The George Washington Journal of Energy and Environmental Law

Articles

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Volume 15 No. 1

THE GEORGE WASHINGTON UNIVERSITY LAW SCHOOL
WASHINGTON DC

The George Washington Journal of Energy and Environmental Law

The George Washington
Journal of Energy and Environmental Law

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VOLUME 15 NO. 1

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The George Washington Journal of Energy and Environmental Law is published biannually.
General inquiries may be sent to *The George Washington Journal of Energy and Environmental Law*; 2028 G Street, NW, Suite LLC-023; Washington, DC 20052.
Third-class postage paid at Washington, D.C. POSTMASTER: Send address changes to:
The George Washington Journal of Energy and Environmental Law, 1730 M Street, NW, Suite 700, Washington, DC 20036.

ARTICLES

PUBLIC SPENDING, PRICE STABILITY, AND THE GREEN TRANSITION: A REASSESSMENT

Rohan Grey*

ABSTRACT

The prevailing macroeconomic policy consensus, which presumes a consistent causal relationship between larger federal budget deficits and higher inflation, is ill-suited to and unprepared for the impending social and economic disruption caused by climate change. This Article introduces an alternative, more nuanced, and empirically grounded macroeconomic framework for conceptualizing the relationship between public investment and price stability, drawing on the lessons of the COVID-flationary era as well as other recent crises. It takes a functional approach to public budgeting, viewing inflation rather than availability of funds as the true political and material constraint on large-scale fiscal action. Instead of prioritizing formal revenue-neutrality, it thus seeks to estimate the inflationary effects of proposed spending programs and mitigate them through targeted regulatory interventions and demand offsets, including "non-fiscal payfors" such as direct credit regulation and antitrust regulation and enforcement. In some instances, large fiscal outlays will have limited impact on demand or overall price conditions, and thus can be implemented with few or no corresponding demand offsets. One illustrative example is the nationalization of fossil fuel reserves and associated infrastructure through the public acquisition of shares and other governing interests in fossil fuel companies. Nationalization would likely have minimal upfront inflationary impact and could potentially even exert a deflationary effect through reducing long-term investment in new reserve discovery and cutting other existing fossil fuel company expenditures. It is thus both an example and a model for how an inflation-oriented approach for macroeconomic policymaking can improve price stability and open new possibilities for high-impact, deficit-financed public spending aimed at climate mitigation and economic sustainability.

I. Introduction

Addressing the climate crisis and transitioning to a clean energy economy will require mass mobilization and sustained high public investment—in other words, a Green New Deal.[1] The global macroeconomic experience of the past 15 years, punctuated by the Global Financial Crisis ("GFC"), the Eurozone Crisis, COVID-19, and the Ukraine War, has demonstrated conclusively that the United States government does not face intrinsic financial or budgetary constraints when responding to unprecedented social and economic disruption.[2] Rather, it is limited in practice by real resource availability, administrative capacity, and, critically, social concern for price stability.[3]

These limits are important, and when ignored, can lead to public backlash and reduced support for necessary col-

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1. *See, e.g.*, *About Sunrise*, *The Sunrise Movement* (2023), https://sunrisemovement.org/about [https://perma.cc/6GKP-J5GE] (described as a "a movement of young people fighting to stop the climate crisis and win a green new deal").

2. For a more extended treatment on this point, see Stephanie Kelton, The Deficit Myth: Modern Monetary Theory and the Birth of the People's Economy (2020).

3. *See, e.g.*, Yeva Nersisyan & L. Randall Wray, *Deficit Hysteria Redux? Why We Should Stop Worrying About Government Deficits*, Levy Economics Institute Public Policy Brief No. 111, 16, https://www.econstor.eu/bitstream/10419/54259/1/631375910.pdf [https://perma.cc/C96C-W9TC]:

> there is no financial constraint on the ability of a sovereign nation to deficit spend. This doesn't mean that there are no real resource constraints on government spending, but these constraints, not financial constraints, should be the real concern. If government spending pushes the economy beyond full capacity, then there is inflation.

lective action. In particular, widely held concerns about the inflationary impact of public spending, even when unfounded or misdirected, can undermine political support for otherwise popular economic reforms, including those aimed at climate mitigation and prevention.[4]

However, both public macroeconomic perception and underlying economic realities are not fixed. Instead, they are constantly evolving in response to changing conditions and capable of modification through intentional, coordinated action and public education. Without overstating the case or downplaying the limits imposed by material constraints, how we understand and deploy our collective fiscal resources in a practical sense determines our productive capacity and what we ultimately do.[5]

A central policy challenge for environmental advocates is thus to articulate and promote a non-utopian vision of large-scale, climate-oriented public spending, grounded in a sophisticated understanding of the relationship between public governance, real production, and prices.[6] Contrary to conventional wisdom, this involves more than merely ensuring proposed green budget items are kept "deficit-neutral" through accompanying taxes, recoupment, or other budgetary savings measures. Instead, it requires determining the likely economic impact of different proposed public interventions and developing suitable price-stabilizing mechanisms to address them in politically palatable ways.[7] This includes, but is not limited to, non-fiscal "demand-offsets" such as credit, and non-financial regulation.[8]

Strategically, it also involves identifying high-impact fiscal interventions with positive or negligibly negative expected impact on overall price conditions that can be pursued immediately, as low-hanging fruit, to cultivate macroeconomic credibility and expand movement influence. By establishing a successful track record of targeted spending campaigns, climate advocates can build momentum and public support for even larger, more transformative fiscal demands.[9]

One illustrative example is the compulsory public acquisition of strategic oil and gas reserves, and related corporate infrastructure, as the first step in eventually dismantling or repurposing all extractive fossil fuel technologies and transitioning to clean energy and a renewable resource-based economy. While nationalization is both politically and legally complex, financially the process is straightforward. The government spends new public funds to purchase stocks and other similar interests, thereby "cashing out" existing private investors and retaining exclusive corporate governance powers, which can be directed to more socially oriented ends. From the perspective of individual investors, the process of being involuntarily bought out by the government or by another private investor has a similar impact on overall price conditions, even as the broader social and systemic implications differ significantly.

Notwithstanding what would likely be a very large upfront (or eventual) price tag, the impact on overall consumer demand from the investment would likely be quite small.[10] Overall private wealth levels would remain roughly constant before and after the acquisition, which would resemble a financial asset swap (corporate stocks for government monies or securities) more than a direct fiscal injection such as the COVID-19 emergency relief payments. Rather than spend the newly acquired funds on goods and services, if fossil fuel investments were no longer available, investors would quickly rebalance their portfolios among a range of other asset classes.[11]

Nationalization of oil and gas reserves would thus likely require few, if any, dedicated offsets to remain inflation-neutral. Instead, it could be structured as a clean spending bill, and deficit-financed through either standard public debt-issuance or direct money-financing. Of course, depending on how the acquired assets were subsequently managed, nationalization could ultimately have either a positive or negative effect on overall price conditions, and with them, the broader public appetite for further radically transformative climate action.[12] Critically, however, such risks and concerns are distinct from the economic impact of the original acquisition expenditure itself, and once properly distinguished, can be addressed separately on their own terms.

Pursuing selective nationalization and other forms of high sticker-price, low-inflation fiscal interventions is more

4. *See, e.g.*, Michael Klein, *Manchin Killed Build Back Better Over Inflation Concerns*, The Conversation (Dec. 20, 2021), https://theconversation.com/manchin-killed-build-back-better-over-inflation-concerns-an-economist-explains-why-the-2-trillion-bill-would-be-unlikely-to-drive-up-prices-174093 [https://perma.cc/B4VR-4DF5] (noting that Sen. Joe Manchin's (D-W. Va.) concern for the inflationary impact of President Joseph Biden's Build Back Better plan "effectively killed one of Biden's top economic priorities").
5. *See, e.g.*, Jeffrey Stupak, *Fiscal Policy: Economic Effects*, Cong. Rsch. Service (May 16, 2019), n.22, https://crsreports.congress.gov/product/pdf/R/R45723/1 [https://perma.cc/B4VR-4DF5] ("deficit-financed government investment, such as infrastructure projects, may lead to a higher capital stock overall and therefore increase the productive capacity of the economy").
6. For an extended discussion on this, see *Paying for the Green New Deal: A 1-Day Workshop at Harvard Law School, Exploring the Budgetary and Macroeconomic Aspects of the Green New Deal From a Modern Monetary Theory ("MMT") Perspective*, May 24, 2019, https://payforgnd.org [https://perma.cc/3LBS-7SJU].
7. *See, e.g.*, Jeanna Smialek, *Modern Monetary Theory Got a Pandemic Tryout. Inflation Is Now Testing It*, N.Y. Times (Feb. 6, 2022), https://www.nytimes.com/2022/02/06/business/economy/modern-monetary-theory-stephanie-kelton.html [https://perma.cc/4JV3-74X4] ("In an M.M.T. world, the Congressional Budget Office would have carefully analyzed possible inflation [from pandemic relief spending] ahead of time, and lawmakers would have tried to offset any strain on available workers and widgets with stabilizing measures and tax increases.").
8. *See* Tankus, *infra* note 62.
9. *See, e.g.*, Ray Galvin & Noel Healy, *The Green New Deal in the United States: What It Is and How to Pay for It*, 67 Energy Rsch. & Soc. Sci. 8 (2020) (noting that the United States' "extreme free-market orientation make[s] it impossible for the government to act decisively and effectively in climate change mitigation," and arguing that "pursuing climate change mitigation in ways that benefit poorer and marginalized sections of US society will bring increased public and political support for these mitigation endeavors").
10. *See* Part IV, *infra*.
11. *See* Part IV(a), *infra*.
12. A well-managed phaseout of fossil fuel dependency could, for example, result in an increase in public provisioning of renewable energy, thereby reducing household energy costs and increasing support for further sustainable economic transformation. Conversely, a poorly-managed nationalization effort could result in supply disruption and higher energy prices, leading to public backlash and resentment.

than just a policy strategy to notch short-term political victories. It is part of a broader paradigm shift, toward functional finance[13] and a multidimensional, coordinated system of macroeconomic governance.[14] By taking price stability seriously as a first-order economic and political concern, climate activists (counterintuitively) open themselves to a new world of fiscal possibilities, freed from the limitations of presumptive budget neutrality and private market discipline.[15]

The implications of this paradigm shift extend beyond the immediate implications for the debate over fossil fuel nationalization, and the economic response to climate change more broadly.[16] At a more fundamental level, it represents a reorientation toward empirical consistency and theoretical honesty in public economic discourse, in contrast to prevailing economic orthodoxies that rely on myths and fictions to heuristically guide the mass public toward policy outcomes that experts deem necessary and desirable.[17]

This Article is divided into three parts. Part II introduces and critiques the prevailing macroeconomic paradigm, in which price stabilization and demand management is primarily managed by the Federal Reserve, and fiscal deficits are discouraged outside of exceptional circumstances.

Part III presents an alternative framework for conceptualizing and maintaining price stability, grounded in a nuanced understanding of price and demand dynamics, and a functional, individualized analysis of the expected inflationary impact of each proposed spending or revenue program. In contrast to traditional sound finance budgeting, which assumes an intrinsic connection between deficit-neutrality and price-neutrality,[18] this functional approach acknowledges and embraces the potential for large-scale, non-inflationary, deficit-financed public spending, as well as the use of non-fiscal "payfors"[19] like credit and non-financial regulation as demand-offsets in lieu of dollar-for-dollar revenue offsets in appropriate circumstances.

Part IV explores the macroeconomic implications of nationalizing fossil fuel companies, including the impact of the initial acquisition on consumer demand, and subsequent impact of public ownership on energy prices and sectoral bottlenecks. I argue that nationalization is a useful and important example of a fiscal intervention with high budget cost, but limited inflationary impact, that could consequently be implemented with few if any demand offsets. More broadly, such interventions have the potential to advance both the political and material aims of the climate movement beyond the implicit constraints of the prevailing macroeconomic paradigm.

II. Macroeconomic Orthodoxy

Fundamental transformations in material economic processes often take decades, even centuries.[20] Today, the pace of societal evolution and technological innovation is accelerating, potentially at the cost of increasingly frequent and severe economic and financial crises.[21] To address these changes openly and thoughtfully, it is critical to recognize and account for the relative costs, benefits, winners, and losers, of different approaches to macroeconomic management and price stabilization.[22]

13. *See, e.g.*, L. Randall Wray, *Functional Finance: A Comparison of the Positions of Hyman Minsky and Abba Lerner*, Levy Economics Institute Working Paper No. 900 (Jan. 2018), p.2, https://www.levyinstitute.org/pubs/wp_900.pdf [https://perma.cc/4T98-UTYH] (describing functional finance as the view that "a sovereign government that issues its own currency can never 'run out of money'. . . As such, it can adopt [an]approach to budgeting . . . [focused on] the outcome of the policy rather than on the budgetary impact.")
14. *See, e.g.*, *The COVID-19 Pandemic Is Forcing a Rethink in Macroeconomics*, Economist (July 25, 2020), https://www.economist.com/briefing/2020/07/25/the-covid-19-pandemic-is-forcing-a-rethink-in-macroeconomics [https://perma.cc/2BU8-LCQ8]; The Ezra Klein Show, *Covid Showed Us What Keynes Always Knew*, N.Y. Times (Sept. 17, 2021), https://www.nytimes.com/2021/09/17/opinion/ezra-klein-podcast-adam-tooze.html.
15. Galvin & Healy, *supra* note 9.
16. For more on the broader implications on the climate discourse of moving beyond the prevailing paradigm centered around presumptive budget-neutrality and private market discipline, see Nathan Tankus et al., *The Green New Deal Will Be Tremendously Expensive. Every Penny Should Go on the Government's Tab*, Bus. Insider (Sept. 23, 2019), https://www.businessinsider.com/green-new-deal-climate-change-government-spending-no-private-money-2019-9 [https://perma.cc/98CH-EQME] (arguing against reliance on public-private partnerships, and other forms of "politically light" budget gimmicks, in favor of direct public investment to finance the Green New Deal).
17. *See, e.g.*, L. Randall Wray, *Paul Samuelson on Deficit Myths*, New Econ. Persp. (Apr. 30, 2010), https://neweconomicperspectives.org/2010/04/paul-samuelson-on-deficit-myths.html [https://perma.cc/JC87-HYKW] (quoting former Economic Nobel Prize winner Paul Samuelson saying:

> I think there is an element of truth in the view that the superstition that the budget must be balanced at all times [is necessary]. Once it is debunked [that] takes away one of the bulwarks that every society must have against expenditure out of control. There must be discipline in the allocation of resources or you will have anarchistic chaos and inefficiency. And one of the functions of old fashioned religion was to scare people by sometimes what might be regarded as myths into behaving in a way that the long-run, civilized life requires. We have taken away a belief in the intrinsic necessity of balancing the budget if not in every year, [then] in every short period of time. If Prime Minister Gladstone came back to life he would say "uh oh what you have done" and James Buchanan argues in those terms. I have to say that I see merit in that view.

18. *I.e.*, a budget that does not add or reduce the overall size of the deficit is presumed to have little or no significant impact on inflation.
19. The oft-repeated notion that public spending must be "paid for" with taxes or borrowing is not accurate in a fiat currency regime in which the government issues its own floating fiat currency. Instead, government spending is limited by public appetite for any undue inflation that results from it. Consequently, when considering how to "pay for" public spending in such a regime, any mechanism that offsets any potential inflationary pressure can be understood as a "payfor," similar to how taxes and borrowing are treated as "payfors" under a sound finance regime.
20. *See, e.g.*, Christine Desan, Making Money: Coinage and the Coming of Capitalism (2014) (locating the birth of modern capitalism in the rise of central and commercial banking in 17th and 18th centuries); William N. Goetzmann, Money Changes Everything: How Finance Made Civilization Possible (2016) (tracing the multi-thousand-year development of financial technologies and instruments from the emergence of writing through to digital finance).
21. *See generally* Azeem Azhar, The Exponential Age: How Accelerating Technology Is Transforming Business, Politics, and Society (2021).
22. The dominant macroeconomic consensus that emerged during the 1970s and 1980s and remained relatively stable over the subsequent 40 years has been increasingly criticized for its failure to predict, and adequately respond, to the various crises and challenges of the past 15 years, prompting renewed theoretical and policy interest in alternative macroeconomic paradigms and schools of thought. *See, e.g.*, Dilip Nachane, *Global Crisis and the New Consensus Macroeconomics: End of "Paradigmatic Determinism?,"* 48 Econ.

A. *Labor Discipline as Inflation Control*

The prevailing consensus typically divides macroeconomic policymaking into fiscal and monetary policy, with the former encompassing spending and revenue-collection administered primarily by the U.S. Treasury through the congressional budget process, and the latter consisting of monetary, credit, and liquidity management administered by the Federal Reserve ("the Fed").[23] Under this framework, primary responsibility for day-to-day systemic price stability is delegated to the Fed, which enjoys statutory and operational independence from the rest of the executive branch.[24] By contrast, fiscal authorities are generally expected to pursue their own separate, non-macroeconomic priorities while limiting the overall growth of deficits and public debt to acceptable levels, as determined by financial market conditions and prevailing macroeconomic consensus.[25]

The Fed's core mechanism for achieving its price stability targets is the adjustment of interest rates.[26] The Fed is (at least ostensibly) limited from coordinating with other public instrumentalities or private actors to directly intervene in and steer "Main Street" industrial production (as opposed to "Wall Street" financial market activity) on an ongoing basis.[27] There is, however, one exception to the general institutional and jurisdictional separation between monetary and industrial policy: the labor market. Labor holds the unenviable distinction of serving as the primary sectoral target of the Fed's modern inflation-fighting efforts.[28]

The Fed's operating framework is constructed in part around the concept of the "NAIRU," or "Non-Accelerating Inflation Rate of Unemployment."[29] The NAIRU is a theoretical rate of unemployment beyond which general inflationary pressure not only remains heightened, but begins to non-sustainably accelerate.[30] It serves as a conceptual upper-level boundary for optimal labor market conditions, which the Fed then aims to adhere within through its monetary policy interventions.[31]

The NAIRU is not directly observable, rather it is estimated through inferences drawn from a wide range of inflation and labor data.[32] When the Fed's Open Market Committee collectively estimates that the current employment rate is exceeding the NAIRU rate, it typically votes to contract economic conditions by raising interest rates.[33]

& Pol. Wkly. 1, 43 (2013). *See also* Joshua W. Mason, *A Debate Is Raging Over How to Fight Inflation. The Underdogs Are Winning.*, Barron's (July 24, 2023), https://www.barrons.com/articles/a-debate-is-raging-over-how-to-fight-inflation-2a608408 [https://perma.cc/P9MA-WXVA]; Paul Krugman, *The Inflation Debate Is Cooling*, N.Y. Times (May 26, 2023), https://www.nytimes.com/2023/05/26/opinion/inflation-fed-blanchard-bernanke.html [https://perma.cc/VLZ9-FTV4]; Thomas Ferguson & Servaas Storm, *The Great Inflation Debate: Supply Shocks in a Multipolar World*, Inst. New Econ. Thinking (Jan. 3, 2023), https://www.ineteconomics.org/perspectives/blog/the-great-inflation-debate-supply-shocks-and-wealth-effects-in-a-multipolar-world-economy [https://perma.cc/2NEU-YHNL]; Michael Madowitz, *Seven Ways the Inflation Debate in the United States Has Changed Since Last Year and How the Fed Can Now Recalibrate Its Monetary Policy*, Wash. Ctr. Equitable Growth (Apr. 22, 2022), https://equitablegrowth.org/seven-ways-the-inflation-debate-in-the-united-states-has-changed-since-last-year-and-how-the-fed-can-now-recalibrate-its-monetary-policy [https://perma.cc/L234-DP6X].

