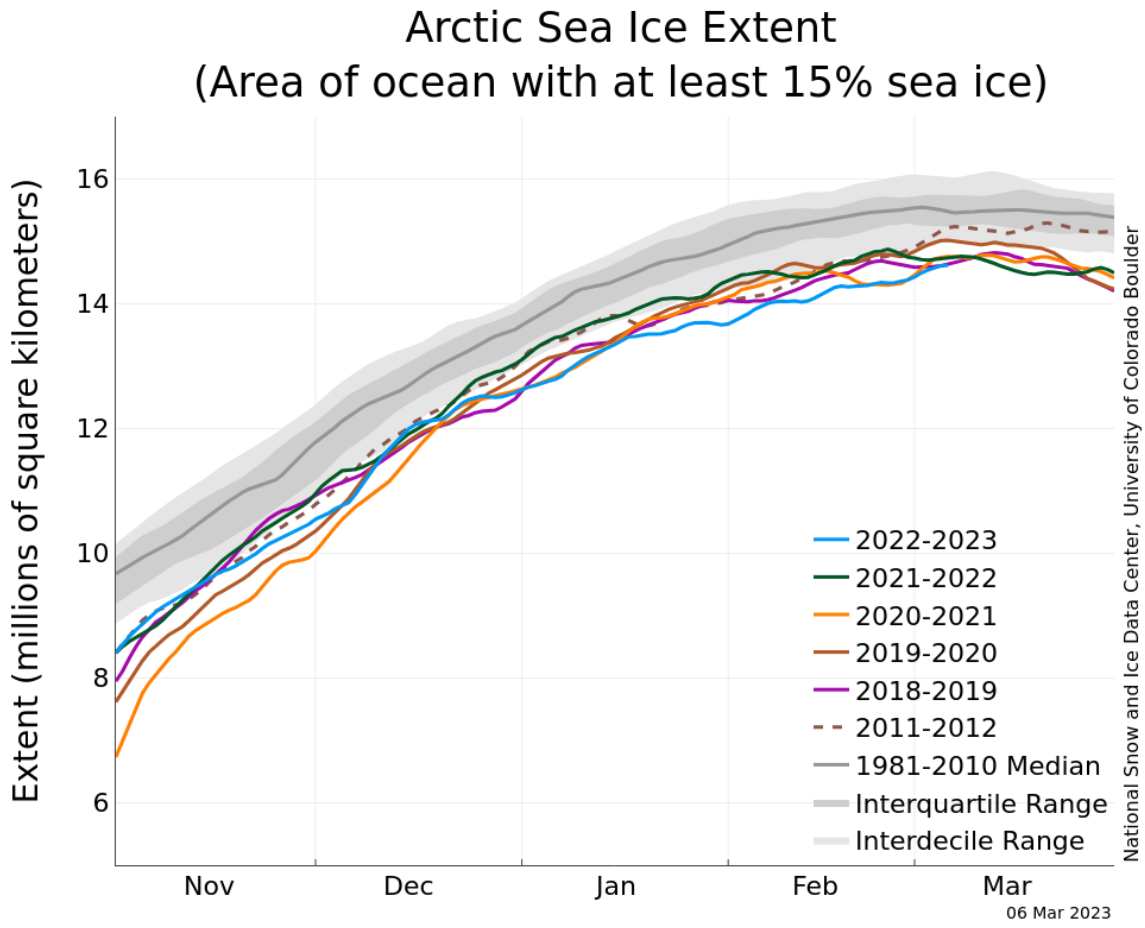
The two datasets are not directly comparable in that the tidal gauges do not measure sea levels *per se*; they measure the difference between sea levels and "fixed" points on land that in reality might not be fixed due to seismic activity, tectonic shifts, land settlement, precipitation, and other parameters. Accordingly, the data are unclear as to whether there is occurring an acceleration in sea level rise. It is reasonable to hypothesize that there has been such an acceleration simply because temperatures are rising due to both natural and anthropogenic influences, and such increases should result in more melting ice and the thermal expansion of seawater. But because rising temperatures are the result of both natural and anthropogenic causes, as discussed in section VII, we do not know the relative contributions of those causes to any such acceleration.[43]

The inconsistency of the northern and southern hemisphere sea ice changes add to the analytic complexity of anthropogenic climate change. The arctic sea ice has been declining, as shown in the following two charts.[44] For the second chart, however, note that the small number of years shown prevents a reliable derivation of inferences.

[43] See Frederikse *et. al.* at https://www.nature.com/articles/s41586-020-2591-3. As a crude approximation, the data suggest that about two-thirds of such sea level increases are due to ice melt, and one-third to thermal expansion of seawater. See Judith Curry, "Sea Level and Climate Change," Climate Forecast Applications Network, November 25, 2018, https://curryja.files.wordpress.com/2018/11/special-report-sea-level-rise3.pdf. Curry cites research from Xianyao Chen and colleagues, the central finding of which is that "global mean sea level rise increased from 2.2 ± 0.3 mm/year in 1993 to 3.3 ± 0.3 mm/year in 2014." See Xianyao Chen et al., "The Increasing Rate of Global Mean Sea-Level Rise During 1993–2014," *Nature Climate Change* 7 (June 26, 2017): 492–95, https://www.nature.com/articles/nclimate3325. Whether the trend from a 21-year period can yield important inferences is a premise problematic at a minimum. For a different empirical conclusion from the tidal gauge record, see J. R. Houston and R. G. Green, "Sea-Level Acceleration Based on U.S. Tide Gauges and Extensions of Previous Global-Gauge Analyses," *Journal of Coastal Research* 27, no. 3 (May 2011): 409–17, https://meridian.allenpress.com/jcr/article-abstract/27/3/409/28456/Sea-Level-Acceleration-Based-on-U-S-Tide-Gauges?redirectedFrom=fulltext. For an example of temporary rapid sea-level rise in the 18th century, see W. R. Gehrels et al., "A Preindustrial Sea-Level Rise Hotspot Along the Atlantic Coast of North America," *Geophysical Research Letters* 47 (2020), https://agupubs.onlinelibrary.wiley.com/doi/epdf/10.1029/2019GL085814. For further reported evidence of an acceleration, see Hans-Otto Pörtner et al., *Special Report on the Ocean and Cryosphere in a Changing Climate*, Intergovernmental Panel on Climate Change, 2019, https://www.ipcc.ch/srocc/.

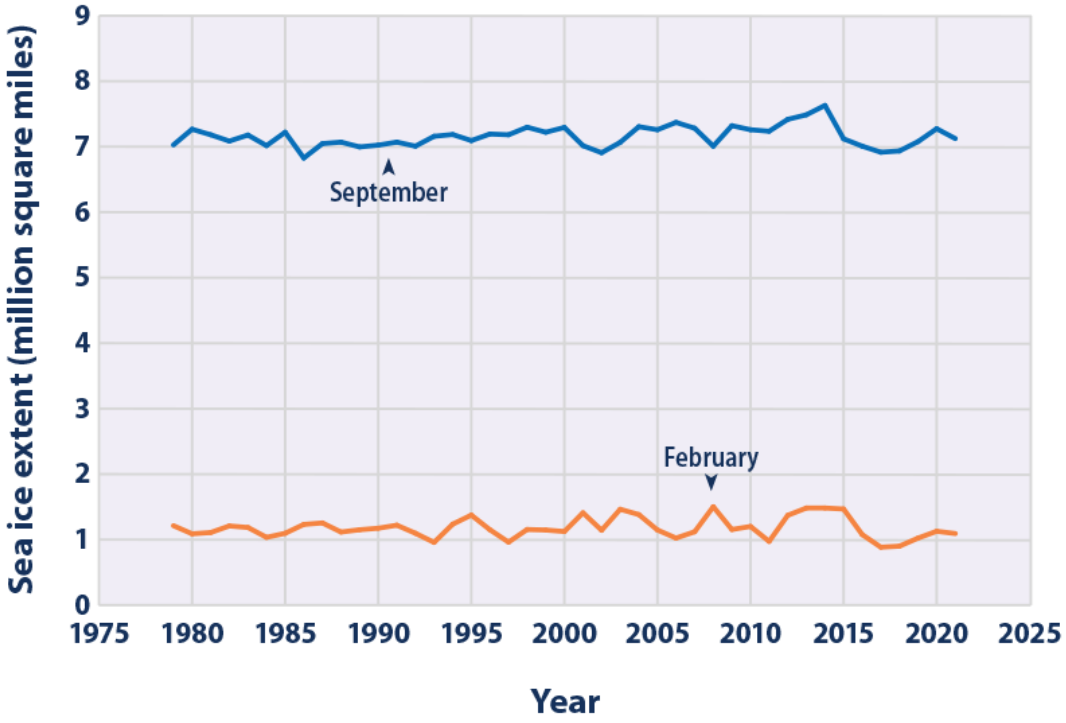
[44] See, respectively, https://www.epa.gov/climate-indicators/climate-change-indicators-arctic-sea-ice and https://nsidc.org/arcticseaicenews/.


Sea ice extent (million square miles)
7
6
5
4
3
2
1
0
March
September
1975
1980
1985
1990
1995
2000
2005
2010
2015
2020
2025
Year



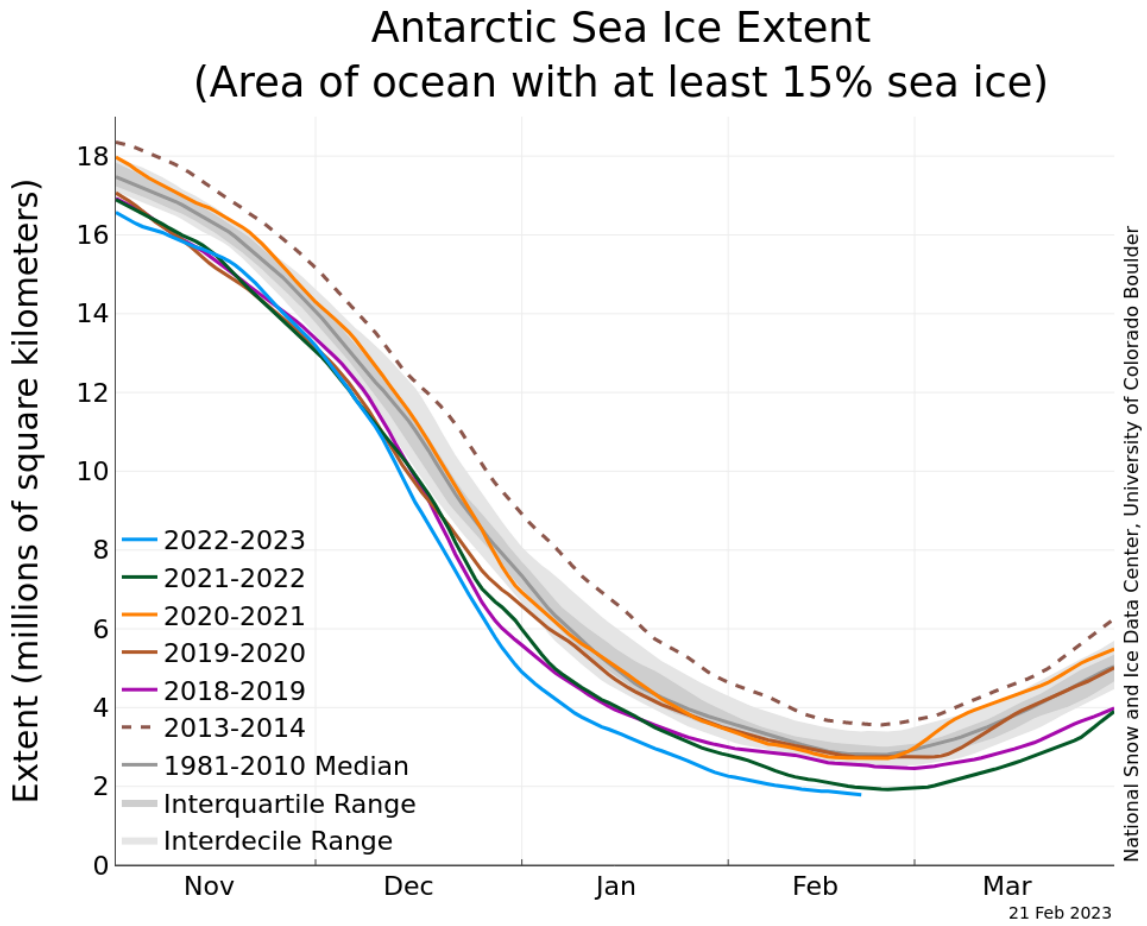
There is no long-term trend in the Antarctic sea ice extent, as shown in the following chart from the EPA.[45]

[45] See https://www.epa.gov/climate-indicators/climate-change-indicators-antarctic-sea-ice#ref5.