23. Troy Segal, *Monetary Policy vs. Fiscal Policy: What's the Difference?*, Investopedia (June 7, 2023), https://www.investopedia.com/ask/answers/100314/whats-difference-between-monetary-policy-and-fiscal-policy.asp [https://perma.cc/3ZV9-J85A].
24. *Monetary Policy: What Are Its Goals? How Does It Work?*, Bd. Gov. Fed. Rsrv. Sys. (July 29, 2021), https://www.federalreserve.gov/monetarypolicy/monetary-policy-what-are-its-goals-how-does-it-work.htm [https://perma.cc/48NQ-56LT].
25. *See, e.g.*, Cristina Bodea & Masaaki Higashijima, *Central Bank Independence and Fiscal Policy: Can the Central Bank Restrain Deficit Spending?*, 47 British J. Pol. Sci. 47, 47–50 (2017). In recent years, leading orthodox macroeconomic figures have argued that this assumption should be relaxed in light of recent experience; however, these views have yet to become the dominant orthodoxy. *See, e.g.*, Jason Furman, Chair, Council of Econ. Advisers, Expanded Version of Remarks at the Conference on Global Implications of Europe's Redesign: The New View of Fiscal Policy and Its Application (Oct. 5, 2016), https://obamawhitehouse.archives.gov/sites/default/files/page/files/20161005_furman_suerf_fiscal_policy_cea.pdf [https://perma.cc/4M4N-E5YX].
26. *See, e.g.*, *How the Fed Implements Monetary Policy With Its Tools*, Fed. Rsrv. Bank St. Louis, https://www.stlouisfed.org/en/in-plain-english/the-fed-implements-monetary-policy [https://perma.cc/RM5T-GT2Z].
27. For example, Federal Reserve Chair Jerome Powell has insisted that the Fed "[is] not, and will not be, a 'climate policymaker,'" and that "without explicit congressional legislation, it would be inappropriate for [the Fed] to use [its] monetary policy or supervisory tools to promote a greener economy." Jeanna Smialek, *Powell Says Fed Will Not Be "Climate Policymaker,"* N.Y. Times (Jan. 10, 2023), https://www.nytimes.com/2023/01/10/business/economy/powell-fed-climate.html [https://perma.cc/7Z7K-8ZXA]. This view is traceable to the emergence of the dominant macroeconomic consensus in the 1970s and 1980s, prior to which the Fed and other central banks around the world explicitly relied on targeted credit policy to manage demand and prices, as well as direct purchases of business and trade credit to maintain liquidity conditions. *See, e.g.*, John Godfrey, *Credit Controls: Reinforcing Monetary Restraint*, 65 Fed. Rsrv. Bank Atlanta Econ. Rev. 15 (May 1980) (detailing President Jimmy Carter's use of Fed-implemented credit controls); Perry Mehrling, *Retrospectives: Economists and the Fed: Beginnings*, 16 J. Econ. Persp. 207 (2002) (discussing the early debates over the early purpose and scope of the Fed's monetary policy); Eric Monnet, Controlling Credit: Central Banking and the Planned Economy in Postwar France, 1948-1973 14-15 (2018) (examining the history of post-War central bank-directed credit regulation in France prior to the emergence of the now-prevailing Anglo-centric macroeconomic consensus in the 1970s).
28. *See, e.g.*, Jerome Powell, Chair, Fed. Rsrv., Speech Delivered to the Hutchins Center on Fiscal and Monetary Policy: Inflation and the Labor Market (Nov. 30, 2022) (transcript available at https://www.federalreserve.gov/newsevents/speech/powell20221130a.htm) [https://perma.cc/2897-HRJN]; Janet Yellen, Speech Delivered to the Federal Reserve Bank of Kansas City Economic Symposium: Labor Market Dynamics and Monetary Policy (Aug. 22, 2014) (transcript available at https://www.federalreserve.gov/newsevents/speech/yellen20140822a.htm)[https://perma.cc/8JP3-DA6S].
29. *See, e.g.*, Matthew Yglesias, *The NAIRU, Explained: Why Economists Don't Want Employment to Drop Too Low*, Vox (Nov. 14, 2014), https://www.vox.com/2014/11/14/7027823/nairu-natural-rate-unemployment [https://perma.cc/FK7A-T842]; Matthew Klein, *Debunking the NAIRU Myth*, Fin. Times Alphaville (Jan. 19, 2017), https://www.ft.com/content/facf6989-7cd2-3724-a6d4-dfe7c755175f [https://www.philadelphiafed.org/surveys-and-data/real-time-data-research/nairu-data-set].
30. Yglesias, *supra* note 29.
31. Lorena Hernandez Barcena & David Wessel, *How Does the Fed Define "Maximum Employment"?*, Brookings Inst. (Feb. 23, 2022), https://www.brookings.edu/articles/how-does-the-fed-define-maximum-employment/ [https://perma.cc/8HCS-XMGE].
32. *NAIRU Estimates From the Board of Governors*, Fed. Rsrv. Bank of Phila. (Feb. 1, 2023), https://www.philadelphiafed.org/surveys-and-data/real-time-data-research/nairu-data-set [https://perma.cc/B3YP-CCPQ]. *See also* James Galbraith, *Time to Ditch the NAIRU*, 11 J. Econ. Persp. 93, 96–97 (1997) (noting that the correlation between inflation and unemployment, as evidenced in statistical data, is "modest" and "asymmetric"); Yglesias, *supra* note 29.
33. *See, e.g.*, *How Does the Federal Reserve Affect Inflation?*, Bd. Gov. Fed. Rsrv. Sys. (Aug. 27, 2020), https://www.federalreserve.gov/faqs/money_12856.htm [https://perma.cc/Z7Q4-KPJW]; *Why Does the Federal Reserve Care About Inflation?*, Fed. Rsrv. Bank Cleveland (July 26, 2023), https://www.clevelandfed.org/en/center-for-inflation-research/inflation-101/why-does-the-fed-care-start [https://perma.cc/QAD8-QAG8].; *see also* Dean Baker

The Fed's method of combating inflation by "softening of labor market conditions,"[34] when described operationally, sounds almost conspiratorial: higher rates increase the cost of debt finance, thereby reducing business investment.[35] Lower business investment, in turn, leads to lower employment levels, which reduces the bargaining power of labor, and in turn, lower wages.[36] Lower wages reduce consumer spending, which then causes businesses to lower prices.[37]

This Rube Goldberg-esque process, when stripped down, essentially consists of reducing effective demand by inducing higher levels of unemployment so both workers and the unemployed have less money to spend.[38] In practice, it translates to the Fed exerting extremely broad latitude over labor market conditions.[39] In the name of price stability, it dictates employment opportunities and wage conditions, while promoting labor fragility and disunity through the maintenance and manipulation of an unemployed sub-class.[40]

Even singular hikes can be enormously impactful. In 1980, the Fed Chairman famously "broke the back" of inflation by rapidly hiking rates to over 20%, resulting in record-high unemployment levels of nearly 11%.[41] Paul Volcker's stated aim of this move was to undermine the increasingly militant wage demands of the union movement, who he blamed for precipitating an inflationary wage-price spiral.[42] This short period had a permanent, devastating impact on the political strength of organized labor, among other affected groups, which contributed to the subsequent decades-long decline in wage growth relative to total productivity levels.[43]

B. The Inherent Biases of Monetary Policy

In theory, interest rates are a bidirectional lever: In periods of above-target inflation, the Fed raises rates in order to reduce business investment and ultimately, consumer demand.[44] Conversely, in periods of below-target inflation, the Fed lowers rates to ease credit conditions and encourage higher levels of private spending.[45]

In practice, however, the lever is asymmetric: rates can be increased indefinitely, but not lowered indefinitely.[46] The Fed's ability to set negative nominal rates—functionally, a tax on holding interest-earning reserves and government securities—is operationally constrained by the effective lower bound, estimated to be a few percentage points below zero.[47] When the Fed hits this lower bound, the cost of holding interest-bearing digital government obligations (reserves, Treasury securities) exceeds the cost of simply withdrawing and holding zero-interest physical cash.[48] Consequently, the Fed cannot push rates lower, and alternative forms of expansionary interven-

& Sarah Rawlins, *The Full Employment Mandate of The Federal Reserve: Its Origins and Importance,* Ctr. Econ. & Pol'y Rsch. (July 1, 2017), https://cepr.net/images/stories/reports/full-employment-mandate-2017-07.pdf [https://perma.cc/M888-U3ZM].

34. Jerome Powell, Chair, Fed. Rsrv., Press Conference (July 26, 2023) (transcript available at https://www.federalreserve.gov/mediacenter/files/FOMCpresconf20230726.pdf) [https://perma.cc/ZNA9-CZGR].
35. At least ostensibly empirical evidence suggests the impact of interest rate changes on business investment is weak, at best. *See* Josh Mason, *The Fed Can't Fine-Tune the Economy*, Barron's (Mar. 7, 2023), https://www.barrons.com/articles/interest-rates-economy-federal-reserve-4814ad23 [https://perma.cc/TW9P-Y3AN].
36. Skanda Armanath & Alex Williams, *What Are You Expecting? How the Fed Slows Down Inflation Through the Labor Market*, Employ Am. Lab. Mkt. Reps. (Feb. 16, 2022), https://www.employamerica.org/content/files/2022/06/What-Are-You-Expecting-.pdf [https://perma.cc/MD6N-697B].
37. *Id.*
38. *See, e.g.*, Joshua W. Mason, *The Fed Doesn't Work for You*, Jacobin (Jan. 6, 2016), https://jacobin.com/2016/01/federal-reserve-interest-rate-increase-janet-yellen-inflation-unemployment [https://perma.cc/3GHL-THUJ]; *see also* Yglesias, *supra* note 29; Galbraith, *supra* note 32, at 105.
39. Mason, *supra* note 22.
40. *See, e.g.*, Jon Schwartz, *In Confidential Memo, Treasury Secretary Janet Yellen Celebrated Unemployment as a "Worker-Discipline Device,"* Intercept (Jan. 24, 2023), https://theintercept.com/2023/01/24/unemployment-inflation-janet-yellen/ [https://perma.cc/4AJL-BVZM]; *see also* Michel Kalecki, *Political Aspects of Full Employment*, 14 Pol. Q. 322 (1943) (arguing that capitalists actively oppose and undermine efforts to achieve and maintain full employment, despite its economic benefits, out of concern that such conditions increase the relative bargaining position of workers, and thus decrease their own political and economic power).
41. For a detailed account of this period, and of Paul Volcker's broader anti-labor legacy as Fed Chair, see, e.g., Tim Barker, *Other People's Blood*, N+1 (Spring 2019), https://www.nplusonemag.com/issue-34/reviews/other-peoples-blood-2/ [https://perma.cc/6JBQ-QPNS]; *see generally* Greta Krippner, Capitalizing on Crisis: The Political Origins of the Rise of Finance, 106, 116–18 (2011).
42. Barker, *supra* note 41 (noting that Volcker stated that "in the economy as a whole . . . labor accounts for the bulk of all costs, and those rising costs in turn maintain the momentum of the inflationary process," and that "the most important single action of the [Ronald Reagan] administration in helping the anti-inflation fight was defeating the Professional Air Traffic Controllers Organization (PATCO) strike in 1981," which had a "psychological effect on the strength of the union bargaining position"); *see also* Daniel J.B. Mitchell & Christopher L. Erickson, *Not Yet Dead at the Fed: Unions, Worker Bargaining, and Economy-Wide Wage Determination*, 44 Indus. Relations 565 (2005) (noting the overemphasis by the Fed on the macroeconomic and price impacts of union settlements during the 1980s and 1990s).
43. Barker, *supra* note 41; Mitchell & Erickson, *supra* note 42; *see also* Rohan Grey, *RIP, Paul Volcker: The Fed Chair Who Thought We Lived Too Well*, The Nation (Dec. 11, 2019), https://www.thenation.com/article/economy/volcker-inflation-economy [https://perma.cc/X85J-7YH8]; Dylan Matthews, *How the Fed Ended the Last Great American Inflation—And How Much It Hurt*, Vox (July 13, 2022), https://www.vox.com/future-perfect/2022/7/13/23188455/inflation-paul-volcker-shock-recession-1970s [https://perma.cc/EWV4-5KXK].
44. Fed. Rsrv. Bank Cleveland, *supra* note 33 ("When inflation is too high, the Federal Reserve typically raises interest rates to slow the economy and bring inflation down. When inflation is too low, the Federal Reserve typically lowers interest rates to stimulate the economy and move inflation higher.").
45. *Id.*
46. *See, e.g.*, Thomas Mertens & John Williams, *Monetary Policy Frameworks and the Effective Lower Bound on Interest Rates*, Fed. Rsrv. Bank of N.Y. Staff Rep. No. 877, 4 (July 2019), https://www.newyorkfed.org/medialibrary/media/research/staff_reports/sr877.pdf [https://perma.cc/WD46-SQB3]; Janet Yellen, *Comments on Monetary Policy at the Effective Lower Bound*, Brookings Inst. (Sept. 14, 2018), https://www.brookings.edu/articles/comments-on-monetary-policy-at-the-effective-lower-bound [https://perma.cc/ZDN8-VW3H]; Ayowande McCunn & Rohan Grey, *Do Negative Interest Rates Live Up to the Hype?*, Oxford Bus. L. Blog (Mar. 13, 2017), https://blogs.law.ox.ac.uk/business-law-blog/blog/2017/03/do-negative-interest-rates-live-hype [https://perma.cc/9MLZ-BACK].
47. Mertens & Williams, *supra* note 46.
48. There have been theoretical proposals to modify operating practices in ways that would eliminate the effective lower bound on interest rate policy, such as breaking the par-convertibility of physical notes and interest-earning central bank reserves, but they have not been attempted in practice. *See, e.g.*, Ruchir Agarwal & Miles Kimball, *Enabling Deep Negative Rates to Fight Recessions: A Guide* (IMF Working Paper, Paper No. 84, 2019) (proposing various mechanisms to create a de facto negative rate on physical currency).

tion become necessary.[49] This includes increases in fiscal deficits, which unlike both standard and unconventional monetary easing, increase private-sector incomes unilaterally without requiring a corresponding increase in private leverage or debt.[50]

In contrast to rate hikes, which the Fed can easily and unilaterally implement without limit under existing statutory authority, coordinated fiscal-monetary expansion at the effective lower bound requires a complex negotiation between the legislative, executive branch, and central bank, conducted under high levels of public scrutiny.[51] In the absence of a single, universal fiscal injection mechanism, spending programs must specify particular recipients and purposes in ways that invite political and subjective judgment of the kind that the Fed ostensibly aims to avoid.[52] As a result, the Fed is instinctively averse to remaining at the effective lower bound, and considers it a deviation from the optimal economic state rather than a potentially equally valid alternative equilibrium condition.[53]

Instead, once economic conditions improve, the Fed typically seeks to move or "normalize" interest rates at a baseline level sufficiently high that it can comfortably lower them again in the future if necessary.[54] Higher default rates afford the Fed greater operational flexibility to implement future expansionary policy (i.e. lowering rates) without recourse to fiscal support, ensuring that "fiscal dominance" remains the exception, rather than default state for policy coordination.[55] Achieving this normalization, however, requires maintaining sufficiently high levels of demand during the recovery to offset the contractionary effect of gradual monetary tightening without undue negative effects.[56] This, in turn, is paradoxically dependent on ongoing fiscal accommodation,[57] notwithstanding the Fed's stated goal of preserving monetary policy independence.[58]

The overall effect of this approach is that monetary policy is firmly in the macroeconomic driver's seat, notwithstanding interest rates being a blunt tool and largely incapable of reducing or increasing demand in a way that promotes prosocial price stability.[59] The Fed is institutionally biased toward positive nominal default rates, and asymmetrically empowered to address high-demand-led inflation at the expense of other sources of price instability.[60] At the same time, it remains reliant on ongoing fiscal support to mitigate large-scale deflation and facilitate normalization around its baseline target rate.[61]

In contrast, an expansionary fiscal policy is treated as a countercyclical demand-stabilizing tool of last resort,

49. For an overview, see Leonard Gambarcorta et al., *The Effectiveness of Unconventional Monetary Policy at the Zero Lower Bound: A Cross-Country Analysis* (Bank of Int'l. Settlements Working Paper, Paper No. 384, 2012), https://www.bis.org/publ/work384.pdf [https://perma.cc/S2VZ-ZY3H].

50. *See, e.g.*, Nick Bunker, *What Kind of Fiscal Policy Works Best at the Lower Bound?*, Wash. Ctr. Equitable Growth (Mar. 23, 2017), https://equitablegrowth.org/what-kind-of-fiscal-policy-works-best-at-the-zero-lower-bound [https://perma.cc/L66C-TJHZ]; Paul Krugman, *Fiscal Policy at the Lower Bound, Again*, N.Y. Times (Dec. 27, 2014), https://archive.nytimes.com/krugman.blogs.nytimes.com/2014/12/27/fiscal-policy-at-the-zero-lower-bound-again/index.html [https://perma.cc/6CM5-MVFX]; Mark Blyth, *The Last Days of Pushing on a String*, Harv. Bus. Rev. (Aug. 7, 2012), https://hbr.org/2012/08/the-last-days-of-pushing-on-a [https://perma.cc/H5GF-QC4P].

51. *See, e.g.*, Marc Labonte, Cong. Rsch. Serv., R46411, The Federal Reserve's Response to COVID-19: Policy Issues (2021) ("Congress decided . . . to direct the bulk of [CARES Act] money to the Fed; Treasury decides how much . . . funds should backstop each Fed program, but the Fed designs and administers those programs."); Adam Tooze, Shutdown: How COVID Shook the World Economy 154 (2021):

> What on its face looked like a powerful synthesis of fiscal and monetary policy working in harmonious co-ordination to help fund a generous new social contract revealed itself on closer inspection to be a confused and ill-shapen monster, a policy regime somewhere on the spectrum between Frankenstein and Jekyll and Hyde.

For a historical overview of fiscal-monetary coordination, see Josh Ryan-Collins & Frank Van Lerven, *Bringing the Helicopter to the Ground: A Historical Review of Fiscal-Monetary Coordination to Support Economic Growth in the 20th Century* (Post-Keynesian Soc'y Working Paper No. 1810, 2018), https://www.postkeynesian.net/downloads/working-papers/PKWP1810.pdf [https://perma.cc/S83S-QXP5].