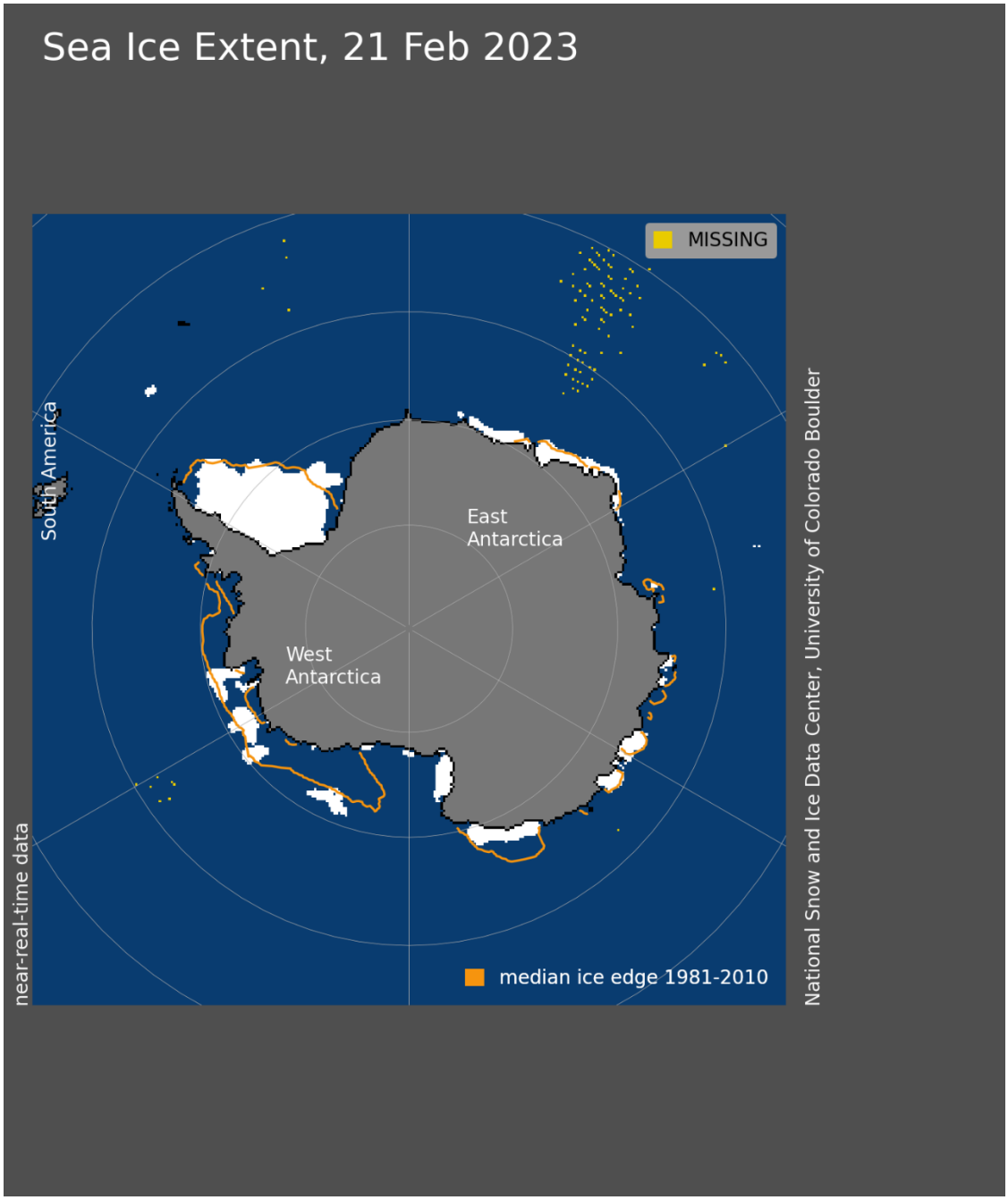
Even for the more recent years, the Antarctic sea ice appears to be stable as a matter of statistical significance, but, as noted above, it is inappropriate to derive inferences from a small number of year-to-year variations.[46]

[46] See https://nsidc.org/arcticseaicenews/2023/02/antarctic-sea-ice-minimum-settles-on-record-low-extent-again/. https://www.thegwpf.org/content/uploads/2021/12/Bates-Sea-Ice-Trends.pdf?mc_cid=dac7df538b&mc_eid=ad653edd6d; and https://www.thegwpf.org/content/uploads/2022/04/Humlum-State-of-Climate-2021-.pdf?mc_cid=dac7df538b&mc_eid=ad653edd6d. See also Patrick J. Michaels, "Spinning Global Sea Ice," Cato Institute, February 12, 2015, https://www.cato.org/blog/spinning-global-sea-ice.



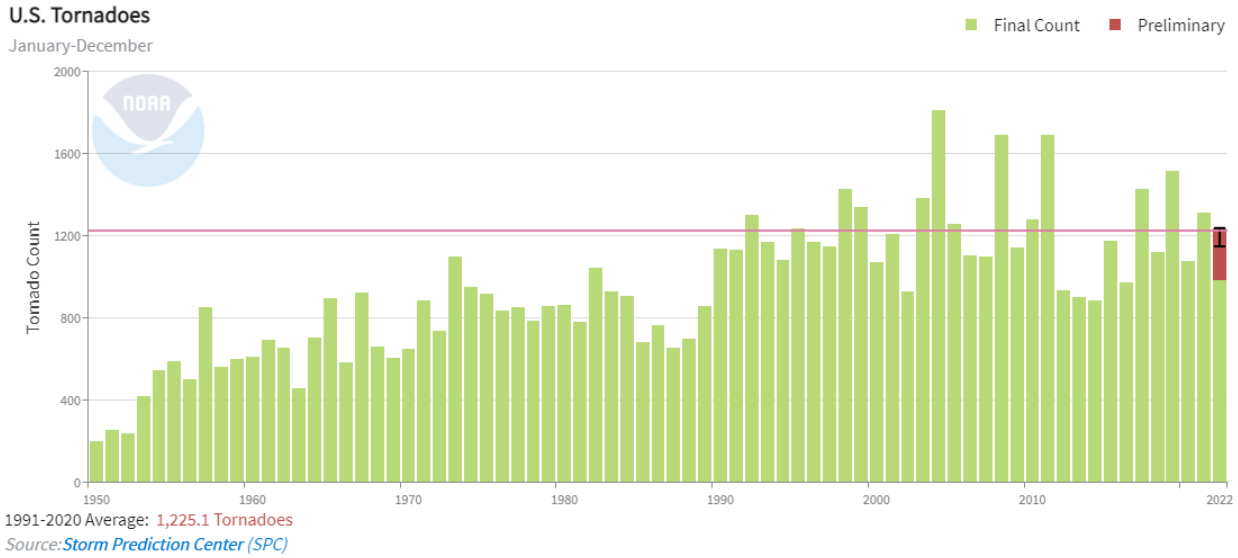
The data show that the Antarctic eastern ice sheet — about two-thirds of the continent — is growing, while the western ice sheet (and the peninsula) is shrinking, as shown in the following chart from the National Snow & Ice Data Center.[47] No agreed explanation for this phenomenon is reported in the literature.

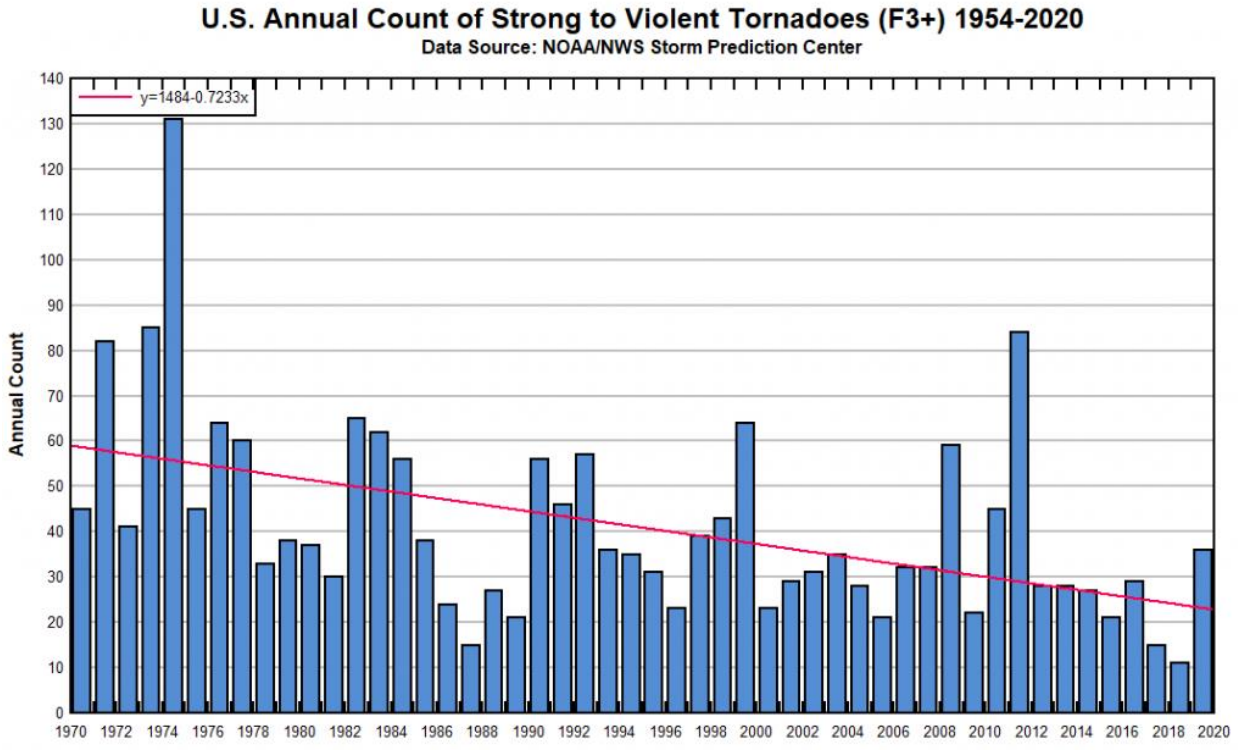
[47] See https://nsidc.org/arcticseaicenews/2023/02/antarctic-sea-ice-minimum-settles-on-record-low-extent-again/. On the eastern ice sheet, see https://www.nature.com/articles/s41561-022-00938-x. On the western ice sheet, see http://nsidc.org/greenland-today/. See also https://nsidc.org/arcticseaicenews/2023/02/antarctic-sea-ice-minimum-settles-on-record-low-extent-again/.



U.S. tornado activity for all EF ("Enhanced Fujita" scale) classes shows an upward trend since 1950, but, again, the issue of anthropogenic versus natural origins is unresolved.[48] The data for the period 1954 through 2014 for EF-3+ tornadoes show no trend or a downward trend. These trends are shown in the following two charts.[49]

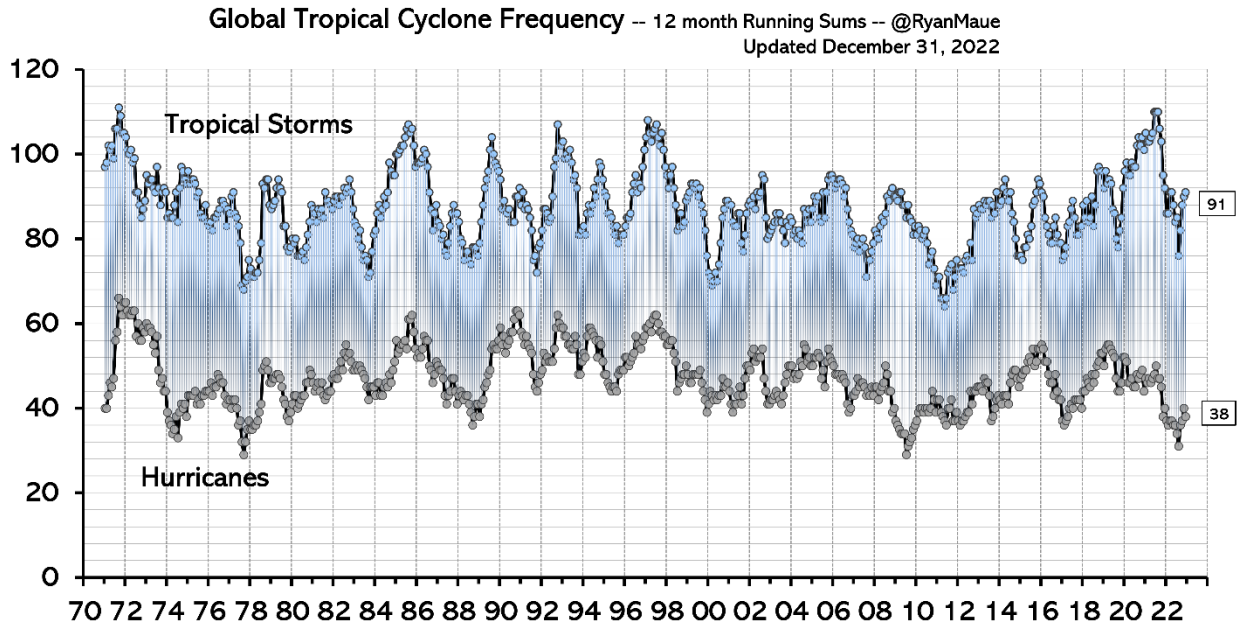
[48] See https://www.climate.gov/maps-data/dataset/monthly-and-annual-numbers-tornadoes-graphs-and-maps.
[49] See NOAA, "Historical Records and Trends," at https://www.ncdc.noaa.gov/climate-information/extreme-events/us-tornado-climatology/trends; and https://climateataglance.com/climate-at-a-glance-tornadoes/. Note that the