52. Lev Menand, *The Federal Reserve and the 2020 Economic and Financial Crisis*, 6 Stan. J.L. Bus. & Fin. 295, 354 (2021) ("monetary policy . . . depends upon[ ] a distinct internal culture, which means the Fed's staff and leadership tend to avoid financial risk and political conflict."). For an overview of the Fed's expansive and unprecedented interventions during the 2020 COVID recession, see generally, Lev Menand, The Fed Unbound: Central Banking in a Time of Crisis (2022) (arguing that increased reliance on the Fed's emergency powers is harmful to the Fed's institutional independence and the broader democratic accountability of macroeconomic policy).

53. *See, e.g.*, Jerome Powell, Chair, Fed. Rsrv., Address at the Stanford Institute of Economic Policy Research (SIEPR) Summit: Monetary Policy: Normalization and the Road Ahead (Mar. 8, 2019), https://www.federalreserve.gov/newsevents/speech/powell20190308a.htm [https://perma.cc/3T4L-BVBR] ("[d]elivering on the [Federal Open Market Committee]'s intention to ultimately normalize policy continues to be a major priority at the Fed"); *Policy Normalization Principles and Plans*, Bd. Gov. the Fed. Rsrv. Sys. (Sept. 16, 2014), https://www.federalreserve.gov/monetarypolicy/files/fomc_policynormalization.pdf [https://perma.cc/WCC9-FESU] ("The Committee will determine the timing and pace of policy normalization—meaning steps to raise the federal funds rate and other short-term interest rates to more normal levels and to reduce the Federal Reserve's securities holdings—so as to promote its statutory mandate of maximum employment and price stability.").

54. *See, e.g.*, Lael Brainard, Member, Bd. of Gov. of the Fed. Rsrv. Sys., Remarks at SIEPR: Normalizing Monetary Policy When the Neutral Interest Rate Is Low (Dec. 1, 2015), https://www.federalreserve.gov/newsevents/speech/brainard20151201a.htm [https://perma.cc/6VTS-5RX2] ("The lower the longer-term nominal neutral rate is, the smaller in magnitude an adverse economic shock must be to push growth sufficiently below potential to necessitate a nominal federal funds rate below zero to provide accommodation.").

55. *See, e.g.*, Isabel Schnabel, Exec. Bd. Member, Eur. Cent. Bank, Speech at the Centre for European Reform and the Eurofi Financial Forum, The Shadow of Fiscal Dominance: Misconceptions, Perceptions, and Perspectives (Sept. 11, 2020), https://www.ecb.europa.eu/press/key/date/2020/html/ecb.sp200911~ea32bd8bb3.en.html [https://perma.cc/4J63-SVXW]:

> Fiscal expansion is indispensable at the current juncture to sustain demand and mitigate the long-term costs of the crisis. Monetary policy can complement these efforts. But by itself, it may not be sufficient to stabilize the economy . . . [i]n such times, it would be wrong to constrain fiscal policies today to protect monetary dominance tomorrow. Quite on the contrary, using fiscal and structural policies more actively in the current environment may foster central bank independence.

56. *Id.*

57. Fiscal accommodation in this context refers to increased deficit spending by fiscal authorities intended to increase effective demand in such a way as to offset the undesired contractionary effects of monetary policy tightening. *See, e.g.*, John Carney, *The Fed vs. Congress: Who Is Enabling Whom?*, CNBC (May 28, 2013), https://www.cnbc.com/id/100770053 [https://perma.cc/K6G3-U98L].

58. *Id.*; *see also* Gita Gopinath, Remarks Prepared for the Jackson Hole Symposium, How Will the Pandemic and War Shape Future Recovery? (Aug. 26, 2022), (https://www.imf.org/en/News/Articles/2022/08/26/sp-gita-gopinath-remarks-at-the-jackson-hole-symposium) [https://perma.cc/R4ZR-R7WH] (noting that "increasing reliance on fiscal policy to support economies" can help to raise "equilibrium interest rates," i.e., the policy rate consistent with stable full employment).

59. *See* Schnabel, *supra* note 55.

60. *See* Labonte, *supra* note 51.

61. *See infra* note 81.

to be invoked at the Fed's discretion, and only upon the determination that traditional monetary channels have been exhausted or are demonstrably insufficient to maintain effective demand.[62] As a result, it tends to be ad hoc, reactive, and exceptionalized.[63] Explicit fiscal-monetary coordination is limited, beyond the use of budgetary gimmicks and off-balance sheet vehicles, to reduce the headline sticker price of large fiscal interventions.[64] Outside of these circumstances, persistent government deficits are seen as inherently irresponsible and undesirable; the presumptive expectation is that public spending will be fully costed and budget-neutral except when especially justified.[65]

This view is both increasingly contested, and empirically inconsistent with both historical and current practices.[66] In reality, continuous monetary accommodation of persistent budget deficits is the norm, not the exception.[67] Fiscal and monetary authorities also regularly coordinate their operations and negotiate to resolve competing interests and priorities.[68] Moreover, the Fed's political and budgetary independence has, in practice, led the legislative and executive branches to increasingly rely on it to perform a shadow fiscal role during crises through generous liquidity, credit, and non-recourse loan programs.[69] As a result, the ostensibly "apolitical" Fed now exerts significant, ongoing influence over the scope and scale of economic support extended to different groups, actors, and institutions in the economy, with limited external oversight or accountability.[70]

C. Lessons From COVID-flation

Between 2020-2023, the United States endured a series of overlapping crises and unprecedented policy responses.[71] Following the initial COVID-19 outbreak and economic recession, the Fed engaged in a broad loosening of monetary policy.[72] This included not only lowering interest rates, but also backstopping an even wider range of asset markets and industrial sectors through crisis facilities that greatly expanded the range and favorability of its collateral policy.[73] The Fed also took the extraordinary step of engaging in outright purchases of corporate and municipal debt.[74]

At the same time, the federal government implemented multiple rounds of large-scale fiscal relief measures, intended to provide income and credit support to individuals, small businesses, financial institutions, investors,

62. Nathan Tankus, *The New Monetary Policy: Reimagining Demand Management and Price Stability in the 21st Century* 1-3, Mod. Money Network (2022), https://files.modernmoney.network/M3F000001.pdf [https://perma.cc/ZF44-FB8C].
63. While there have been proposals for both an independent fiscal authority and various countercyclical "automatic fiscal stabilizer" programs, they remain at the margins of political consideration. *See, e.g.*, Thomas Baunsgaard & Steven Symansky, *Automatic Fiscal Stabilizers*, Int'l. Monetary Fund Staff Position Note No. 2009/023 (Sept. 28, 2009), https://www.imf.org/en/Publications/IMF-Staff-Position-Notes/Issues/2016/12/31/Automatic-Fiscal-Stabilizers-23303; Nathan Tankus et al., *An MMT Response on What Causes Inflation*, Fin. Times (Mar. 1, 2019), https://www.ft.com/content/539618f8-b88c-3125-8031-cf46ca197c64 [https://perma.cc/ZF44-FB8C]; Stephanie Kelton, *Dual Mandate—Right Goals, Wrong Agency?*, Fin. Times (Aug. 6, 2013), https://www.ft.com/content/36ece9c3-06be-3920-92d4-473aa9a8ab20 [https://perma.cc/RP8N-KXDB].
64. *See, e.g.*, Nathan Tankus, *Improving the Accounting Gimmicks in the CARES Act*, Notes Crises (May 7, 2020), https://nathantankus.substack.com/p/improving-the-accounting-gimmicks [https://perma.cc/5WLR-9V6S].
65. *See, e.g.*, *Fact Sheet: The President's Budget Cuts the Deficit by Nearly $3 Trillion Over 10 Years*, White House Press Release (Mar. 9, 2023), https://www.whitehouse.gov/omb/briefing-room/2023/03/09/fact-sheet-strong-the-presidents-budget-cuts-the-deficit-by-nearly-3-trillion-over-10-years-strong [https://perma.cc/QSN7-KDB5] (arguing that "[t]he President's Budget improves the Nation's fiscal outlook and reduces long-term fiscal risks by reducing the deficit, stabilizing deficits as a share of the economy, and keeping the economic burden of debt within historical norms").
66. *See, e.g.*, Anton Korinek & Joseph Stiglitz, *Macroeconomic Stabilization for a Post-Pandemic World: Revising the Fiscal-Monetary Policy Mix and Correcting Macroeconomic Externalities*, Brookings Inst. (Hutchins Ctr. Working Paper, Paper No. 78, 2022), https://www.brookings.edu/articles/macroeconomic-stabilization-for-a-post-pandemic-world [https://perma.cc/KA4U-HHC4] (arguing for a permanently expanded role for fiscal policy in macroeconomic stabilization and demand management); Josh Ryan-Collins et al., Monetary-Fiscal Policy Coordination: Lessons From COVID-19 for the Climate and Biodiversity Emergencies, (UCL Inst. Innovation & Pub. Purpose Working Paper, Paper No. 2023-04, 2023), https://www.ucl.ac.uk/bartlett/public-purpose/wp2023-04 [https://perma.cc/N4LG-ECXZ] (arguing that a revised framework for fiscal-monetary coordination is necessary to address impending climate and biodiversity crises).
67. While the Fed has the discretionary authority to adjust interest rates, it is operationally required to maintain liquidity in Treasury markets in order to maintain its target policy rate and preserve financial market system stability. Consequently, it is constantly engaged in a process of functional public debt monetization, notwithstanding its assertions of fiscal-monetary separation. *See, e.g.*, Scott Fullwiler, *When the Interest Rate on the National Debt Is a Policy Variable (and "Printing Money" Does Not Apply)*, 40(3) Pub. Budgeting & Fin. 72 (2020).
68. *Id.*; *see also* Eric Tymoigne, *Modern Money Theory, and Interrelations Between the Treasury and Central Bank: The Case of the United States*, 48 J. Econ. Issues 641 (2014) (discussing the history and contemporary practice of close coordination between the Treasury and Federal Reserve).
69. Menand (2021), *supra* note 52, at 353. *See also* David Wessel, *How the Fed Became Everything (and Everything Became the Fed)*, Foreign Pol'y (Apr. 30, 2023), https://foreignpolicy.com/2023/04/30/federal-reserve-limitless-trillion-dollar-triage-review-powell-us-economy-banking-crisis/ [https://perma.cc/FV6D-J4QB].
70. Menand (2021), *supra* note 52, at 354.
71. These include the COVID-19 Pandemic, the Ukraine-Russia War, the enduring aftermath of the GFC of 2008-2009 and the Eurozone Crisis of 2011-2012, and, of course, the growing Climate Crisis. The overlapping, interrelated, nature of these forces has led some commentators to describe the present condition as a "polycrisis" in which "disparate crises interact such that the overall impact far exceeds the sum of each part." *See, e.g.*, Kate Whiting & HyoJin Park, *This Is Why "Polycrisis Is a Useful Way of Looking at the World Right Now*, World Econ. F. (Mar. 7, 2023), https://www.weforum.org/agenda/2023/03/polycrisis-adam-tooze-historian-explains [https://perma.cc/2GUS-ZXZC]; Nathan Tankus, *What Are the Three Concurrent Crises of the Coronavirus Depression?*, Notes Crises (May 21, 2020), https://nathantankus.substack.com/p/what-are-the-three-concurrent-crises [https://perma.cc/2EYP-3RJS].
72. For a broad overview, see Eric Milstein & David Wessel, *What Did the Fed Do in Response to the COVID-19 Crisis?*, Brookings Inst. (Dec. 20, 2021), https://www.brookings.edu/articles/fed-response-to-covid19 [https://perma.cc/LA95-9LTG]. For a more detailed, blow-by-blow analysis, see Nathan Tankus, *The Federal Reserve's Coronavirus Crisis Actions, Explained (Part 1)*, Notes Crises (Mar. 25, 2020), https://www.crisesnotes.com/the-federal-reserves-coronavirus [https://perma.cc/763Y-4SE6] [hereinafter Tankus Part 1]; *The Federal Reserve's Coronavirus Crisis Actions, Explained (Part 2)*, Notes Crises (Mar. 26, 2020), https://www.crisesnotes.com/the-federal-reserves-coronavirus-276 [https://perma.cc/8HYA-V88G] [hereinafter Tankus Part 2]; *The Federal Reserve's Coronavirus Crisis Actions, Explained (Part 3)*, Notes Crises (Mar. 30, 2020), https://www.crisesnotes.com/the-federal-reserves-coronavirus-054 [https://perma.cc/GDB8-DUEV] [hereinafter Tankus Part 3].
73. *See generally* Tankus Part 1, *supra* note 72; Tankus Part 2, *supra* note 72; Tankus Part 3, *supra* note 72.
74. Tankus Part 1, *supra* note 72; Tankus Part 2, *supra* note 72. For the enduring political and legal implications of the Federal Reserve's unprecedented actions, see generally Lev Menand, *Fed to the Rescue: Unprecedented Scope, Stretched Authority*, CLS Blue Sky Blog (Apr. 27, 2020), https://clsbluesky.law.columbia.edu/2020/04/27/fed-to-the-rescue-unprecedented-scope-stretched-authority [https://perma.cc/VHM4-F7QL].

and various levels and branches of government.[75] Some of these measures, such as supplementary income support for unemployed workers, were explicitly designed to soften the harmful social effects of high unemployment, which was seen as an unavoidable cost of mass quarantine and isolation.[76] Others, such as employer subsidies and loans, were intended to mitigate private-sector downturn by incentivizing businesses to stay open and keep workers on payroll during lockdown.[77]

The scale and scope of the government's coordinated fiscal-monetary response across both the Donald Trump and Joseph Biden regimes, particularly in contrast to the Barack Obama Administration's response to the GFC, was staggering and had clear macroeconomic effects. Unemployment dropped from its peak of over 14% in mid-2020 to under 6% in a matter of months.[78] The stock market and corporate profits quickly rebounded,[79] and average incomes and overall net wealth levels shockingly improved relative to before the crisis.[80]

Eventually, however, resurgent consumer spending demand, combined with a general productivity shock and accompanying supply chain crises, as well as the broader geopolitical disruption caused by Russia's attack on Ukraine, produced strong and broad-based price pressure, particularly in electronics (including cars), housing, food, and energy.[81] Between February 2021 and June 2022, headline Consumer Price Index inflation went from 1.7% to over 9%.[82]

In response, the Fed pivoted to a contractionary monetary policy intended to reduce consumer spending demand by decelerating growth in worker incomes and wages.[83] Between March 2022 and July 2023, the Fed sequentially raised the overnight interest rate from 0.25% to 5.5%.[84] In a speech delivered to both the U.S. House of Representatives and the U.S. Senate in July 2023, Fed Chairman Jerome Powell argued that "[r]educing inflation [wa]s likely to require a[n ongoing] period of below-trend growth and some [further] softening of labor market conditions," but claimed that "[r]estoring price stability [wa]s essential to set the stage for achieving maximum employment and stable prices over the longer run."[85]

At the same time, the Biden Administration implemented various strategic price-targeting executive measures, including tapping the Strategic Petroleum Reserve and expanding fracking to lower the prices of oil and gas.[86] The U.S. Congress also passed the Inflation Reduction Act, which included unprecedented investments in and subsidies for clean energy technology and infrastructure, as well as support for manufacturing and other key domestic sectors.[87]

It is unclear what effect these interventions, separately and together, had on overall price dynamics.[88] Regardless, broader improved economic conditions, combined with global supply chain recovery and other institutional and market adjustments, saw headline inflation drop to less than 3% as of June 2023—well below the historic average.[89] Somewhat surprisingly, this price decline did not

75. For a summary overview, see Grant Driessen & Lida Weinstock, Cong. Rsch. Serv., IN11734, The COVID-19-Related Fiscal Response: Recent Actions and Future Option (2021). For a more detailed breakdown, see *The Federal Response to COVID-19*, Bureau Fiscal Serv. (Aug. 31, 2023), https://www.usaspending.gov/disaster/covid-19?publicLaw=all [https://perma.cc/763Y-4SE6].
76. *See, e.g.*, Nick Gwyn, *Historic Unemployment Programs Provided Vital Support to Workers and the Economy During Pandemic, Offer Roadmap for Future Reform*, Ctr. Budget & Pol'y Priorities, 1-2, 4 (Mar. 24, 2022), https://www.cbpp.org/sites/default/files/3-24-22bud.pdf [https://perma.cc/UMP5-ZD64].
77. *See, e.g.*, Sean Ludwig, *Everything You Need to Know About Coronavirus Federal Small Business Stimulus Aid Programs*, U.S. Chamber Com. (Apr. 20, 2021), https://www.uschamber.com/co/start/strategy/federal-small-business-stimulus-aid-programs-guide [https://perma.cc/Z9TF-6VQQ].
78. Gene Falk et al., Cong. Rsch. Serv., R46554, *Unemployment Rates During the COVID-19 Pandemic* 2 (2021).
79. Hamza Shaban & Heather Long, *The Stock Market Is Ending 2020 at Record Highs, Even as the Virus Surges and Millions Go Hungry*, Wash. Post (Dec. 31, 2020), https://www.washingtonpost.com/business/2020/12/31/stock-market-record-2020 [https://perma.cc/68MK-NP5U]. (noting that S&P 500 stock index, the most widely tracked index of the stock market, finished the year up over 16% in 2020).
80. Ben Steverman, *America's Inequality Problem Just Improved for the First Time in a Generation*, Bloomberg (June 8, 2022), https://www.bloomberg.com/news/features/2022-06-08/us-income-inequality-fell-during-the-covid-pandemic [https://perma.cc/CCU3-A9WZ] (noting that the bottom 50% of households' wealth doubled in two years, such that they now holder a larger share of overall wealth than they've had for 20 years).
81. *See, e.g.*, Katy O'Donnell, *The Main Driver of Inflation Isn't What You Think It Is*, Politico (Mar. 18, 2022), https://www.politico.com/news/2022/03/18/housing-costs-inflation-00015808 [https://perma.cc/MU9G-G6SS]; Philip Barrett, *How Food and Energy Are Driving the Inflation Surge*, IMF Blog (Sept. 12, 2022), https://www.imf.org/en/Blogs/Articles/2022/09/09/cotw-how-food-and-energy-are-driving-the-global-inflation-surge; Ana Swanson & Katie Edmonson, *Commerce Dept. Survey Uncovers "Alarming" Chip Shortages*, N.Y. Times (Jan. 25, 2022), https://www.nytimes.com/2022/01/25/business/economy/chips-semiconductors-shortage.html [https://perma.cc/75G5-BHKB].
82. *Consumer Price Index: 2022 in Review*, Bureau Lab. Stat. (Jan. 17, 2023), https://www.bls.gov/opub/ted/2023/consumer-price-index-2022-in-review.htm [https://perma.cc/G8CW-WAHU].
83. *See, e.g.*, Jeff Cox, *Federal Reserve Approves First Interest Rate Hike in More Than Three Years, Sees Six More Ahead*, CNBC (Mar. 16, 2022), https://www.cnbc.com/2022/03/16/federal-reserve-meeting.html [https://perma.cc/6AAY-49ZN].
84. Taylor Tepper & Benjamin Curry, *Federal Funds Rate History 1990-2023*, Forbes (July 26, 2023), https://www.forbes.com/advisor/investing/fed-funds-rate-history/ [https://perma.cc/GV27-SQ23].
85. Jerome Powell, *supra* note 34, at 3.
86. Press Release, White House, *President Biden to Announce New Actions to Strengthen U.S. Energy Security, Encourage Production, and Bring Down Costs* (Oct. 18, 2022), https://www.whitehouse.gov/briefing-room/statements-releases/2022/10/18/fact-sheet-president-biden-to-announce-new-actions-to-strengthen-u-s-energy-security-encourage-production-and-bring-down-costs/ [https://perma.cc/7J55-TBTY]. *See also* Arnab Dutta & Skanda Armanath, *A Flexible Policy Toolkit: What the Biden Administration's Groundbreaking SPR Reform Unlocks*, Employ Am. (Aug. 18, 2022), https://www.employamerica.org/blog/unpacking-the-administrations-historic-spr-announcement [https://perma.cc/2M4M-TAQW].
87. *See, e.g.*, Justin Badlam et al., *The Inflation Reduction Act: Here's What's in It*, McKinsey & Co. (Oct. 24, 2022), https://www.mckinsey.com/industries/public-sector/our-insights/the-inflation-reduction-act-heres-whats-in-it [https://perma.cc/FU6E-PNSJ]; *Summary of Inflation Reduction Act Provisions Related to Renewable Energy*, Env't Prot. Agency (June 1, 2023), https://www.epa.gov/green-power-markets/summary-inflation-reduction-act-provisions-related-renewable-energy [https://perma.cc/Q3B3-GFHL].
88. *See, e.g.*, Christopher Rugaber & Josh Boak, *Inflation Reduction Act May Have Little Impact on Inflation*, AP News (Aug. 16, 2022), https://apnews.com/article/inflation-biden-health-congress-climate-and-environment-63df07e15002c01fb560a6f0e69fcb03 [https://perma.cc/X8NS-R4B2].
89. *See, e.g.*, Christopher Rugaber, *US Inflation Hits Its Lowest Point Since Early 2021 as Prices Ease for Gas, Groceries and Used Cars*, AP News (July 11, 2023), https://apnews.com/article/inflation-prices-interest-rates-economy-federal-reserve-53d93610b5ccaacd097853593f29bc26 [https://perma.cc/

produce a notable upswing in the unemployment rate. Instead, after dropping below the 2021 high of over 9%, the unemployment rate has remained constant around its pre-2019 level of around 3.6%—significantly below 20-year average NAIRU estimates.[90] This has prompted growing talk of the Fed achieving a much vaunted "soft landing," in which inflation normalizes without a corresponding decline in employment.[91]

It remains to be seen whether headline inflation will return to the Fed's 2% target without a recession. The Fed's hikes may not have weakened the labor market enough to reverse positive fiscal headwinds and broader recovery trends, but they undoubtedly had a non-trivial contractionary effect, with the brunt of the associated economic cost borne by workers and the unemployed.[92] And the Fed is not done yet. In June, Chair Powell testified that although the Federal Open Market Committee ("FOMC") had voted to temporarily pause rate hikes, there was a broad consensus on the Committee that further hikes were forthcoming.[93]

Either way, the Fed's traditional monetary policy toolkit proved to be wholly inadequate and ill-prepared to handle the wide range of non-wage-led inflationary pressures that emerged during and after COVID, including but not limited to real resource shortages, supply chain disruptions, and corporate price gouging.[94] To the extent these pressures were mitigated directly, it was arguably mostly through a combination of executive orders and ad hoc, emergency fiscal programs.[95] When push came to shove, the Fed reverted to its one-size-fits-all approach of raising interest rates to undercut the labor market, notwithstanding the tenuous or nonexistent connection between wage strength and many of the underlying inflationary drivers, such as foreign geopolitical disruption, limited domestic industrial capacity, and climate-driven crop failure.[96]

On the fiscal side, the long-term political and economic repercussions of the past few years remain unclear. On one hand, the passage of multiple, multi-trillion dollar, deficit-financed COVID relief packages, with minimal impact on overall bond market prices, demonstrated the raw potential of fiscal stimulus to promote economic recovery and protect nominal incomes in the aftermath of economic crises.[97] In contrast to the Obama Administration, who after passing an initial post-GFC stimulus bill quickly pivoted to deficit reduction and debt sustainability,[98] the Trump and Biden Administrations both unapologetically embraced the higher price tag of their emergency relief packages as evidence of the government's commitment to responding at a scale consistent with the nature of the problem.[99]

On the other hand, emergency shortages of critical goods and services during the crises, combined with onset of high and seemingly persistent inflation during the subsequent recovery, underscored the importance of price stability as a first-order economic and political constraint on macroeconomic experimentation.[100] This, in turn, reinforced the need for additional price stabilization tools beyond traditional aggregate demand management, such as targeted price controls,[101] industrial policy,[102] and legal reform.[103] At

7QS5-32R2]; The Economics Daily, *Consumer Prices Up 3.0 Percent Over the Year Ended June 2023*, U.S. Bureau of Lab. Stats. (July 17, 2023), https://www.bls.gov/opub/ted/2023/consumer-prices-up-3-0-percent-over-the-year-ended-june-2023.htm [https://perma.cc/L7RF-76SX].

90. *Compare* Bureau of Labor Statistics, Civilian Unemployment Rates (2023), https://www.bls.gov/charts/employment-situation/civilian-unemployment-rate.htm. [https://perma.cc/N8NX-VBJ6], *and* Federal Reserve Bank of Philadelphia, NAIRU Estimates From the Board of Governors (Feb. 1, 2023), https://www.philadelphiafed.org/surveys-and-data/real-time-data-research/nairu-data-set [https://perma.cc/J8ES-CCXG].
91. *See, e.g.*, Allison Morrow, *Inflation Fever Is Finally Breaking. The Fed's Soft Landing May Be in Sight*, CNN (July 13, 2023), https://www.cnn.com/2023/07/13/business/nightcap-inflation-fever-breaks/index.html [https://perma.cc/VF4L-TX8S]. It is important to note, however, that the headline unemployment rate masks large inequalities in labor market conditions between regions and populations. *See, e.g.*, Olugbenga Ajilore, *On the Persistence of the Black-White Unemployment Gap*, Ctr. Am. Progress (Feb. 24, 2020), https://www.americanprogress.org/article/persistence-black-white-unemployment-gap/ [https://perma.cc/67KJ-VZVZ].
92. *See, e.g.*, Neil Irwin, *The Fed Says This Is Going to Hurt, But It Matters Who Feels the Pain*, Axios (Sept. 22, 2022), https://www.axios.com/2022/09/22/fed-recession-jobs-inflation-unemployment [https://perma.cc/TUK2-C8K3].
93. Jerome Powell, Chair, Fed. Rsrv., Transcript of Chair Powell's Press Conference 1 (June 14, 2023), https://www.federalreserve.gov/mediacenter/files/FOMCpresconf20230614.pdf [https://perma.cc/6QFP-7KJ2] (noting that "nearly all Committee participants view it as likely that some further rate increases will be appropriate this year to bring inflation down to 2% over time"). *See also* Tobias Adrian et al., *Looser Financial Conditions Pose Conundrum for Central Banks*, IMF Blog (Feb. 2, 2023), https://www.imf.org/en/Blogs/Articles/2023/02/02/looser-financial-conditions-pose-conundrum-for-central-banks (warning against premature easing, and arguing that central banks around the world instead should "communicate the likely need to keep interest rates higher for longer until there is evidence that inflation—including wages and prices of services—has sustainably returned to the target").
94. For a thoughtful "insider" discussion of these limits and challenges, see Lael Brainard, Vice-Chair, Fed. Rsrv., Speech at the 21st Bank of International Settlements Annual Conference, *What Can We Learn From the Pandemic and the War About Supply Shocks, Inflation, and Monetary Policy?* (Nov. 28, 2022), https://www.federalreserve.gov/newsevents/speech/brainard20221128a.htm [https://perma.cc/4VJH-QSHA].
95. *See, e.g.*, Menand (2021), *supra* note 52; Dutta & Armananth, *supra* note 86; White House, *supra* note 86.
96. *See, e.g.*, Ben Bernanke & Olivier Blanchard, *What Caused the U.S. Pandemic-Era Inflation?*,1-3 (Hutchins Ctr. Working Paper, Paper No. 86, 2023) (noting that shocks to commodity and other prices, not labor market pressure, was the primary driver of early pandemic inflation).
97. *See, e.g.*, Matt Philips, *How the Government Pulls Coronavirus Relief Money Out of Thin Air*, N.Y. Times (Apr. 15, 2020), https://www.nytimes.com/2020/04/15/business/coronavirus-stimulus-money.html [https://perma.cc/JBY5-3UAP]; Jeanna Smialek, *Is This What Winning Looks Like?*, N.Y. Times (Feb. 7, 2022), https://www.nytimes.com/2022/02/06/business/economy/modern-monetary-theory-stephanie-kelton.html [https://perma.cc/38HD-QRHG]. *See generally* Kelton, *supra* note 2.
98. *See, e.g.*, Greg Sargent, *Obama's Pivot to Deficit Reduction, Explained*, Wash. Post (Mar. 19, 2012), https://www.washingtonpost.com/blogs/plum-line/post/obamas-pivot-to-deficit-reduction-explained/2012/03/19/gIQA0l-0GNS_blog.html [https://perma.cc/L8MK-VNPE].
99. *See, e.g.*, Brett Samuels, *Trump Signs $2.3T Relief, Spending Package*, The Hill (Dec. 27, 2020), https://thehill.com/homenews/administration/531632-trump-signs-relief-bill-despite-criticism [https://perma.cc/F8ME-L7LT]; Sahil Kapur, *Joe Biden Wants to Set Aside Deficit Concerns to Invest in Ailing U.S. Economy*, NBC News (Jan. 9, 2021), https://www.nbcnews.com/politics/white-house/joe-biden-wants-set-aside-deficit-concerns-invest-ailing-u-n1253638 [https://perma.cc/PX7Y-9PBX].
100. *See, e.g.*, Ezra Klein, *The Economic Mistake the Left Is Finally Confronting*, N.Y. Times (Sept. 19, 2021), https://www.nytimes.com/2021/09/19/opinion/supply-side-progressivism.html [https://perma.cc/GJ5A-8VCZ].
101. *See, e.g.*, Zachary Carter, *What If We're Thinking About Inflation All Wrong?*, New Yorker (June 6, 2023), https://www.newyorker.com/news/persons-of-interest/what-if-were-thinking-about-inflation-all-wrong [https://perma.cc/SU4B-P235].
102. *See, e.g.*, Alex Yablon, *The Origins of Biden's Most Important Policy, Explained*, Vox (Apr. 5, 2023), https://www.vox.com/policy/2023/4/5/23668755/industrial-policy-biden-chips [https://perma.cc/HW5F-GASX] (discussing the rise of industrial policy).
103. *See, e.g.*, Aneil Kovvali, *Countercyclical Corporate Governance*, 101 N. Carolina L. Rev. 141 (2022), (arguing for, inter alia, the potential for private

the same time, however, it drained political appetite for further deficit spending, out of concern it would further contribute to excess demand and inflationary pressures.[104]

III. Reconceptualizing Prices

A. *Stability*

The standard economic definition of inflation is a sustained, general increase in prices over time.[105] In reality, however, there is no singular notion of a general "increase" in the price level, or of "average prices."[106] Instead, official inflation estimates rely on large price indices, consisting of a weighted basket of goods and services that are then treated as proxies for overall spending conditions.[107] These indices are inherently subjective and purpose-oriented.[108] They present, at best, a limited snapshot of overall economic conditions, and often obscure important dynamics and inter-relationships between consumer and non-consumer budgetary demands and price and non-price spending dynamics.[109] Nevertheless, they are the main quantitative metrics used in macroeconomic policymaking.[110]

The Fed's normative vision of price stability is centered around reproducing and reinforcing market structures in which consumer prices increase incrementally, predictably, and uniformly, notwithstanding external shocks or changing economic conditions.[111] The institutionalized commitment to equilibrium-thinking manifests most visibly in its headline target of 2% annual inflation, as measured by periodic changes in core Personal Consumption Expenditures ("PCE"), an ostensibly representative and largely fixed basket of weighted consumer prices.[112]

This target is inherently backwards-looking, as it prioritizes the stability of existing markets and general price conditions at the expense of fostering and constructing embryonic and new markets and price dynamics that may be important for long-term economic stability. It also downplays the potentially high social and personal cost of individual price volatility, such as a one-off or rapid short-term price increase in critical goods like food, or services with low basket-weighting but high salience for particular subpopulations, like specialized medical care.[113] In addition, it ignores the potential to use targeted price *decreases* to mitigate harms to specific populations caused by general price volatility, as well as expand available fiscal space for other non-inflationary spending.[114]

Crucially, the Fed's framework, predicated on the belief that indefinite historical price continuity is both possible and supremely desirable, is increasingly at odds with the material and social realities of impending climate change.[115] The default economic state, particularly for the foreseeable future, is not stasis but transformative disruption.[116] Individual, sectoral, and systemwide prices will undergo periods of high volatility, as new industries emerge and old ones collapse.[117] New consumer trends and market structures will form, seemingly from nowhere,

and regulatory changes to corporate governance to facilitate counter-cyclical demand management). *See generally* Yair Listokin, Law & Macroeconomics: Legal Remedies to Recessions (2019).

104. *See, e.g.*, Christian Paz, *Joe Biden's New Go-To Tool to Fight Inflation? The Deficit*, Vox (June 4, 2022), https://www.vox.com/23153687/joe-biden-interested-deficit-inflation-economy [https://perma.cc/L8KS-7VZM].
105. *See, e.g.*, *What Is Inflation and How Does the Federal Reserve Evaluate Changes in the Rate of Inflation?*, Bd. Gov. Fed. Rsrv. Sys. (Sept. 9, 2016), https://www.federalreserve.gov/faqs/economy_14419.htm [https://perma.cc/U59U-BHWA] (noting that inflation "cannot be measured by an increase in the cost of one product or service, or even several products or services").
106. *See* Nathan Tankus, *Are General Price Level Indices Theoretically Coherent?*, Notes Crises (May 28, 2020), https://nathantankus.substack.com/p/are-general-price-level-indices-theoretically [https://perma.cc/UBU3-GAE4]; *see also* Dennis Jansen, *A Tale of Seven Inflation Measures*, Tex. A&M Priv. Enter. Rsch. Ctr. (Apr. 29, 2022), https://perc.tamu.edu/PERC-Blog/PERC-Blog/A-Tale-of-Seven-Inflation-Measures [https://perma.cc/4K8N-ZLM3].
107. *See* Bd. Gov. Fed. Rsrv. Sys., *supra* note 105; *see also* Jansen, *supra* note 106.
108. *See* Jansen, *supra* note 106. *See also* Tankus, *supra* note 106 (quoting John Maynard Keynes, The General Theory of Employment, Interest and Money (Springer Int'l ed. 2018)).
109. *See* Tankus, *supra* note 106.
110. *Id. See also* Adriaan Bloem et al., *Price Indices for Inflation Targeting*, *in* Statistical Implications of Inflation Targeting: Getting the Right Numbers and Getting the Numbers Right 172, 179 (Carol Carson et al., eds., 2002) (describing the main price indices used by central bankers in the implementation of monetary policy).
111. *See* Bd. Gov. Fed. Rsrv. Sys., *supra* note 105.
112. *See, e.g.*, Carlos Garriga & Devin Warner, *Inflation, Part 3: What Is the Fed's Current Goal? Has the Fed Met Its Inflation Mandate?*, Fed. Rsrv. Bank St. Louis Econ. Synopses (2002), https://files.stlouisfed.org/files/htdocs/publications/economic-synopses/2022/09/02/inflation-part-3-what-is-the-feds-current-goal-has-the-fed-met-its-inflation-mandate.pdf [https://perma.cc/67EK-5NJN].
113. Perhaps the most high-profile example of this in recent years has been the dramatic increase in insulin prices due to commercial rent-seeking and price gouging, which, despite exerting minimal impact on headline inflation figures, has resulted in severe economic hardship and suffering for dependent diabetics. *See, e.g.*, Tiffany Stanley, *Life, Death, and Insulin*, Wash. Post (Jan. 7, 2019), https://www.washingtonpost.com/news/magazine/wp/2019/01/07/feature/insulin-is-a-lifesaving-drug-but-it-has-become-intolerably-expensive-and-the-consequences-can-be-tragic [https://perma.cc/KBP9-PUJ8]; Shelly Gilled & Benjamin Zhu, *Not So Sweet: Insulin Affordability Over Time*, Commonwealth Fund Issue Brief (Sept., 25, 2020), https://www.commonwealthfund.org/publications/issue-briefs/2020/sep/not-so-sweet-insulin-affordability-over-time [https://https://perma.cc/N2TC-DPS9].
114. *See, e.g.*, Isabelle Weber, *A New Economic Policy Playbook*, Project Syndicate (Mar. 13, 2023), https://www.project-syndicate.org/magazine/inflation-targeted-price-controls-alternative-to-interest-rate-hikes-by-isabella-m-weber-2023-03 [https://perma.cc/7HHG-WL7C].
115. *See, e.g.*, Aaron Regunberg, *The Fed Is Neglecting Its Duty on Climate Change*, New Republic (May 19, 2022), https://newrepublic.com/article/166538/fed-jerome-powell-climate-change [https://perma.cc/N974-ZFV7]. While central bankers are beginning to acknowledge the macroeconomic significance of climate change, they remain fixated on minimizing the disruptive impacts on existing markets, rather than facilitating the transition to alternative, sustainable modes of production and consumption. Christine Lagarde, *Painting the Bigger Picture: Keeping Climate Change on the Agenda*, European Cent. Bank Blog (Nov. 7, 2022), https://www.ecb.europa.eu/press/blog/date/2022/html/ecb.blog221107~1dd017c80d.en.html [https://perma.cc/4FN7-46T2]; Lael Brainard, Member, Bd. Governors Fed. Rsrv. Sys., Remarks at The Economics of Climate Change, *Why Climate Change Matters for Monetary Policy and Financial Stability* (Nov. 8, 2022), https://www.federalreserve.gov/newsevents/speech/brainard20191108a.htm [https://perma.cc/4FN7-46T2].
116. *See, e.g.*, Rachel Ramirez, *"Delay Means Death": We're Running Out of Ways to Adapt to the Climate Crisis, New Report Shows. Here Are the Key Takeaways*, CNN (Feb. 28, 2022), https://www.cnn.com/2022/02/28/world/un-ipcc-climate-report-adaptation-impacts/index.html [https://perma.cc/4FN7-46T2].
117. *See, e.g.*, Nicolo Florenzio, *Impact of Climate Change on Price Stability*, E-Axes F. (July 2022), https://e-axes.org/wp-content/uploads/2022/08/PB_Price-Stability_8_2022.pdf [https://perma.cc/4FN7-46T2].

while others fade into irrelevance or become impossible as climate disasters increase.[118]

In many cases, these changes will be disruptive and unwelcome. If properly managed, some may lead to improved living standards and greater ecological sustainability. Either way, simply maintaining the status quo is not an option. Due to changing environmental conditions, individual spending behaviors and budgetary needs will rapidly evolve and require radical social renegotiation.[119]

Twenty-first century, pro-social price stabilization policy is thus not just a matter of holding the ship steady; it involves seeing what's ahead, and steering into choppy waters. This, in turn, requires intentional public planning and holistic coordination across multiple systems of production, distribution, finance, and regulation.[120]

The prevailing monetary policy regime is ill-suited to the challenge. As noted above, the Fed's preferred tool for reducing inflation, interest rate hikes, is based almost exclusively on adjusting effective demand through increasing unemployment levels and weakening wage demands.[121] This single-track approach is often ineffective depending on external conditions,[122] poorly targeted to address the diverse range of sources of price pressure, and precludes the development of more sophisticated, multidimensional systems of price administration and regulation.[123] It is also economically wasteful, socially harmful, politically unpopular, and undermines support for further public investment and central climate transition demands, like a green jobs guarantee.[124]

More fundamentally, the Fed's approach is predicated on a singular notion of price stability, centered around the predictability and consistency of the consolidated movements of aggregate consumer price indices.[125] This notion ignores other economically important dimensions of price stability, including the average length of time between price increases,[126] and the one-off or rapid increases in individual, systemically or politically important prices.[127] It also fails to capture how the public experiences and understands inflation, not as a discrete measurement of a particular basket of consumer prices but in the holistic sense of declining real purchasing power and increased costs of living.[128]

B. Inflation

Presently, public enthusiasm for large-scale green spending is undercut by concern for the inflationary impact of increased budget deficits.[129] This concern is partly grounded in the mistaken belief that budget deficits necessarily increase demand and are thus inherently inflationary, whereas deficit-neutral public spending is presumptively demand-neutral and inflation-neutral.[130]

In reality, there is no intrinsic relationship between deficit-neutrality and price-neutrality.[131] The price impact of a dollar spent in one manner versus another can vary significantly, and in some cases may even be deflationary.[132] This impact, in turn, may be mitigated, augmented, or unaffected by accompanying taxes and other budgetary offsets, even while they potentially exert their own distinct price

118. *See, e.g.*, Amanda Ruggeri, *How Climate Change Will Transform Business and the Workforce*, BBC (July 9, 2017), https://www.bbc.com/future/article/20170705-how-climate-change-could-transform-the-work-force [https://perma.cc/9B9A-LH8F].