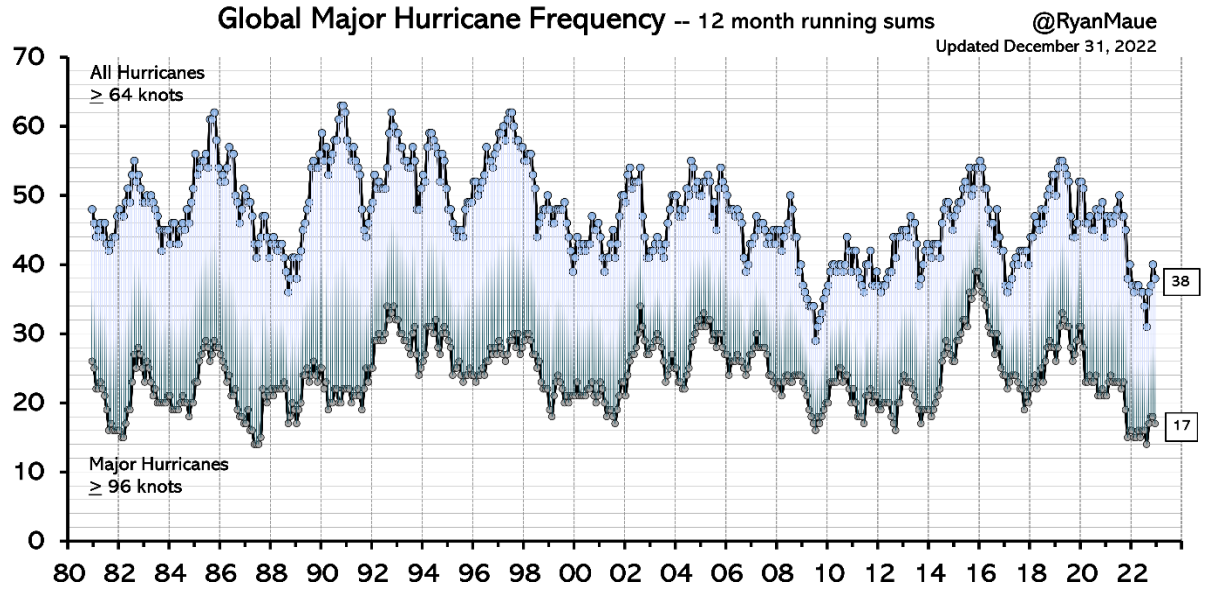




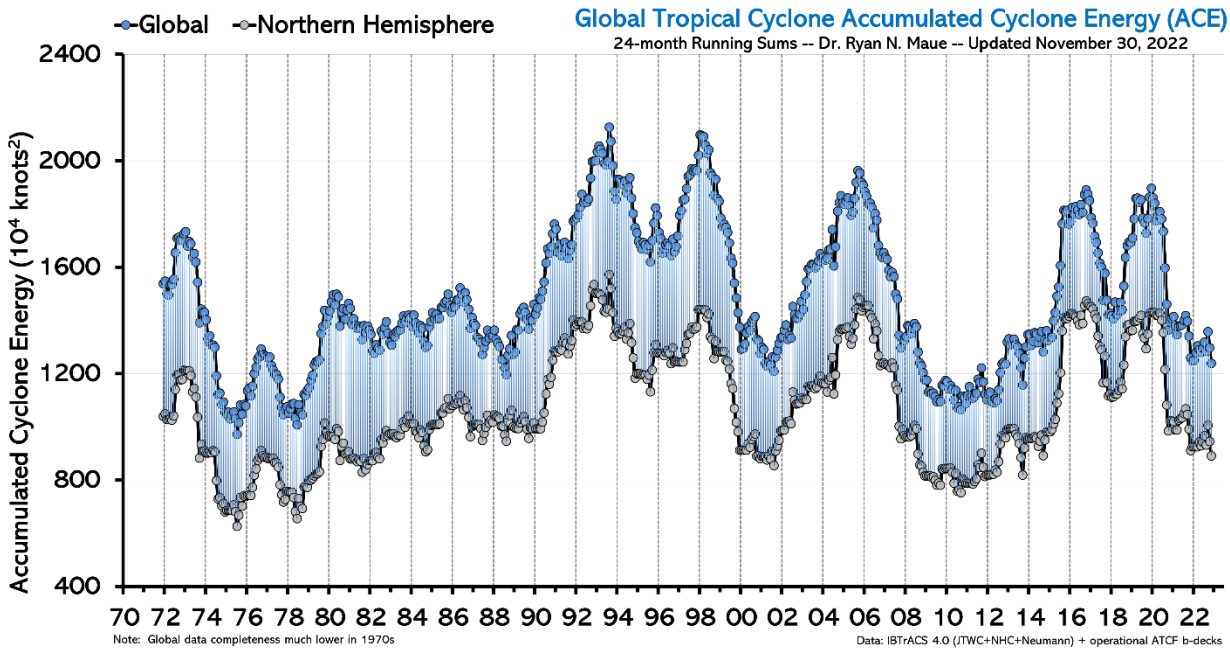
latter chart shows a heading of "1954-2020," but the bar chart begins in 1970. This discrepancy is unlikely to change the overall inference.

Tropical cyclones and accumulated cyclone energy show little trend since satellite measurements began in the early 1970s.[50]