119. For more on the challenge of ensuring a just transition for all people, see, e.g., *What Is Just Transition? Why Is It Important?*, Climate Promise, U.N. Dev. Programme (Nov. 3, 2022), https://climatepromise.undp.org/news-and-stories/what-just-transition-and-why-it-important [https://perma.cc/7HHG-WL7C].

120. *See, e.g.*, *The Paris Agreement*, United Nations (2021), https://www.un.org/en/climatechange/paris-agreement [https://perma.cc/L46M-CH8R] ("[c]limate change is a global emergency that goes beyond national borders. It is an issue that requires international cooperation and coordinated solutions at all levels").

121. *See* Fed. Rsrv. Bank St. Louis, *supra* note 26; *see also* Yellen, *supra* note 28.

122. *See, e.g.*, Silvana Tenreyo & Gregory Thwaites, *Pushing on a String: US Monetary Policy Is Less Powerful in Recessions*, 8 Am. Econ. J. 4, 43 (2016) (observing that sensitivity of the U.S. economy to monetary policy varies depending on the state of the economy, and is notably less effective during recessions).

123. *See supra* notes 32–35.

124. *See, e.g.*, Varshini Prakash & Sarah Meyerhoff, *It's Time for the Climate Movement to Embrace a Federal Jobs Guarantee*, In These Times (May 24, 2018), https://inthesetimes.com/article/climate-movement-federal-jobs-guarantee-bernie-sanders-2018 [https://perma.cc/A8NP-9BEN].

125. *See supra* notes 31–33.

126. For more on the various dimensions and definitions of price stability, and the importance of administered prices as an alternative mechanism for price stabilization than demand management, see, e.g., Nathan Tankus, *Inflation & the Politics of Pricing*, Money on the Left (June 19, 2019), https://moneyontheleft.org/2019/06/19/inflation-the-politics-of-pricing-with-nathan-tankus [https://perma.cc/KR9K-2PDE] (contrasting the 2.5 month duration of median price changes in Brazil, versus the 4-8 month duration of median price changes in the United States, to illustrate the greater degree of price stability in the latter economy); Frederic Lee & Paul Downward, *Retesting Gardiner Means's Evidence on Administered Prices*, 33 J. Econ. Issues 861 (1999); Frederic Lee, Post-Keynesian Price Theory (1999).

127. *See, e.g.*, Isabella Weber et al., *Inflation in Times of Overlapping Emergencies: Systemically Significant Prices From an Input-Output Perspective* (UMass Amherst Econ. Dep't Working Paper, Paper No. 340, 2022), https://scholarworks.umass.edu/econ_workingpaper/340 [https://perma.cc/8ENX-244G]; Robert Hockett & Saule Omarova, *Systemically Significant Prices*, 2 J. Fin. Reg. 1 (2016); Nathan Tankus & Luke Herrine, *Competition Law as Collective Bargaining Law*, *in* Cambridge Handbook Lab. Competition L. 72, 94-95 (Sanjukta Paul et al., eds., 2022).

128. *See, e.g.*, Carlo Pizzinelli, *Hall of Mirrors: How Consumers Think About Inflation*, Int. Mon. Fund, Finance & Development (Sept. 2022), https://www.imf.org/en/Publications/fandd/issues/2022/09/hall-of-mirrors-how-consumers-think-about-inflation-pizzinelli [https://perma.cc/6B9R-MTR2] (noting that behavioral research indicate, inter alia, that consumers general perceive inflation to be higher than it is, and rely on a few, regularly consumed products to extrapolate changes in the overall cost of living).

129. *See, e.g.*, Jim Tankersley, *Republicans Say Spending Is Fueling Inflation. The Fed Chair Disagrees*, N.Y. Times (Mar. 23, 2023), https://www.nytimes.com/2023/03/23/us/politics/republicans-inflation-federal-reserve-powell.html [https://perma.cc/BHL2-ANPB].

130. *See, e.g.*, Tobias Adrian & Vitor Gaspar, *How Fiscal Restraint Can Help Fight Inflation*, IMF Blog (Nov. 21, 2022), https://www.imf.org/en/Blogs/Articles/2022/11/21/how-fiscal-restraint-can-help-fight-inflation [https://perma.cc/MNC4-EDPY] ("A smaller deficit cools aggregate demand and inflation, so the central bank doesn't need to raise rates as much . . . [f]iscal responsibility—or even consolidation where needed—demonstrates that policymakers are aligned against inflation.").

131. *See generally* Kelton, *supra* note 2.

132. *See generally* Lee, *supra* note 126. Orthodox macroeconomic theory acknowledges this to some degree through the concept of the "fiscal multiplier," which evaluates the relative output per dollar of different fiscal adjustments, including spending and revenue collection. *See, e.g.*, Renee Haltom, *Fiscal Multiplier*, Fed. Rsrv. Bank Richmond Econ. Focus (2018), https://www.richmondfed.org/-/media/RichmondFedOrg/publications/research/econ_focus/2018/q4/jargon_alert.pdf. However, this approach has a limited focus on overall output effects, and compares fiscal impact through a unidimensional weighted numerical scale that fails to capture causal dynamics and qualitative differences between different forms of price pressure. *Id.*

pressures at the same time.[133] Different forms of spending and revenue generation can thus have distinct, often unrelated, or contradictory, impacts on price conditions, with no inherent commensurability or one-for-one trade off between the inflationary and deflationary impact of nominally balanced fiscal outflows and inflows.[134]

Budget deficits are also not the only source of additional effective demand.[135] The private sector has the capacity to endogenously create purchasing power and spending through the extension of credit and leverage.[136] While private investment can expand overall output capacity over time, in the short run it often competes with public spending for claims over limited resources, including labor, in the process driving upwards price pressure in particular markets and sectors.[137] Thus, when evaluating the inflationary impact and social merit of proposed public investments, it is important to consider them not in isolation, but relative to other potential and likely private uses of the same resources and fiscal space.[138]

Outside of emergency situations, the modern Fed rarely targets individual non-financial prices, overtly subsidizes, or penalizes specific non-financial market lending and credit activities.[139] Instead, it mostly influences general credit conditions through broad-based monetary policy interventions, such as interest rate adjustments and open market operations.[140] As described above, these interventions are primarily intended to maintain labor market conditions consistent with optimal overall consumer demand levels.[141] Consequently, their impact on particular sector or market-level investment conditions, while important, is ultimately a second-order consideration to headline consumer price stability.

Recently, macroeconomic experts like Nathan Tankus have proposed a more fine-grained approach to monetary policy centered not around one-size-fits-all interest rate adjustments, but a constellation of sector and activity-specific modes of qualitative and quantitative credit regulation.[142] In addition to allowing for more fine-grained demand management, targeted restrictions on private-sector credit could also be used to offset the inflationary impact of new public spending.[143] In doing so, they would function as genuine "non-fiscal payfors," in contrast to current budgetary payfors that prioritize arithmetic balance over real-world effects.[144] At the same time, interest rates on public spending and publicly approved (i.e., green) investments could be kept low or at zero permanently, ensuring socially important production remains as cost-efficient as possible while preserving maximum monetary policy discretion over broader private market conditions.[145]

Targeted credit regulation should be implemented in coordination with broader industrial planning and non-financial price regulation, including antitrust law, in order to address sector-specific needs and minimize the anti-social effects of excessive concentrations of private economic power and unchecked market-led price governance.[146] Through strategic targeting of systemically important prices, the government can both mitigate the most harmful effects of future economic and social crises, and proactively maintain and improve collective living standards.[147]

Adopting a disaggregated approach to demand management and price stabilization opens the door to new possibilities for fiscal experimentation and action. Individual spending proposals can be evaluated functionally on their own terms, without the presumptive need for budgetary neutrality and dollar-for-dollar revenue offsets. Proposals estimated to cause minimal inflationary impact can be funded via direct outlays from the public fisc, independent of broader macroeconomic dynamics, while those with significant price impacts can be strategically offset through inflation-weighted revenue offsets or non-fiscal payfors.[148]

Simultaneously, the government can proactively promote selective downward price pressure through investments in capacity-building, stockpiling, and buffer stock management,[149] and the development of market substitutes and public options in targeted sectors.[150] Such investments

133. *See, e.g.*, Beardsley Ruml, *Taxes for Revenue Are Obsolete*, Am. Aff., Jan. 1946 (identifying four distinct purposes of taxation, only one of which is price stabilization)
134. *See, e.g.*, Andrew Duehren, *Do Higher Deficits Cause Inflation? Not This Year*, Wall St. J. (Sept. 2023), https://www.wsj.com/economy/central-banking/do-higher-deficits-cause-inflation-not-this-year-1177e15d [https://perma.cc/UE6W-Z6L3] (noting that higher annual deficits in 2023 have not increased pressure on inflationary outlook).
135. *See generally* Tankus, *supra* note 62.
136. *Id. See also* Robert Hockett & Saule Omarova, *The Finance Franchise*, 102 Cornell L. Rev. 1143 (2017); Michael McLeay et al., *Money Creation in the Modern Economy*, Bank Eng. Q. Bull. (2014), https://www.bankofengland.co.uk/-/media/boe/files/quarterly-bulletin/2014/money-creation-in-the-modern-economy.pdf [https://perma.cc/4DK7-CAX6]; Stephanie Bell, *The Role of the State and the Hierarchy of Money*, 25 Camb. J. Econ. 149 (2001).
137. Tankus, *supra* note 62, at 35.
138. *Id.* at 17–18. *See also* Tankus, *supra* note 64.
139. This was not always historically the case. *See, e.g.*, Stacey Schreft, *Credit Controls: 1980*, Fed. Rsrv. Bank Richmond Econ. Rev. 26–28 (1990) (discussing the history of credit controls in the U.S. prior and up to 1980).
140. *See supra* notes 29–53.
141. *See supra* notes 7–28.
142. Tankus, *supra* note 62.
143. Tankus, *supra* note 62, at 2; *see also* Macro Musings With David Beckworth, *Nathan Tankus on the Future of MMT and How to Avoid U.S. Debt Default*, Mercatus Ctr. (May 8, 2023), https://www.mercatus.org/macro-musings/nathan-tankus-future-mmt-and-how-avoid-us-debt-default [https://perma.cc/YR4S-EAUP]; *see also* Rohan Grey, *Financial Regulation, Price Stability, and the Future*, L. & Pol. Econ. Project Blog (Mar, 22, 2022), https://lpeproject.org/blog/financial-regulation-price-stability-and-the-future [https://perma.cc/7GF6-8NKE].
144. Tankus, *supra* note 62, at 2.
145. *Id.* at 20.
146. *Id.* at 25.
147. *Id. See also* Weber et al., *supra* note 127; Hockett & Omarova, *supra* note 127.
148. *See* Tankus, *supra* note 62 at 8; Weber et al., *supra* note 127, at 12.
149. *See, e.g.*, Isabella Weber & Evan Wasner, *Sellers' Inflation, Profits and Conflict: Why Can Large Firms Hike Prices in an Emergency?*, 19–21 (UMass Amherst Econ. Dep't Working Paper, Paper No. 343, 2023), https://scholarworks.umass.edu/cgi/viewcontent.cgi?article=1348&context=econ_workingpaper [https://perma.cc/NRA2-WUPW].
150. For example, there has been extensive discussion of the potential for a public option in healthcare or health insurance to reduce price pressure in medical services. *See, e.g.*, Matthew Fiedler, *Capping Prices or Creating a Public Option: How Would They Change What We Pay for Health Care?*, USC-Brookings Schaeffer Initiative Health Pol'y 12–16 (Nov. 2022), https://www.brookings.edu/wp-content/uploads/2020/11/Price-Caps-and-Public-Options-Paper.pdf [https://perma.cc/TT52-GUNW]; *see also* Morgan Ricks et al., *Central Banking for All: A Public Option for Bank Accounts*, Great Democracy Initiative (June 2018), https://rooseveltinstitute.org/wp-content/uploads/2021/08/GDI_Central-Banking-

not only "pay for themselves" over time in an inflationary sense, but also potentially generate additional fiscal space for other forms of public spending.

Of course, even deflationary investments in future capacity still require committing economic resources today.[151] Proactive price stabilization efforts will thus remain constrained by contemporary price conditions and political appetite for additional public expenditure, as well as the availability of key inputs including administrative capacity and specialized labor.[152] Nevertheless, they remain important both practically and imaginatively, as an example and model for how to reorient fiscal decisionmaking away from deficit-neutrality to inflation-management and real resource sustainability.

IV. Fossil Fuel Nationalization: A Macroeconomic Analysis

As explained in the previous section, the practical limit on public spending is not financial capacity but inflation. Instead of requiring that outlays be budgetarily offset dollar-for-dollar with revenue, the federal government should evaluate spending proposals based on their estimated impact on general demand conditions and systemically important prices. Spending that creates excess demand should be accompanied by corresponding demand offsets, including "non-fiscal payfors" such as quantitative and qualitative credit regulations and non-financial leverage restrictions. Conversely, if the economy has capacity to absorb the additional demand without causing economywide bottlenecks or other manifestations of excess demand, public spending can and should be implemented without accompanying offsets, regardless of budgetary implications.[153]

In some cases, public purchases create far less additional demand than its nominal sticker price would suggest. Two salient recent examples of this are student debt cancellation,[154] and purchases of real estate which subsequently are transferred to community land trusts.[155] Both involve large upfront fiscal outlays, but exert only marginal impact on day-to-day consumption of goods and services.[156] To the extent they increase demand, it is through incremental, long-term effects on private wealth and income levels, not the initial one-off increase in fiscal deficits from cancellation/purchase.[157]

Another example of a high social-impact, low-demand fiscal program is the nationalization of the fossil fuel industry. The logic behind fossil fuel nationalization is based on the basic math of carbon emissions and climate change. Burning fossil fuels results in a definite and measurable amount of carbon emissions.[158] Estimating proven fossil fuel reserves, we can thus derive estimates of the carbon emissions "embedded" in those reserves.[159] Based on those estimates, burning the proven fossil fuel reserves of the United States would, *by itself,* emit almost 600 billion tons of carbon into the atmosphere.[160] This would more than consume the *entire planet*'s carbon budget under the limits implied by the Paris Agreement's 1.5 degrees Celsius (2.7 degrees Fahrenheit) warming target.[161] Thus, while the United States may be able to afford to continue burning fossil fuels in financial terms, it clearly cannot afford to do so in carbon terms. To state the obvious, balancing the carbon budget is, unlike balancing the government budget, a macroeconomic necessity.

The most direct and parsimonious way of not burning fossil fuels is for the United States government to take control and commit to keeping them in the ground to the greatest extent possible while transitioning to clean energy and renewable production.[162] Nationalization could involve the government purchasing direct claims over proven reserves and related production infrastructure (resource nationalization), taking fossil fuel firms public through compulsory acquisitions and shareholder buyouts (corporate nationalization), or some combination of both.

For-All_201806.pdf [https://perma.cc/2QG4-AMRB] (arguing for a public option in banking services).