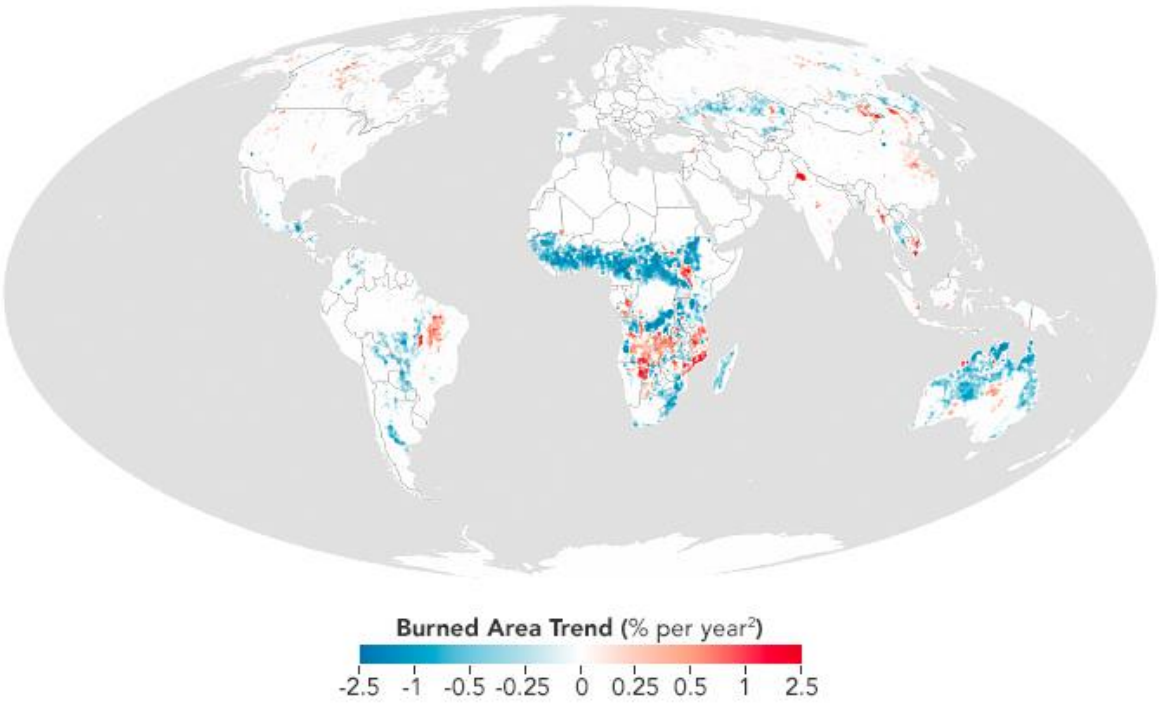
[50] For data on global tropical cyclone activity, see Ryan N. Maue, "Global Tropical Cyclone Activity, updated December 31, 2022, at http://climatlas.com/tropical/.



The number of U.S. wildfires shows no trend since 1985.[51] Global acreage burned declined sharply for 1998-2015, and by about 18 percent for the period 2003-2015 as reported by NASA, shown in the following figure.[52]

[51] For the reported U.S. wildfire data, see the EPA at https://www.epa.gov/climate-indicators/climate-change-indicators-wildfires and the National Interagency Fire Center, "Total Wildland Fires and Acres (1926–2019)," https://www.nifc.gov/fireInfo/fireInfo_stats_totalFires.html. Note that the recent U.S. wildfire phenomenon has been observed in government forests to a degree vastly disproportionate relative to private forests. See http://nwmapsco.com/ZybachB/Articles/Magazines/Oregon_Fish_&_Wildlife_Journal/20220401_Global_Warming/Zybach_20220401.pdf.

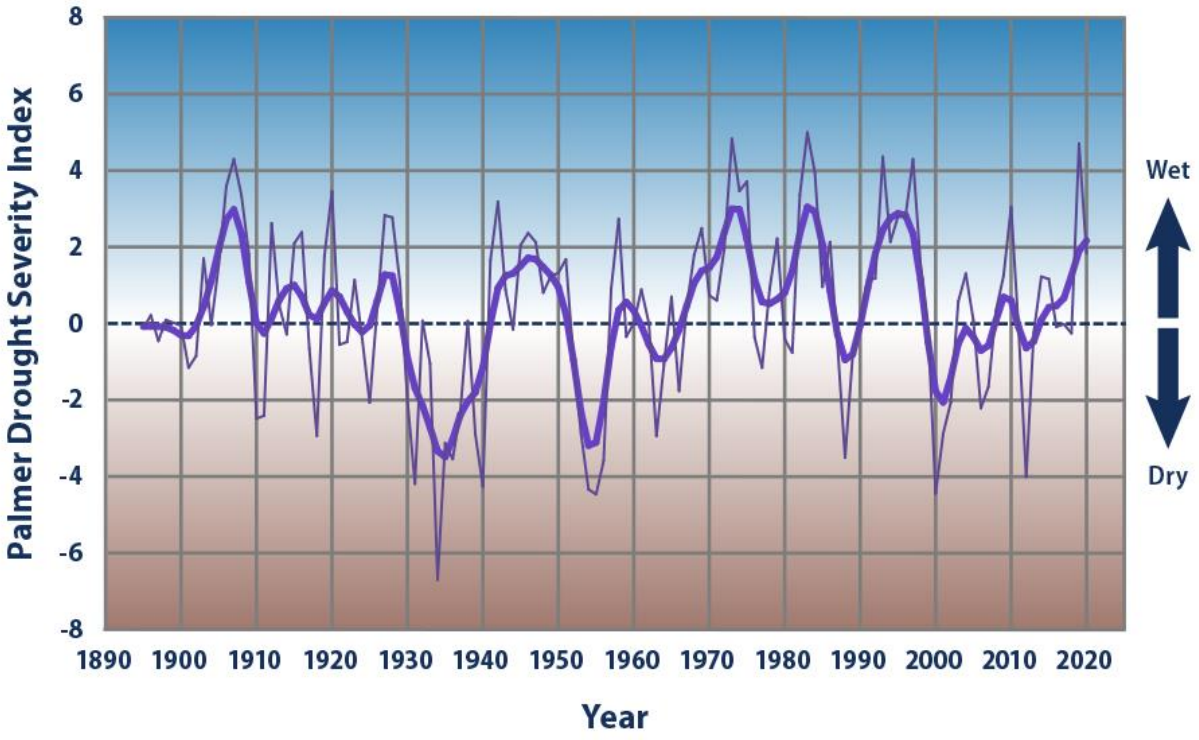
[52] On the decline in global area burned over past decades, see NASA at https://earthobservatory.nasa.gov/images/90493/researchers-detect-a-global-drop-in-fires; and Stefan H. Doerr and Cristina Santin, "Global Trends in Wildfire and Its Impacts: Perceptions Versus Realities in a Changing World," *Philosophical Transactions of the Royal Society of London, Series B, Biological Sciences* 371, no. 1696 (2016), https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4874420/pdf/rstb20150345.pdf.



The Palmer Drought Severity index shows no trend since 1895, as shown in the following chart.[53] Vicente-Serrano, *et. al.* report that "Meteorological droughts do not show any substantial changes at the global scale in at least the last 120 years."[54]