151. Again, however, the implied real resource commitments of public expenditure or public purchases can vary considerably, depending on the nature of the activity.
152. *See, e.g.*, Daniel Rees & Phurichai Rungcharoenkitkul, *Bottlenecks: Causes and Macroeconomic Implications*, Bank Int'l Settlements Bull. (Nov. 11, 2021), https://www.bis.org/publ/bisbull48.pdf [https://perma.cc/L5ZU-ERVA].
153. *See, e.g.*, Stephanie Kelton, *Biden Can Go Bigger and "Not Pay for It" the Old Way*, N.Y Times (Apr. 7, 2021), https://www.nytimes.com/2021/04/07/opinion/biden-infrastructure-taxes.html [https://perma.cc/VS9Q-G348].
154. *See, e.g.*, Scott Fullwiler et al., *The Macroeconomic Effects of Student Debt Cancellation*, Levy Inst. Rsch. Project Rep. (Feb. 2018), https://www.levyinstitute.org/publications/the-macroeconomic-effects-of-student-debt-cancellation [https://perma.cc/5H6N-9WLT]; Mike Konczal & Ali Bustamante, *Canceling Student Debt Would Increase Wealth, Not Inflation*, Roosevelt Inst. (Aug. 17, 2022), https://rooseveltinstitute.org/2022/08/17/canceling-student-debt-would-increase-wealth-not-inflation [https://perma.cc/UY6Z-E6QD]; Joseph Stiglitz, *Actually, Canceling Student Debt Would Cut Inflation*, The Atlantic (Aug. 25, 2022), https://www.theatlantic.com/ideas/archive/2022/08/biden-student-debt-cancelation-stiglitz/671228 [https://perma.cc/T7AE-CBKD].
155. *See, e.g.*, Gabi Velasco, *How Community Land Trusts Can Advance Racial and Economic Justice*, Housing Matters, Urban Inst. (Feb. 26, 2020), https://housingmatters.urban.org/articles/how-community-land-trusts-can-advance-racial-and-economic-justice [https://perma.cc/A4BU-HCAM].
156. In the case of student cancellation, although the total face value of debt cancellation is born upfront, the change to the debtor only manifests in marginally lower monthly expenses, which have already been suspended for years. For community land trusts, initial land acquisition is expensive, but is effectively an asset swap from the perspective of the real estate seller, who replaces a real house (house) with a financial asset (cash). As explained further in the next section, this affects investment demand, but exerts only a marginal effect on consumer prices.
157. Konczal & Bustamante, *supra* note 154.
158. *See, e.g.*, United States Environmental Protection Agency, Sources of Greenhouse Gas Emissions, https://www.epa.gov/ghgemissions/sources-greenhouse-gas-emissions [https://perma.cc/VZ3M-R5FZ].
159. *See, e.g.*, Oliver Milman, *Burning World's Fossil Fuel Reserves Could Emit 3.5tn Tons of Greenhouse Gas*, The Guardian (Sept. 19, 2022), https://www.theguardian.com/environment/2022/sep/19/world-fossil-fuel-reserve-greenhouse-gas-emissions [https://perma.cc/2JJ2-BBTX]; *see also* Richard Heede & Naomi Oreskes, *Potential Emissions of CO_2 and Methane From Proved Reserves of Fossil Fuels: An Alternative Analysis*, 36 Glob. Env't Change 12 (2016).
160. Milman, *supra* note 159.
161. *Id.*
162. *See generally* Kate Aronoff, *A Modest Proposal: Nationalize the Fossil Fuel Industry*, The New Republic (Mar. 17, 2020), https://newrepublic.com/article/156941/moderate-proposal-nationalize-fossil-fuel-industry [https://perma.cc/P78B-U8GY]; Kate Aronoff, Overheated: How Capitalism Broke the Planet—And How We Fight Back (2021); Fergus Green & Ingrid Robeyns, *On the Merits and Limits of Nationalizing the Fossil Fuel Industry*, 91 Royal Inst. Phil. Supp. 53, 53, 68 (2022).

While the choice of which approach to take is ultimately a political and strategic decision, corporate nationalization has several distinct benefits relative to resource nationalization. First, it is generally less costly to acquire governance rights over firms through shareholder buyouts than to buy their underlying assets directly, since the former involves also assuming responsibility for operations, expenses, and liabilities.[163] Consequently, the initial sticker price of corporate nationalization would likely be relatively lower than resource nationalization, increasing the odds of gaining public and political support.[164]

Second, fossil fuel companies are not mere vessels for property claims over underlying resource assets. They are large, active institutions with high levels of administrative capacity, skilled labor, technological understanding, and political influence. By asserting public control, the United States can redirect and repurpose institutional focus and resources away from discovery of new reserves and development of extractive technologies, toward winding down the industry and promoting a just transition to renewable energy.[165] In doing so, it would neutralize a major source of future political resistance to decarbonization, and reduce the spread of industry-driven cultural ignorance and/or doubt regarding the nature, impact, and solutions to climate change.[166]

It is beyond the scope of this Article to adjudicate between resource nationalization and corporate nationalization as distinct policy strategies for reducing fossil fuel production and promoting the broader goals of the environmental movement. Instead, for clarity's sake, the remaining analysis focuses on nationalizing fossil fuel companies, although most of the analysis applies equally to direct purchases of proven fossil fuel reserves, or a combination of the two.

More generally, this Article does not try to make the comprehensive case for fossil fuel nationalization as good politics and good policy.[167] Instead, its purpose is to illustrate how a sophisticated understanding of inflation, and a functional approach to public budgeting, changes the assessment of such an ostensibly radical policy proposal by (1) removing the presumptive need for revenue-neutrality, and (2) showing that the macroeconomic increase in demand resulting from such a program would be a small fraction of its total fiscal cost, and consequently potentially require relatively smaller offsets to maintain inflation-neutrality.

Of course, whether the removal of these objections and concerns is sufficient to render the prospect of fossil fuel nationalization appealing to those who have thus far been unconvinced of its merits is obviously debatable, and a matter for subjective debate and individual judgment. Indeed, for many, the question of whether fossil fuel nationalization is a good idea in principle is rendered practically moot by the lack of serious political interest in it, at least presently. At the very least, however, by distinguishing between genuine and fictitious budgetary constraints, and clarifying the likely macroeconomic effects of nationalization, it is possible to refocus the debate around the issue away from economic superstitions that presently distort public understanding, and toward more meaningful and realistic considerations of the merits of the proposal relative to feasible alternatives.

Such a reorientation is impactful not only in the narrow context of this particular policy issue, or indeed more broadly with respect to debates over the appropriate policy responses to climate change. At a more fundamental level, it reflects an underlying commitment to truth and accuracy in public discussion of economic policy, in contrast to the pervasive belief among certain segments of the economic policy commentariat that the public is incapable of understanding the degree of nuance and complexity required to evaluate budgetary debates beyond the reductive and misleading heuristics of nominal budget calculations.[168] In that respect, this argument is as important pedagogically as it is substantively: democracy cannot function without an informed electorate, and economic myths that obscure how prices and budgets really work in favor of digestible narratives that reinforce people's understandable but incorrect intuitions[169] represent a serious threat to that system.

163. *See, e.g.*, Will Kenton, *Asset Acquisition Strategy: Key Concepts Explained*, Investopedia, Mar. 4, 2021, https://www.investopedia.com/terms/a/asset-acquisition-strategy.asp [https://perma.cc/936W-G9N]:

> The benefit of an asset acquisition strategy, when compared to a stock acquisition strategy, is that the acquiring company gets to pick and choose the parts of a company it likes and feels would benefit their company. This is in contrast to a stock acquisition strategy where a company would have to buy all parts of a company where certain areas might be a poor fit and have to be divested in the future.

164. To give a very basic example, if a fossil fuel company had ~$1 trillion in assets, and $800bn in liabilities, then acquiring its assets alone would cost in the ballpark of ~$1 trillion, whereas acquiring the company writ large would also take into account the negative value of the $800bn in liabilities.

165. *See, e.g.*, Heede & Oreskes, *supra* note 159, at 19 (arguing that private fossil fuel industry companies "represent[s] a substantial risk to the 2°C target not so much because of their proved reserves . . . but because of their ability and expressed intent to continue to explore for new sources of fossil fuels, and to convert existing probable and possible reserves into additional proved reserves," and that consequently "investor and consumer pressure should focus on the question of phasing out exploration for new resources, especially in high-cost environments and of carbon-intensive resources").

166. *See, e.g.*, Amy Westervelt, *Our Climate Solutions Are Failing—And Big Oil's Fingerprints Are All Over Them*, The Guardian (Mar. 7, 2022), https://www.theguardian.com/commentisfree/2022/mar/07/climate-solutions-big-oil-ipcc-report [https://perma.cc/47F9-2WAM].

167. *See* Aronoff, *supra* note 162; Green & Robeyns, *supra* note 162.

168. *See, e.g.*, Michael Dorf, Money, Law, & Other Noble Lies, Verdict (Oct. 13, 2021), https://verdict.justia.com/2021/10/13/money-law-and-other-noble-lies [https://perma.cc/42AF-5SA4] (acknowledging that the "social psychological roots of money are disguised by a kind of noble lie—a claim that our leaders know to be false but that they encourage in the masses to promote some social interest," but arguing that such a lie may "nonetheless be necessary in some circumstances," despite "sit[ting] in tension with democratic values").

169. *See, e.g.*, The Fiscal Ship, https://fiscalship.org/about.php [https://perma.cc/CPR6-LCXP]:

> The Fiscal Ship challenges you to put the federal budget on a sustainable course . . . America is looking at a permanent, growing mismatch between revenues and spending, and policymakers are faced with difficult decisions about how to reconcile important government priorities . . . your mission is to pick from a menu of tax and spending options to reduce the debt from projected levels over the next 25 years . . . To win the game, you need to find a combination of policies that match your values and priorities AND set the budget on a sustainable course.

A. *Aggregate Expenditure Effects*

As of August 17, 2023, the 160 largest (by market capitalization) American oil and gas companies had a combined market capitalization of roughly 2.3 trillion dollars, equivalent to 9% of total U.S. Gross Domestic Product ("GDP") in 2022.[170] That is a large sum, even in macroeconomic terms.[171] However, the resulting increase in aggregate demand from public acquisition would likely be far less than this big-dollar amount suggests.

Presently, the vast majority of fossil fuel company shares and other ownership interests are held by large institutional investors like pension funds, hedge funds, and sovereign wealth funds.[172] These investors manage diverse portfolios of different asset classes and investments.[173] If forced to sell their fossil fuel holdings, most would immediately reinvest the newly acquired funds in other stocks or bonds consistent with their broader allocation strategy, which would be modified to no longer include fossil fuel investments.[174] By contrast, only a very small percentage of fossil fuel stocks and related ownership interests are currently held by households in unencumbered form which could even conceivably be liquidated to purchase currently produced goods and services.[175] Moreover, even that small fraction is unlikely to be converted to current expenditures to any significant degree, since most retail investments are held long-term even while remaining accessible on a day-to-day basis, and capital gains reinvested rather than consumed.[176]

The fact that these funds are predominantly held by institutional investors rather than directly by individuals that engage in consumption makes the initial fiscal expenditure required to acquire them more equivalent to financial market investments than transfer spending.[177] Interventions that replace privately held financial assets with public funds are no more inflationary when financed by fiscal authorities and implemented for environmental purposes than when conducted by monetary authorities for liquidity purposes. The trust, fiduciary, and corporate laws which structure the management of large institutional cash pools reduces the leakage from governmental equity purchases to aggregate income and demand.[178] In this sense, what Hyman Minsky called "Money Manager Capitalism" and Benjamin Braun calls "Asset Manager Capitalism" facilitates the disconnection between equity purchases and demands for currently produced goods and services.[179]

Nevertheless, the portfolio rebalancing which asset managers would do if fossil fuel stocks were fully bought out would likely cause significant capital gains in non-fossil fuel financial markets. In plainer terms, those cash balances would lead to purchases of other financial assets, increasing their price and providing a form of (capital) income to the lucky sellers. This indirect effect would add to the minimal direct demand impact from the initial equity purchase. However, for the very same reasons that the direct impact is minimal, the secondary impact is likely to be minimal as well. In general, the "propensity to consume out of capital gains" is quite small when considering the total capital

170. *Largest Oil and Gas Companies by Market Cap*, CompaniesMarketcap (Aug. 17, 2023), https://companiesmarketcap.com/oil-gas/largest-oil-and-gas-companies-by-market-cap [https://perma.cc/PDJ3-G56B]. This estimate, based on multiplying the market value of a company's shares by the total number of outstanding shares, is a rough calculation, but it is sufficient here for demonstrative purposes.

171. To compare this amount with average quarterly increases in GDP, see *Gross Domestic Product, Fourth Quarter and Year 2022 (Advance Estimate)*, Bureau Econ. Analysis (Jan. 26, 2023), https://www.bea.gov/news/2023/gross-domestic-product-fourth-quarter-and-year-2022-advance-estimate [https://perma.cc/DH28-K7N4].

172. *See, e.g.*, Sophie Robinson-Tillet, *Study Reveals "Top 10" Shareholders of World's Fossil Fuels*, Responsible Investor (June 24, 2022), https://www.responsible-investor.com/study-reveals-top-10-shareholders-of-worlds-fossil-fuel-reserves [https://perma.cc/T8MU-SN8F] (noting that nearly half of all emissions potential from fossil fuel companies is under the influence of 10 financial entities, and identifying approximately 900 investors that own more than 1% stakes in the firms that collectively own 98% of all proven reserves); Ognyan Seizov & Katrin Ganswindt, *Investing in Climate Chaos: NGOs Release Data on Fossil Fuels Holdings of 6,500 Institutional Investors*, 30 Jahre Urgewald (Apr. 20, 2023), https://www.urgewald.org/en/medien/investing-climate-chaos-ngos-release-data-fossil-fuels-holdings-6500-institutional-investors [https://perma.cc/894W-NTTX] (identifying 6,500 institutional investors, including pension funds, insurers, mutual funds and asset managers, that collectively own over $3 trillion in investments in fossil fuel companies, including 23 investors that account for 50% of total investments, and two—Blackrock and Vanguard—that together account 17% of total investments alone). *See generally* Adam Tooze, *The Rise of Asset Manager Capitalism and the Global Financial Crisis*, Chartbook (Feb. 13, 2022), https://adamtooze.substack.com/p/chartbook-82-the-rise-of-asset-manager [https://perma.cc/WL8B-8E2E].

173. *See, e.g.*, Vanguard Investment Products (2023), https://advisors.vanguard.com/investments/all [https://perma.cc/XC2X-K9H4] (detailing all major asset classes invested by Vanguard).

174. Indeed, even this second-order effect could be mitigated by requiring institutional investors to hold a larger proportion of safe, liquid securities as part of their overall balance sheet, as the increased market demand for government-issued securities would absorb the newly issued government obligations issued to finance the acquisition of fossil fuel interests.

175. Most individual investments are locked up in pension funds, retirement accounts, and similar long-term vehicles. *See, e.g.*, Dean Baker, *NPR Misses the Story on Dividend Tax Cut*, Am. Prospect (May 1, 2006), https://prospect.org/economy/npr-misses-story-dividend-tax-cut [https://perma.cc/6K8S-3CLM].

176. *See, e.g.*, Malcolm Baker et al., *The Effect of Dividends on Consumption* (Nat'l Bureau of Econ. Rsch. Working Paper, Paper No. 12288, 2006) (finding significantly lower rates of individual spending following capital gains than dividends); Steen Meyer et al., *The Consumption Response to Realized Capital Gains: Evidence From Mutual Fund Liquidations* (Oct. 2019), https://www.alepreviterо.com/wp-content/uploads/2019/10/030_Previtero_WP_MPC-CapitalGains.pdf [https://perma.cc/AQ4D-Y8CE] (finding that, on average, individuals only consume 11% of funds after a forced liquidation event, with even lower rates for unrealized capital gains); *see also* Monica Paiella, *Does Wealth Affect Consumption? Evidence for Italy*, 29 J. Macroecon. 189 (2007).

177. It is also operationally equivalent to central bank purchases of private-sector securities, even as the policy motivations differ. *See, e.g.*, BlackBull Markets, *How Much of the Japanese Stock Market Does the BoJ Own?*, Benzinga (Apr. 29, 2022), https://www.benzinga.com/22/04/26902762/how-much-of-the-japanese-stock-market-does-the-boj-own [https://perma.cc/W4EY-7VTM] (noting the Bank of Japan has acquired 80% of all domestic exchange-traded funds, accounting for approximately 7% of the total Japanese stock market, as part of its expansionary monetary policy program).

178. *See, e.g.*, Zoltan Poszar, *Institutional Cash Pools and the Triffin Dilemma of the U.S. Banking System* (IMF Working Paper, Paper No. 190, 2011); Nathan Tankus, *The Night They Re-Read Poszar (In His Absence)*, Notes Crises (Mar. 30, 2023), https://www.crisesnotes.com/the-night-they-reread-pozsar-in-his-absence [https://perma.cc/PUB4-XBZH].

179. *See, e.g.*, Benjamin Braun, *Asset Manager Capitalism as a Corporate Governance Regime*, *in* The American Political Economy: Politics, Markets, Power 270 (Jacob Hacker et al., eds., 2021); L. Randall Wray, *Minsky's Money Manager Capitalism and the Global Financial Crisis*, 40 Int. J. Pol. Econ. 5 (2011); Hyman Minsky, *Money Manager Capitalism*, Hyman P. Minsky Archive (1989), https://digitalcommons.bard.edu/cgi/viewcontent.cgi?article=1012&context=hm_archive [https://perma.cc/Z5BP-T2M8].

gains across all types of holdings and not simply the unencumbered holdings of individual households.[180]

Given all the complicated factors involved, it would take a full-fledged modeling effort to come up with proper estimates for how much additional aggregate expenditure such a program would produce (and thus need to be mitigated through demand offsets to remain inflation-neutral). To provide an initial rough estimate, if we assume current market capitalization prices and the "output multiplier" of the program to be 0.05 (i.e., 5% of the total outlay),[181] then a congressional appropriation for the sum of 2.3 trillion dollars would functionally generate 115 billion dollars of additional demand. In macroeconomic terms, this is quite a small number.[182] As a percentage of annual GDP in 2022, this would be 0.45%—more than a rounding error, but still quite manageable.[183] Even quadrupling it would only reach the still relatively modest sum of 1.8% of GDP. These numbers are especially impressive given the initial assumption of immediate, comprehensive nationalization. Adopting a more gradual approach in terms of both the number of targeted firms and rate of stock acquisition would further mitigate any upfront shock on demand.

Furthermore, the above estimate does not consider the "non-fiscal payfors" built into the program itself. From the perspective of investors, corporate nationalization effectively involves a swap of high-yield stocks for lower-yield government obligations (via the deficit spending used to finance the initial acquisition).[184] Notwithstanding the one-time capital gain from the initial acquisition, over the long term, this swap eliminates dividends, reducing aggregate investor income. Furthermore, fossil fuel stocks tend to be high-dividend stocks. Evidence suggests that dividend payments are consumed far more readily than realized capital gains.[185] Removing that income from the economy can potentially reduce a non-trivial amount of real spending behavior and thus demand.

More fundamentally, nationalization does not merely involve acquiring fossil fuel stocks and then passively holding them as investments. Rather, the point is to wind down the fossil fuel industry and eventually repurpose the workers, infrastructure, and institutional capacity toward more equitable and environmentally conscious ends. Winding down will not happen overnight. Instead, it will require a transitional period during which investment and expenditure decline in a controlled, steady way.[186] The exact form and speed of this shrinking process should be determined through careful planning that considers both the urgency of climate change mitigation, and the need to minimize disorderly social and economic disruptions that politically threaten both nationalization efforts, and broader enthusiasm for further climate action.

For example, while it is probably not possible to cease all fossil fuel production immediately tomorrow, it may be both feasible and desirable to immediately end investment in further exploration and cultivation of new reserves, given that we cannot climatologically afford to burn the fossil fuel reserves we already have.[187] The cessation of future fossil fuel exploration and related investment alone could conceivably exert a sufficiently large demand drain to serve as the "payfor" for the entire nationalization program.[188] Indeed, it is even possible this demand drain would be sufficiently large to serve as a payfor for *other* public spending as well.

Even if these offsetting considerations are discounted, the likely impact on aggregate demand of this program is still remarkably mild considering its profound social importance and implied dramatic change to the structure of the U.S. economy. Moreover, the program could have even less macroeconomic "cost" if timed in coordination with the next recession or crisis. Proposals to nationalize the fossil fuel industry in 2020 abounded as oil prices collapsed and the stock prices of fossil fuel companies went down dramatically.[189] Following the rough "output mul-

180. *See, e.g.*, Baker et al., *supra* note 176; Meyer et al., *supra* note 176, at 2.

181. For more on output multipliers, see John Seliski et al., *Key Methods That CBO Used to Estimate the Effects of Pandemic-Related Legislation on Output*, Cong. Budget Off. (Oct. 2020), https://www.cbo.gov/system/files/2020-10/56612-Key-Methods.pdf [https://perma.cc/PEY7-CAM9]; Tankus Part 1, *supra* note 72.

182. Admittedly, the assumption of current market capitalization is a strong one. The calculation would be less favorable if the overall acquisition price exploded due to increased fossil fuel stock prices in anticipation of prospective nationalization. However, this does not change the core point of the analysis, since even if larger in absolute terms, the program's "aggregate demand impact" would still be a small fraction of the total amount of government expenditure. Furthermore, in a world where such a program had a serious chance of being implemented, it could conceivably end up being paired with targeted non-financial regulations or taxes (such as capital gains or wealth taxes) that repressed or shrunk the market capitalization of oil and gas companies. The demand reductions from capital losses could conceivably even be a part of the non-fiscal "payfor" that balances the program's macroeconomic impact in demand terms.

183. This estimate assumes for simplifying purposes that all spending would happen over the course of one year. A comprehensive modeling effort would take into account possible delayed impacts. The numbers here are for conceptual illustration only, i.e., to establish a general ballpark range for the scale of the program.

184. It does not matter whether the initial acquisition is financed through cash or an exchange of stocks for government obligations since, at the margin, the Fed determines the balance of reserves and Treasuries and will defensively respond to absorb new liquidity as necessary to maintain its interest rate and balance sheet targets. *See, e.g.*, Stephanie Kelton & Scott Fullwiler, *The Helicopter Can Drop Money, Gather Bonds, or Just Fly Away*, Fin. Times (Dec. 12, 2013), https://www.ft.com/content/227b3e08-c44e-3f35-8236-18a3c82c9f77 [https://perma.cc/6QC5-RD6F].

185. *See, e.g.*, Baker et al., *supra* note 176, at 20, 24; Meyer et al., *supra* note 176, at 3.

186. For more information on what this process could look like, see The Production Gap, 2023 Report (2023), https://productiongap.org/2023report [https://perma.cc/63WN-PRDP].

187. *See* Heede & Oreskes, *supra* note 159, at 12–13.

188. This is considered either a "fiscal payfor" or a "non-fiscal payfor"—on one hand, it involves regulatory guidance of corporate production, on the other hand, it involves a reduction in public expenditure. Either way, it occurs outside of the traditional appropriations process and would presumably not be included in any deficit-scoring of the overall budget.

189. *See, e.g.*, Aronoff, *supra* note 162; Sean Sweeney, *There May Be No Choice but to Nationalize Oil and Gas—and Renewables, Too*, New Lab. F. (Aug. 2020), https://newlaborforum.cuny.edu/2020/08/31/there-may-be-no-choice-but-to-nationalize-oil-and-gas-and-renewables-too [https://perma.cc/CG4Q-RL5C]; Marcella Mulholland & Ethan Winter, *Nationalize the Fossil Fuel Industry*, New Lab. F. (Apr. 21, 2020), https://www.dataforprogress.org/blog/4/21/nationalize-the-fossil-fuel-industry [https://perma.cc/D4Z5-L4XC]; Alexander Kaufman, *Falling Oil Prices Breathe New Life Into an Old Idea: Nationalize the Industry*, Grist (Apr. 25, 2020), https://grist.org/energy/falling-oil-prices-breathe-new-life-into-an-old-idea-nationalize-the-industry. [https://perma.cc/MZ2K-B6F3]; Johanna Bozuwa, *The Case for Public Ownership of the Fossil Fuel Industry*, Next Sys. Project (Apr. 14, 2020), https://thenextsystem.org/learn/stories/case-public-ownership-fossil-fuel-industry. [https://perma.cc/687Y-LBUL].

tiplier" estimate above, if the government had purchased fossil fuels stocks during the time when prices were roughly one-half of current levels, the increase in overall demand could have been as little as 57.5 billion dollars or 0.225% of GDP.

B. Sectoral Prices and Bottlenecks

The previous section argued the fiscal expenditure required to nationalize fossil fuel companies would likely generate little additional effective demand, or at the least a disproportionately lower amount than its nominal sticker price. One implication of that claim is implementation would thus require fewer, if any, fiscal and/or non-fiscal payfors to mitigate resulting inflationary pressure. While this is largely true from a macroeconomic perspective, the industry-specific particularities of nationalizing fossil fuel companies to reduce fossil fuel production brings important additional price complications.

As explained in Part III, undesirable price increases are not solely attributable to overall excess demand conditions. Market actors regularly exercise pricing power, both in their sector and more broadly across the economy, independent of overall demand conditions. At the same time, sector-specific bottlenecks can emerge alongside broader economic slack.

As the invasion of Ukraine has highlighted, global bottlenecks in fossil fuel markets can fuel energy and broad-based price increases, with significant direct negative impacts on poorer households.[190] Perhaps even more seriously, such broad-based price increases, despite their obvious sectoral production origins, can lead NAIRU-centric monetary policymakers to raise interest rates and undermine labor market conditions in an attempt to slow the macroeconomy.[191] Higher interest rates, in turn, create political headwinds against new fiscal programs and further distract from more nuanced and targeted forms of price-stabilizing macroeconomic interventions.[192]

In this case, an explicit purpose of nationalization is to reduce the long-term production and consumption of fossil fuels. Sectoral bottlenecks in fossil fuel-intensive industries, and shortages in fossil fuel production are thus not a bug, but a feature, albeit one with potentially significant price destabilizing effects that require targeted mitigation.

In particular, efforts to shut down production need to be paced and coordinated with stepping up clean energy production both nationally and globally as well as programs to increase energy efficiency and equitably reduce nonessential energy demand.[193] These efforts should be combined with direct price caps in energy markets,[194] as well as non-financial regulations aimed at facilitating the orderly transition of energy supply chains toward renewables.[195] Doing so is necessary in order to not only mitigate energy market bottlenecks, but also prevent undesirable production shutdowns in other sectors for want of energy and minimize the impact of non-renewable energy prices on overall price conditions.

One example of targeted non-financial regulation would be to require nationalized fossil fuel companies to continue to sell fossil fuels to essential utilities and other systemically important (especially household-facing) sectors at stabilized, pre-nationalization prices, as an implicit consumption subsidy during the transition period. Such a mandate would, of course, need to be designed carefully to avoid incentivizing or empowering fossil fuel black markets and/or causing market disruption. While it is beyond the scope of this Article to suggest a particular approach for how to do so, the relevant point is that to the extent nationalization creates new production and price risks in the energy industry, many of these risks can potentially be ameliorated by the new "regulatory" possibilities afforded by fossil fuel production coming under public control itself.

Ultimately, the risk of bottlenecks and broader energy price disruption exists with any serious attempt to drastically reduce fossil fuel production. At the same time, only a radical and speedy reduction in fossil fuel production can hope to reduce carbon emissions on a scale sufficient to truly mitigate climate change. Thus, even if disorderly energy bottlenecks emerge beyond the mitigatory capacity of an energy demand reduction program and accelerated clean energy production, it is still a "price" worth paying to finally take the fight against climate change seriously. Crucially, such sector-specific price dynamics also do not obviate the broader point of this Article, which is that the economywide inflationary impact of public spending is often far smaller than its budgetary price tags imply, and that they can and should be mitigated through targeted demand-offsets, including fiscal and non-fiscal payfors, rather than reflexive balanced-budget requirements and dollar-for-dollar revenue offsets.

V. Conclusion

Macroeconomic policy is in a state of flux, with sustainability and climate change increasingly central concerns. Although the Fed is ostensibly responsible for price management, its monetary policy toolkit is limited and overly reliant on labor market discipline to constrain excess demand, and emergency, ad hoc fiscal support to prevent deflation.

Recent experience has revealed that inflation, not funding, is the practical limit on large-scale public spending. At the same time, public concern for inflation can generate

190. *See, e.g.*, Klaus Hubacek et al., *Russia-Ukraine War Has Nearly Doubled Household Energy Costs Worldwide—New Study*, World Econ. F. (Feb. 20, 2023), https://www.weforum.org/agenda/2023/02/russia-ukraine-war-energy-costs [https://perma.cc/PP6J-YQD8].

191. *See supra* notes 7–28.

192. *See generally supra* notes 87–130.

193. Counterintuitively, equitably reducing energy demand will involve increasing the relative—and in some cases, absolute—energy consumption of currently under-resourced populations.

194. *See, e.g.*, Kate Abnet, *EU Countries Agree Gas Price Cap to Contain Energy Crisis*, Reuters (Dec. 19, 2022), https://www.reuters.com/business/energy/eu-countries-make-final-push-gas-price-cap-deal-this-year-2022-12-19/ [https://perma.cc/S3SM-YLYG]; Weber, *supra* note 127.

195. *See, e.g.*, Tankus, *supra* note 64.

opposition to large budget deficits and public investment out of the mistaken belief that they are inherently inflationary. In reality, different forms of both public expenditure and revenue collection have different effects on overall price dynamics. Moreover, there are many sources of demand- and non-demand-driven inflationary pressure beyond public spending.[196]

Consequently, formalistic requirements of budget-neutrality do not necessarily guarantee inflation-neutrality.[197] Instead, they mostly function to obstruct important spending initiatives and obscure possibilities for both non-inflationary fiscal expansions, and non-fiscal "payfors"[198]—like credit and non-financial regulations—as a demand-offset instead of taxes or other traditional sources of revenue.

Climate activists should embrace a functional approach to price stabilization, whereby individual spending proposals are evaluated individually for their inflationary impact. Doing so would reveal new possibilities for high-impact, low-inflation fiscal interventions that do not require corresponding fiscal or non-fiscal offsets, notwithstanding their large sticker price.

One such intervention is the nationalization of fossil fuel reserves and related infrastructure through the compulsory public acquisition of shares and other governing interests in fossil fuel companies. Despite its large budget cost, nationalization would likely exert minimal upwards pressure on consumer spending or overall demand conditions, and thus could be implemented without few or no corresponding demand offsets. At the same time, it would afford the government greater control and discretion over the pace and form of fossil fuel industry wind down and green energy transition.

Beyond the merits of the proposal itself, nationalization represents an example and model of how to transform the U.S. economy through large-scale public spending with minimal impact on currently produced goods and services or prices. By adopting a functional macroeconomic framework, grounded in a multidimensional and proactive approach to systemic price stability, climate activists and public policymakers open the door to radical new possibilities for bold public investment and economic transformation.

196. *See, e.g.*, Paz, *supra* note 104.
197. *See, e.g.*, *supra* notes 62–67 and accompanying text.
198. See definition of "payfor," *supra* note 19.

THE (IN)DIRECT EFFECTS OF 20 YEARS OF *PUBLIC CITIZEN*

Jaclyn Lopez*

ABSTRACT

The federal circuits have diverging trends in their treatment of Department of Transportation v. Public Citizen, *the 2004 landmark Supreme Court decision that held that federal agencies do not always need to analyze and disclose the indirect effects of their actions. Explanations for this phenomenon include that courts may be following more universal conservative and progressive trends in their circuits, or perhaps that distinctions turn on the statutes at play, or that particular courts may be more inclined to defer to an agency's interpretation of its regulations rather than Congress' intent in passing a particular law. This Article provides a critical review of the last 20 years of case law and regulatory changes regarding the National Environmental Policy Act ("NEPA") and what types of environmental effects federal agencies must disclose and analyze in funding or authorizing major federal actions following* Public Citizen.

Federal courts since that decision have navigated precedent seemingly at odds with Congress' intent that federal agencies use all practicable means to "assure for all Americans safe, healthful, productive, and esthetically and culturally pleasing surroundings" in considering all reasonably foreseeable effects of major actions. Some courts maintain that federal agencies must analyze and disclose the reasonably foreseeable indirect effects of the actions they authorize, while others have adopted a broader interpretation of Public Citizen *to virtually eliminate indirect effects analysis regardless of foreseeability if there is a break in the causal chain or lack of discretion to address the impacts. This Article helps illuminate why these trends may have emerged, aids litigators in navigating the legal landscape, and provides fodder for NEPA reform. It concludes with recommendations for practitioners who seek to protect the human environment through the enforcement of NEPA's requirement that agencies analyze and disclose a complete account of the reasonably foreseeable effects of their actions.*

I. Introduction

Our nation's bedrock environmental law, the National Environmental Policy Act ("NEPA"),[1] strives to ensure the sustainable and harmonious existence between humans and their environment by requiring federal agencies to evaluate and disclose the effects of their actions on the human environment. But nearly 20 years ago, the U.S. Supreme Court in *Department of Transportation v. Public Citizen*[2] held that federal agencies do not always need to analyze and disclose the indirect effects of the projects they authorize or fund when those agency decisions are not the proximate cause of the impacts or do not have the statutory authority to address the impacts. The circuit courts have diverged in their interpretation of this precedent, perhaps because—when broadly construed—the holding appears to undermine the U.S. Congress' intent that federal agencies use "all practicable means and measures . . . to create and maintain conditions under which man and nature can exist in productive harmony, and fulfill the social, economic, and other requirements of present and future generations of Americans."[3]

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Author's Note: The author litigated one of the cases discussed extensively in this Article, but all opinions expressed in this Article are her own, along with any errors.

1. 42 U.S.C. §§ 4321–4370(h).

2. 541 U.S. 752 (2004).

3. *Compare* Ohio Valley Env't Coal. v. Aracoma Coal Co., 556 F.3d 177, 195–96 (4th Cir. 2009) (the U.S. Army Corps of Engineers ("Army Corps") did not need to analyze the indirect effects of a 404 Clean Water Act ("CWA") permit it had issued to a coal mining company on nearby waters of the

NEPA's significance as a federal law applying to nearly all major federal actions is profound. It applies to oil and gas production,[4] minerals mining, and other potentially environmentally damaging federal government pursuits.[5] It requires that federal agency action, i.e., an action that is funded, conducted, or authorized by any federal agency, may not proceed prior to the analysis and disclosure of the impacts of the action. The agency must seek public comment on the direct, indirect, and cumulative effects of its action and explore alternatives to the action that may have a less environmentally damaging outcome. On the runaway trains of climate change,[6] industrial pollution,[7] new technologies,[8] and even new prisons,[9] NEPA is the emergency brake federal agencies can pump to attempt to understand and disclose the reasonably foreseeable effects of their major actions *before* they take them.

The Supreme Court's decision in *Public Citizen* has weakened the safeguard that NEPA's reasonably foreseeable effects analysis provides. The U.S. Courts of Appeals for the Fourth, Sixth, and Eleventh Circuits have strayed beyond the Supreme Court's holding in deferring to the agency's interpretation of its NEPA regulations to determine the agency lacked discretion to analyze the reasonably foreseeable indirect effects of their actions instead of the Council on Environmental Quality ("CEQ") regulations or the statutes at issue. As a practical matter, litigators must grapple with the disparities among jurisdictions and counsel their clients accordingly. Such a task is not uncommon in litigation, but the very real, direct effect of *Public Citizen* has been that people and natural resources in these jurisdictions are less protected from the significant impacts of federal agency actions than those in other jurisdictions.

This Article analyzes the recent changes to the CEQ's regulations interpreting NEPA under Presidents Donald Trump and Joseph Biden and addresses the 2023 amendments to NEPA.[10] It next examines how courts are interpreting *Public Citizen*, defining the contours of the divergence in the circuits, and contemplates why the circuit holdings differ from each other so significantly.[11] Finally, it offers recommendations for restoring meaning to the statute in light of the new regulations and emerging case law precedent.[12]

II. NEPA Requires That Federal Agencies Analyze and Disclose the Effects of Their Major Actions

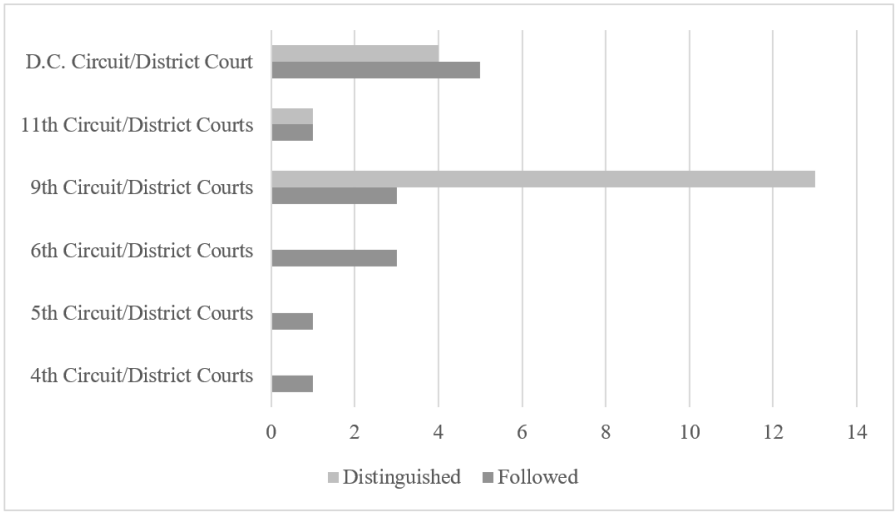
President Richard Nixon signed NEPA into law in 1970 ratifying Congress' declaration that U.S. agencies "encourage productive and enjoyable harmony between man and his environment; to promote efforts which will prevent or eliminate damage to the environment and biosphere and stimulate the health and welfare of man; to enrich the understanding of the ecological systems and natural resources important to the Nation."[13]

The Supreme Court has explained that in furtherance of this national policy, NEPA has "twin aims":

United States); Kentuckians for the Commonwealth v. U.S. Army Corps of Eng'rs, 746 F.3d 698, 712 (6th Cir. 2014) (the Army Corps was not the proximate cause of the 404 applicant coal mining company's actions where there was another statutory regime—again Surface Mining Control and Reclamation Act ("SMCRA")—that provided exclusive jurisdiction to a different agency); Ctr. for Biological Diversity v. U.S. Army Corps of Eng'rs, 941 F.3d 1288, 1294 (11th Cir. 2019) (the Army Corps need not analyze the indirect effects of phosphate mining where it is not the legally relevant cause, "because the Corps lacks the authority to regulate phosphogypsum wholesale," reasoning that the state and other federal agencies also had jurisdiction to regulate phosphogypsum.); Sierra Club v. U.S. Fed. Energy Regul. Comm'n, 867 F.3d 1357 (D.C. Cir. 2017) (upholding environmental impact statement ("EIS") that fully discussed disproportionate impacts on environmental justice communities while recognizing that plaintiffs "[p]erhaps would have a stronger claim if the agency had refused entirely to discuss the demographics of the populations that will feel the pipelines' effects"); Ctr. for Biological Diversity v. Nat'l Highway Traffic Safety Admin., 538 F.3d 1178 (9th Cir. 2008) (the agency had sufficient discretion under Energy Policy and Conservation Act, and that NEPA instructs agencies to comply where it has the power to act on information it receives); Ctr. for Biological Diversity v. Bernhardt, 982 F.3d 723 (9th Cir. 2020) (the agency had the statutory authority to act on the information it learned through NEPA by choosing an alternative or denying the application); WildEarth Guardians v. Bureau of Land Mgmt., 870 F.3d 1222 (10th Cir. 2017) (the agency violated NEPA where it failed to consider emissions in issuing mining leases); and Diné Citizens Against Ruining Our Env't v. Haaland, 59 F.4th 1016 (10th Cir. 2023) (the agency failed to analyze the emissions from oil and gas projects it authorized).