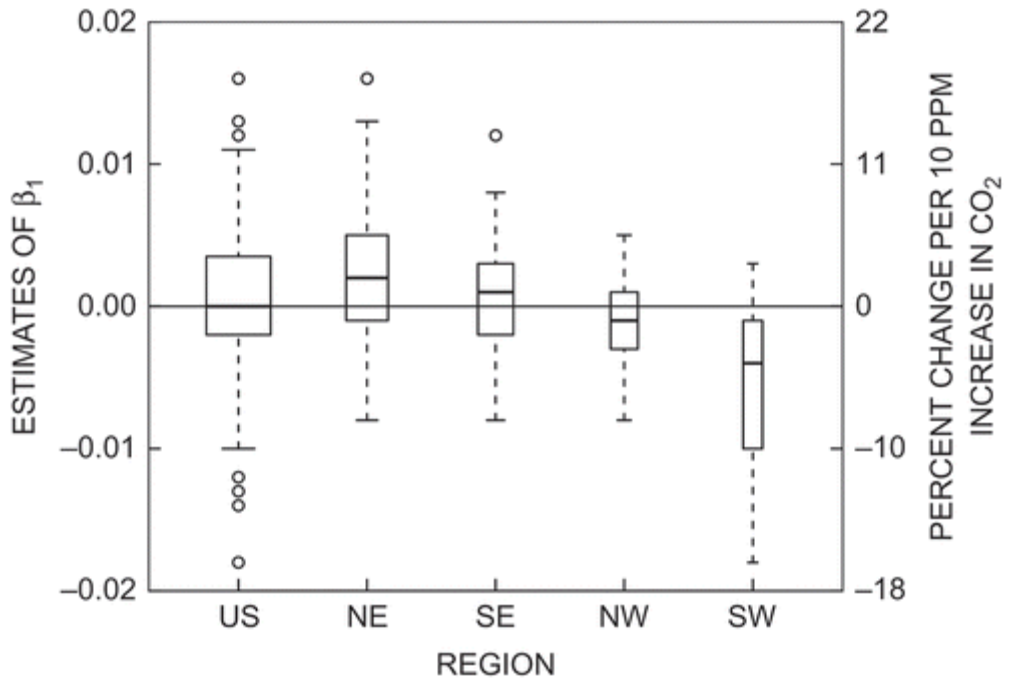
[53] See US Environmental Protection Agency, "Climate Change Indicators: Drought," https://www.epa.gov/climate-indicators/climate-change-indicators-drought; and US Department of Commerce, National Climatic Data Center, "Divisional Data Select," https://www7.ncdc.noaa.gov/CDO/CDODivisionalSelect.jsp.

[54] See Sergio M. Vicente-Serrano, *et. al.*, "Global Drought Trends and Future Projections," *Philosophical Transactions of the Royal Society*, October 2022, at https://www.researchgate.net/publication/364672519_Global_drought_trends_and_future_projections.



U.S. flooding over the past century is uncorrelated with increasing GHG concentrations.[55]

[55] See R. M. Hirsch and K. R. Ryberg, "Has the Magnitude of Floods Across the USA Changed with Global CO_2 Levels?," *Hydrological Sciences Journal* 57, no. 1 (2012): 1–9, https://www.tandfonline.com/doi/full/10.1080/02626667.2011.621895?scroll=top&needAccess=true&.



The IPCC in the AR6 reports that "The SREX (Seneviratne et al., 2012) assessed low confidence for observed changes in the magnitude or frequency of floods at the global scale. This assessment was confirmed by AR5 (Hartmann et al., 2013)."[56]

The available data do not support the ubiquitous assertions about the dire impacts of declining pH levels in the oceans.[57] Goklany reports as follows.[58]

> There is no likelihood of the ocean's average pH getting anywhere near as low as 7 (neutral) because of elevated carbon dioxide concentrations during the next three centuries. Ocean pH currently averages about 8 and is forecast to fall by 0.2 pH units or so during the present century. This change is considerably smaller than the difference in pH between different parts of the ocean, different days in the same part of the ocean, and even different times of day in coral reef lagoons. An examination of upper-ocean pH for a wide variety of ecosystems ranging from polar to tropical, open-ocean to coastal, kelp forest to coral reefs, indicates that variations in month-long pH spanned a range of 0.024 –1.430 pH units, and found that many organisms 'are already experiencing pH regimes that are not predicted until 2100.

The IPCC in the *Fifth Assessment Report* was deeply dubious about the various severe

---

[56] See https://www.ipcc.ch/report/ar6/wg1/downloads/report/IPCC_AR6_WGI_Chapter11.pdf at p. 1568.
[57] For a summary discussion, see https://www.mattridley.co.uk/blog/thousands-of-results-on-ocean-acidification/. A comprehensive database is at CO_2 Science, "Ocean Acidification Database," http://www.co2science.org/data/acidification/results.php. See also Alan Longhurst, *Doubt and Certainty in Climate Science*, pp. 214–25, https://curryja.files.wordpress.com/2015/09/longhurst-print.pdf.
[58] See https://www.thegwpf.org/content/uploads/2015/10/benefits1.pdf at p. 16.

effects often asserted to be looming as impacts of anthropogenic warming; an example is a collapse of the Antarctic western and Greenland ice sheets. The IPCC analysis in the *Sixth Assessment Report* is almost identical.[59]

V. Observations on "Environmental Justice"

In the proposed rule, EPA asserts the following:

> As part of its pre-proposal outreach to stakeholders, the EPA engaged on multiple occasions with environmental justice organizations and representatives of communities that are affected by various forms of pollution from the power sector.
>
> … these proposed actions will, in conjunction with other policies such as the IRA, play a significant role in reducing GHGs and move us a step closer to avoiding the worst impacts of climate change, which is already having a disproportionate impact on EJ communities. Beyond the GHG reductions, the EPA also has conducted a thorough evaluation of the impacts that these proposals would have on emissions of other healthharming *(sic)* air pollutants from EGUs, as well as how these changes in emissions would affect air quality and public health, particularly for historically overburdened populations including people of color, indigenous peoples, and people with low incomes.[60]

This is little more than propaganda, in particular the assertion that "climate change … is already having a disproportionate impact on EJ communities," a premise not supported by the evidence, as discussed in detail in section IV. As in the proposed rule, "environmental justice" typically is defined in terms of differing levels of environmental quality experienced by various groups, the poor and minority groups in particular. The brief OMB formulation is as follows.[61]

> Under Executive Order 12898, "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations," to "the extent practical and appropriate, Federal agencies" must "determine whether their programs, policies, and activities have disproportionately high and adverse human health or environmental effects on minority populations and low-income populations." Agencies are also tasked with, "[t]o the greatest extent practicable and permitted by law, … addressing, as appropriate, disproportionately high and adverse human health or environmental effects of [their] programs, policies, and activities on minority populations and low-

[59] For the AR5, see Julie M. Arblaster et al., "Long-Term Climate Change: Projections, Commitments and Irreversibility—Final Draft Underlying Scientific-Technical Assessment," in *Working Group I Contribution to the IPCC Fifth Assessment Report (AR5), Climate Change 2013: The Physical Science Basis*, September 23–26, 2013, p. 12–78, at http://www.climatechange2013.org/images/uploads/WGIAR5_WGI-12Doc2b_FinalDraft_Chapter12.pdf. See the analogous analysis in the AR6 at p. 12-115 at https://www.ipcc.ch/report/ar6/wg1/downloads/report/IPCC_AR6_WGI_Full_Report.pdf.

[60] See the proposed rule at p. 33247.

[61] See the draft guidelines at 88.

income populations."

The basic problem with the "environmental justice" concept is straightforward: It is too narrow. Environmental quality is one component of "health" broadly defined, and it is clear from the scholarly literature that "health" is a "normal" good, that is, one the consumption of which rises with income or wealth. This is true for individuals and for economies as a whole.[62] Lower-income individuals and households, precisely because their incomes are lower, consume less environmental quality, lower-quality diets, *ad infinitum*.

Therefore, it is unsurprising that lower-income individuals and households tend to be located in areas with lower environmental quality; that is what they can afford. This is a reality regardless of the impacts of differences in environmental quality on "health," that is, mortality and morbidity. Even if a lower level of environmental quality is merely unpleasant, that is a factor relevant to the ways in which individuals and households allocate their limited resources.

Accordingly, the "environmental justice" issue is little more than the observation, or complaint, that the poor consume less environmental quality than others, that is, that they choose to allocate their resources in ways different from those exhibited by individuals and households wealthier.

What, precisely, is "environmental justice?" Obviously, the definition is elusive. There is the classic endowment problem — individuals enter life with very different endowments of human and financial capital — an obvious reality central to the "fairness" and "equity" questions, but not a parameter clearly malleable by regulatory policy. One central long-term policy initiative by government intended (in part) to deal with the endowment problem is public education, but the low relative quality of public schools in low-income and minority areas illustrates the difficulty of using public policies to change "justice" outcomes in specific directions.

Nor does EPA address the longstanding problem traditionally described as the equity/efficiency tradeoff.[63] Efforts by government to effect changes in the distribution of income or wealth necessarily affect resource allocation in ways reducing aggregate productivity. Perhaps a given change in "distributional fairness" and "equity" is worth the attendant reduction in aggregate wealth; perhaps not. There is no "objective" measure of this tradeoff because we do not have an efficiency theory of the relative virtues of different distributional outcomes.

VI. Conclusions

The asserted climate "benefits" of the proposed rule are an illusion; under the explicit EPA assumptions and estimates as published, the temperature effect of the proposed rule would be 0.001°C to 0.0016°C by 2050, and less than 0.003°C to 0.023°C by 2100. Because the standard deviation of the surface temperature record is 0.11°C, those effects would not be detectable. Accordingly, the present value of the monetized climate benefits of the proposed rule, asserted by

[62] On the income elasticity of the demand for health care spending, see https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5890070/. On the environmental Kuznets curve, see, e.g., https://www.sciencedirect.com/topics/earth-and-planetary-sciences/environmental-kuznets-curve.
[63] The classic discussion is Arthur M. Okun, *Equality and Efficiency: The Big Tradeoff*, 1975, at https://www.brookings.edu/book/equality-and-efficiency-the-big-tradeoff/.

EPA at $30 billion, also is an illusion.

EPA attempts to circumvent this obvious problem by substituting in place of any such analysis an application of the "social cost of carbon" to the asserted reductions in GHG emissions attendant upon implementation of the proposed rule, as estimated on an interim basis by the Biden Administration Interagency Working Group. The interim IWG estimates are deeply flawed, in that they (1) distort the actual economic growth predictions produced by the integrated assessment models, (2) base predictions of future climate phenomena on climate models that cannot predict the past or the present, (3) incorporate "co-benefits" in the form of a reduction in the emissions of other criteria and hazardous air pollutants already regulated under different provisions of the Clean Air Act, (4) incorporate the asserted benefits of GHG reductions on a global basis, and (5) employ discount rates that are inconsistent and inappropriate.

The EPA application of discount rates is incorrect because the regulatory reallocation of resources in pursuit of increased economic efficiency is an investment, the opportunity cost of which is the marginal social return to investment. The common argument that a low discount rate is needed to further the goal of intergenerational equity is not correct. Future generations prefer to receive a bequest of an aggregate capital stock both natural and manmade more- rather than less valuable, an objective that requires efficient resource allocation by the current generation, and therefore the application of the correct discount rate.

The proposed rule establishes a carbon capture and sequestration requirement of 90 percent by 2035, but none of the notional CCS projects cited in the proposed rule has achieved that standard. That there is no such commercial CCS plant in the U.S., and only one internationally, demonstrates that CCS technology has not been adequately demonstrated.

EPA asserts that "The increasing concentrations of GHGs in the atmosphere are, and have been, warming the planet, resulting in serious and life-threatening environmental and human health impacts. The increased concentrations of GHGs in the atmosphere and the resulting warming have led to more frequent and more intense heat waves and extreme weather events, rising sea levels, and retreating snow and ice, all of which are occurring at a pace and scale that threatens human welfare."

Those assertions are not supported by the evidence. There is no evidence of a climate "threat" or "crisis" in terms of temperature trends, polar sea ice, tornadoes, tropical cyclones, wildfires, drought, flooding, or ocean alkalinity. The Intergovernmental Panel on Climate Change is deeply dubious about the various severe effects often asserted as prospective impacts of increasing atmospheric concentrations of GHG. Moreover, NASA reports significant planetary greening as a result of increasing atmospheric concentrations of carbon dioxide, and data from the United Nations Food and Agriculture Organization show that global per capita food production increased 46 percent between 1961 and 2020, and 20 percent for 2000-2020.

The "crisis" narrative is derived wholly from climate models that cannot predict the actual temperature record. In particular, the suite of climate models underlying the IPCC 5th and 6th Assessment Reports overstate the mid-troposphere temperature record by factors of about 2.5. Moreover, the models are fine-tuned in such a way as to deny the importance of natural influences on climate phenomena, but that is inconsistent with a large body of evidence, in particular the

substantial warming observed from 1910 to 1945, and the close correlation between the satellite temperature record and the El Niño/Southern Oscillation.

The "environmental justice" concept is too narrow. Environmental quality is one component of "health" broadly defined, and it is clear from the scholarly literature that "health" is a "normal" good, that is, one the consumption of which rises with income or wealth. This is true for individuals and for economies as a whole. Lower-income individuals and households, precisely because their incomes are lower, consume less environmental quality, lower-quality diets, *ad infinitum*. Therefore, it is unsurprising that lower-income individuals and households tend to be located in areas with lower environmental quality; that is what they can afford. This is a reality regardless of the impacts of differences in environmental quality on "health," that is, mortality and morbidity. More broadly, EPA fails to define the "environmental justice" concept, undoubtedly because it is wholly subjective, and thus not measurable in any "objective" sense, leaving the definitions to the imaginations of the regulatory agencies. Nor does EPA explain why we should expect regulatory policies to advance such goals however defined, and the same is true for the longstanding problem traditionally described as the equity/efficiency tradeoff.

The proposed rule is fatally flawed, and should not be finalized.