4. Steven Siros et al. *Pipeline Projects—The Evolving Role of Greenhouse Gas Emissions Analyses Under NEPA*, 41 Energy L.J. 47 (2020).
5. Arnold W. Reitze Jr., *The Role of NEPA in Fossil Fuel Resource Development and Use in the Western United States*, 39 B.C. Env't Aff. L. Rev. 283, 310 (2012).
6. There is a large volume of scholarship concerning NEPA and climate change. *See, e.g.*, Michael Burger & Jessica Wentz, *Downstream and Upstream Greenhouse Gas Emissions: The Proper Scope of NEPA Review*, 41 Harv. Env't L. Rev. 109 (2017); Alejandro Camacho, *Adapting Governance to Climate Change: Managing Uncertainty Through a Learning Infrastructure*, 59 Emory L.J. 1 (2009); Madeline Kass, *A NEPA Climate Paradox: Taking Greenhouse Gases Into Account in Threshold Significance Determinations*, 42 Ind. L. Rev. 47 (2009); Arnold Reitz, *Dealing With Climate Change Under the National Environmental Policy Act*, 43 Wm. & Mary Env't. L. & Pol'y Rev. 173 (2018); David Markell & J.B. Ruhl, *An Empirical Assessment of Climate Change in the Courts: A New Jurisprudence or Business as Usual?*, 64 Fla. L. Rev. 15 (2012); Jamison Colburn, *A Climate Constrained NEPA*, 2017 U. Ill. L. Rev. 1091 (2017); Michael Burger & Jessica Wentz, *Evaluating the Effects of Fossil Fuel Supply Projects on Greenhouse Gas and Climate Change Under NEPA*, 44 Wm. & Mary Env't L. & Pol'y Rev. 423 (2020); Jaclyn Lopez, *From Bail Out to Righting the Course: The Commonsense Action the United States Must Take to Address Its Flood Crisis*, 33 Tul. Env't L.J. 1 (2020).
7. *See, e.g.*, Richard Revesz, *Federalism and Environmental Regulation: A Public Choice Analysis*, 115 Harv. L. Rev. 553 (2001); Camilla Getz, *NEPA's Teeth: How to Challenge Chemical and Fossil Fuel Complexes Using a Climate and Environmental Justice Argument*, 27 Hastings Env't L.J. 145 (2021); Robert Blomquist, *Government's Role Regarding Industrial Pollution Prevention in the United States*, 29 Ga. L. Rev. 349 (1995).
8. *See, e.g.*, Lindsay McCarl, *Untethering UMVs From Vessels: Why the United States Should Construct a New Environmental Legal Scheme for Unmanned Maritime Vehicles*, 127 Dick. L. Rev. 469 (2023); Jamie Pleune, *Playing the Long Game: Expediting Permitting Without Compromising Protections*, 52 ELR 10893 (Nov. 2022).
9. *See, e.g.*, Citizen's Alert Regarding Env't v. U.S. Dep't of Just., No. CIV. A. 95-1702 (GK), 1995 WL 748246 (D.D.C. Dec. 8, 1995); Citizens Advisory Comm. on Private Prisons, Inc. v. U.S. Dep't of Just., 197 F. Supp. 2d 226 (W.D. Pa. 2001).
10. *See generally infra* Part II.
11. *See generally infra* Part III.
12. *See generally infra* Part IV.
13. 42 U.S.C. § 4321.

Figure 1: Number of Federal Cases Distinguishing and Following *Public Citizen*, by Circuit*



* Chart created by author based on data located in LexisNexis, updated on Aug. 16, 2023. To compile the data, starting from the *Dep't of Transp. v. Public Citizen*, 541 U.S. 752 (2004), opinion, the author selected "Citing Decisions" > "Analysis" > "Select Multiple" > "All" *not* "Cited by" > "Headnotes" > "Select Multiple" > HN1, HN16, HN17, HN22, HN24 > manually filtered for cases ruling on the issue of indirect effects. It is possible that federal courts have ruled on NEPA's indirect effects requirement without specifically citing to *Public Citizen*. See Appendix A, for the list of cases.

> First, it places upon an agency the obligation to consider every significant aspect of the environmental impact of a proposed action, and to consider reasonable alternatives that could mitigate those impacts. Second, it ensures that the agency will inform the public that it has indeed considered environmental concerns in its decisionmaking process.[14]

Despite these explicit objectives that federal agencies make informed decisions for the betterment of the nation, "NEPA does not mandate results or substantive outcomes."[15] That is, even when a federal agency finds that its proposed actions will have a significant impact on the environment, it does not need to choose a reasonable alternative that would have fewer impacts.[16]

To give purpose to what could otherwise be a means to "regulate the flow of papers in the federal bureaucracy,"[17] NEPA requires the public disclosure of the impacts of major federal actions "significantly affecting the quality of the human environment,"[18] to "ensure that relevant environmental information is identified and considered early in the process in order to ensure informed decision making."[19] Therefore, even though nothing in NEPA's text prevents an agency from selecting the alternative with the most significant impact, other environmental statutes may require agencies to consider or even weigh those environmental impacts against other statutory priorities,[20] and agencies as political subdivisions of the executive branch may be influenced by public opinion on a proposed project and its disclosed environmental impacts.[21]

This public disclosure takes the form of "a detailed statement" for federal actions "significantly affecting the quality of the human environment,"[22] and it must analyze "the environmental impact of the proposed action," "any adverse environmental effects which cannot be avoided," and any reasonable alternatives.[23] Congress created the CEQ to advise the president and develop regulations to guide agencies in implementing NEPA. The CEQ defines

14. Balt. Gas & Elec. Co. v. Nat. Res. Def. Council, 462 U.S. 87, 97 (1983) (internal citations and quotations omitted).
15. 40 C.F.R. § 1500.1(a); Vt. Yankee Nuclear Power Corp. v. Nat. Res. Def. Council, Inc., 435 U.S. 519, 558 (1978) (holding NEPA's requirements are "essentially procedural").
16. Strycker's Bay Neighborhood Council, Inc. v. Karlen, 444 U.S. 223, 226 (1980) (per curiam) (upholding an administrative decision to reject an environmentally preferable alternative to the proposed project).
17. Calvert Cliffs' Coordinating Comm., Inc. v. U.S. Atomic Energy Comm'n, 449 F.2d 1109, 1117 (D.C. Cir. 1971).
18. Robertson v. Methow Valley Citizen Council, 490 U.S. 332, 348 (1989); 42 U.S.C. § 4332(2)(C); 40 C.F.R. § 1500.1(a).
19. 40 C.F.R. § 1500.1(b) (2020); "assessment of a given environmental impact must occur as soon as that impact is 'reasonably foreseeable.'" New Mexico ex rel. Richardson v. Bureau of Land Mgmt., 565 F.3d 683, 716 (10th Cir. 2009) (citing 40 C.F.R. § 1502.22); *see also* Kern v. Bureau of Land Mgmt., 284 F.3d 1062, 1072 (9th Cir. 2002) ("NEPA is not designed to postpone analysis of an environmental consequence to the last possible moment. Rather, it is designed to require such analysis as soon as it can reasonably be done.").
20. The required NEPA analysis may bring to light whether those other environmental mandates are being met. Charles Kersten, *Rethinking Transboundary Environmental Impact Assessment*, 34 Yale J. Int'l L. 173, 190 (2009).
21. Daniel A. Farber, Confronting Uncertainty Under NEPA 1, 8 (U.C. Berkeley Pub. L. Rsch. Paper No. 1403723) (2009), https://perma.cc/P6NX-XXN9; Kenneth Weiner, *NEPA and State NEPAs: Learning From the Past, Foresight for the Future*, 39 ELR 10675 (July 2009).
22. 50 C.F.R. § 1500.1(a).
23. 42 U.S.C. § 4332(2)(C).

human environment to mean "comprehensively the natural and physical environment and the relationship of present and future generations of Americans with the environment."[24] The Supreme Court has held that "human environment" includes not just the natural environment and the physical environment, but also "the relationship of people with that environment."[25] Federal agencies get to determine the scope of their analyses as well as the "effects" of the project, which include the project's direct impacts, indirect impacts, and cumulative impacts.[26] Direct effects "are caused by the action and occur at the same time and place."[27] Indirect effects are "caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable."[28] Cumulative impacts "result from the incremental effects of the action when added to the effects of other past, present, and reasonably foreseeable actions."[29]

The Supreme Court has also held that fundamental to NEPA's procedural requirements is that agencies take a "hard look" at the environmental effects of the actions they propose, including an examination of the effects of the project on environmental justice.[30] And while NEPA itself does not prescribe penalties for violations, judges may enjoin projects until a noncompliant federal agency fulfills its NEPA obligations.[31]

A. *Pre*-Public Citizen *Case Law and* Post-Public Citizen *Regulations Require Agencies Analyze the Reasonably Foreseeable Indirect Effects of Their Actions*

The purpose of this section is to demonstrate that courts prior to *Public Citizen* consistently recognized the importance of the indirect effects analysis and that the CEQ post-*Public Citizen* has chosen not to yield to an expansive interpretation of *Public Citizen*. Federal agencies must, "to the fullest extent possible," interpret and administer their laws, regulations, and policies "in accord[ance]" with NEPA.[32] Congress and the CEQ have a long history, spanning many presidents—Republican and Democrat, of requiring agencies to disclose and analyze indirect effects that are reasonably foreseeable. Federal agencies may also promulgate their own regulations implementing NEPA.[33] Neither NEPA nor the CEQ regulations require that the agencies have any direct regulatory control over the reasonably foreseeable indirect effects caused by the actions they authorize. In fact, in commanding federal agencies to create an analysis that details "any adverse environmental effects which cannot be avoided should the proposal be implemented,"[34] NEPA requires the agency to first "consult with and obtain the comments of any Federal agency which has jurisdiction by law or special expertise with respect to any environmental impact involved."[35]

The CEQ first issued guidance on NEPA in 1971,[36] and the guidance later became regulation in 1978.[37] It described indirect effects as those that are "caused by the action and are later in time or farther removed in distance, but are reasonably foreseeable."[38] It also provided a non-exhaustive list of categories of indirect effects, including:

- growth inducing effects and other effects related to induced changes in the pattern of land use,
- population density or growth rate, and
- related effects on air and water and other natural systems, including ecosystems.[39]

The CEQ emphasized that the consideration of indirect or "secondary" impacts, as they were then also called, may often be more consequential than that of direct, or "primary" impacts.[40] It offered an illustrative example:

> A new highway located in a rural area may directly cause increased air pollution as a primary effect. But the highway may also induce residential and industrial growth, which may in turn create substantial pressures on available water supplies, sewage treatment facilities, and so forth. For many projects, these secondary or induced effects may be more significant than the project's primary effects.
>
> While the analysis of secondary effects is often more difficult than defining the first-order physical effects, it is also indispensable. If impact statements are to be useful, they must address the major environmental problems likely to be created by a project.[41]

24. 40 C.F.R. § 1508.14 (2020).
25. *Id.*
26. 40 C.F.R. § 1508.8 (1978). Impacts and effects are used interchangeably.
27. 40 C.F.R. § 1508.1(g)(1).
28. 40 C.F.R. § 1508.1(g)(2).
29. 40 C.F.R. § 1508.1(g)(3).
30. Marsh v. Oregon Nat. Res. Council, 490 U.S. 360, 371, 374, 385 (1989) (citing 42 U.S.C. § 4321 and holding that agencies must take a "hard look" at the environmental effects of their proposed actions, including indirect effects like changes in downstream water temperature that might harm fish and wildlife); *see also* Standing Rock Sioux Tribe v. U.S. Army Corps of Eng'rs, 255 F. Supp. 3d 101, 140 (D.D.C. 2017) (holding agency's "bare-bones" environmental justice analysis concluding that tribe would not be disproportionately harmed violated NEPA's hard look requirement); Sierra Club v. U.S. Fed. Energy Regul. Comm'n, 867 F.3d 1357, 1369 (D.C. Cir. 2017) (upholding EIS that fully discussed disproportionate impacts on environmental justice communities while recognizing that plaintiffs "[p]erhaps would have a stronger claim if the agency had refused entirely to discuss the demographics of the populations that will feel the pipelines' effects").
31. Wilderness Soc'y v. Morton, 479 F.2d 842, 887 (D.D.C. 1973).
32. 42 U.S.C. § 4332(1).
33. 40 C.F.R. § 1507.3 ("(b) No more than 36 months after September 14, 2020, or 9 months after the establishment of an agency, whichever comes later, each agency shall develop or revise, as necessary, proposed procedures to implement the regulations in this subchapter. When the agency is a department, it may be efficient for major subunits (with the consent of the department) to adopt their own procedures.").
34. 42 U.S.C. § 4332(2)(C)(ii).
35. 42 U.S.C. § 4332(2)(C)(v).
36. CEQ, Statements on Proposed Federal Actions Affecting the Environment, 36 Fed. Reg. 7724 (1971).
37. National Environmental Policy Act—Regulations, 43 Fed. Reg. 55990 (Nov. 29, 1978) (codified at 40 C.F.R. pts. 1500–08).
38. 40 C.F.R. § 1508.1(g)(2).
39. *Id.*
40. CEQ, Environmental Quality: The Fifth Annual Report of the Council on Environmental Quality 410–11 (1974).
41. *Id.*

To comply with the directive to analyze reasonably foreseeable impacts, federal agencies' indirect effects analyses should capture both "upstream" and "downstream" impacts. For example, courts have held that agencies must account for the reasonably foreseeable new well drilling spurred by the approval of a new gas pipeline,[42] as well as the reasonably foreseeable emissions fate of the gas conveyed by that new pipeline.[43] To determine whether effects are reasonably foreseeable:

> an agency must engage in reasonable forecasting and speculation, with reasonable being the operative word . . . the agency need not foresee the unforeseeable, but at the same token neither can it avoid drafting an impact statement simply because describing the environmental effects of and alternatives to particular agency action involves some degree of forecasting.[44]

Effects are reasonably foreseeable "if they are sufficiently likely to occur that a person of ordinary prudence would take them into account in reaching a decision."[45]

Therefore, what is reasonably foreseeable has its bounds. Even prior to *Public Citizen*, courts required a nexus between cause and effect. The Supreme Court in *Metropolitan Edison Company v. People Against Nuclear Energy* held that the Nuclear Regulatory Commission ("NRC") did not need to consider the psychological impacts of people fearing another Three Mile Island nuclear disaster because there must be "a manageable line between those causal changes that may make an actor responsible for an effect and those that do not."[46] The Court explained "[s]ome effects that are 'caused by' a change in the physical environment in the sense of 'but for' causation, will nonetheless not fall within [NEPA] because the causal chain is too attenuated."[47] Particularly, "courts must look to the underlying policies or legislative intent in order to draw a manageable line between those causal changes that may make an actor responsible for an effect and those that do not."[48]

In one of the first cases to squarely find that agencies must consider indirect effects, the U.S. Court of Appeals for the Ninth Circuit held that where an agency approved a new highway designed "to stimulate and service future industrial development" the agency must consider "the project's probable impact on growth, land use," increased demand for municipal services, the tax base, the increased air and noise pollution from increased industrialization.[49]

That case accurately anticipated the CEQ's position on indirect effects, and many courts followed suit.[50] In one notable case, a state water agency argued that the U.S. Army Corps of Engineers ("Army Corps") could not consider the growth-inducing indirect impacts of authorizing a reservoir where the state agency maintained jurisdiction to make water allocation decisions.[51] The court disagreed, finding that the purpose of the Army Corps' indirect effects analysis of the project was to determine the proper scope of its NEPA analysis, that is, "to determine whether an [environmental impact statement ("EIS")] must be performed, not whether the State made a proper water allocation decision."[52] The court held

> It is well settled that NEPA itself does not mandate particular results, but simply prescribes the necessary process . . . [a]s such, even if the Corps had determined the growth of Henry County as a result of the Reservoir was significant, this in no way interferes with the State's decision that water must be allocated to Henry County or whether the Reservoir is the appropriate method of allocation.[53]

Post-*Public Citizen* regulatory changes have likewise acknowledged the importance of agencies disclosing and analyzing the indirect effects of their major federal actions. Under the Barack Obama Administration, in 2016, the CEQ issued updated guidance specifically requiring agencies to consider the indirect effects of greenhouse gas emissions of proposed projects.[54] The Trump Administration withdrew the guidance in 2017,[55] and in 2019 proposed

42. Delaware Riverkeeper Network v. U.S. Fed. Energy Regul. Comm'n, 45 F.4th 104 (D.C. Cir. Aug. 2, 2022); *see also* Sierra Club v. Marsh, 769 F.2d 868, 878-79 (1st Cir. 1985).
43. Mid States Coalition for Progress v. Surface Transp. Bd., 345 F.3d 520, 549-50 (8th Cir. 2003); Sierra Club v. U.S. Fed. Energy Regul. Comm'n, 867 F.3d 1357, 1372 (D.C. Cir. 2017).
44. WildEarth Guardians v. Zinke, 368 F. Supp. 3d 41, 67 (D.D.C. 2019).
45. *Sierra Club*, 867 F.3d at 1371.
46. 460 U.S. 766, 774 (1983) (concluding there was not "a reasonably close causal relationship between a change in the physical environment and the effect at issue. This requirement is like the familiar doctrine of proximate cause from tort law.").
47. *Id.*
48. *Id.* at 774 n.7.
49. City of Davis v. Coleman, 521 F.2d 661, 667, 680 (9th Cir.1975) (holding that where "the growth-inducing effects of the [ ] project are its raison d'etre," the agency must analyze the "growth's problems: increased population, increased traffic, increased pollution, and increased demand for services such as utilities, education, police and fire protection, and recreational facilities.").
50. Mullin v. Skinner, 756 F. Supp. 904, 921 (E.D.N.C. 1990) (holding "even though zoning changes may be necessary to alter existing uses of land, if a major federal action makes it likely that such changes will occur, the action will have an indirect effect on the environment"); California v. U.S. Dep't of Transp., 260 F. Supp. 2d 969 (N.D. Cal. 2003) (holding agency was required to consider the effect an airport expansion would have on the community after adding hundreds of thousands of additional visitors to the region); Citizen's Alert Regarding the Env't v. U.S. Dep't of Just., Civ. A. No. 95-1702(GK), (D.D.C. Dec. 8, 1995) (holding an agency must evaluate the indirect effects of a new prison on nearby infrastructure like roads and sewage); Portland Audubon Soc'y v. Lujan, 784 F. Supp. 786 (D. Or. 1992) (holding agency must consider long-term effect of logging project on survival of owls).
51. Georgia River Network v. U.S. Army Corps of Eng'rs, 334 F. Supp. 2d 1329 (N.D. Ga. 2003).
52. *Id.* at 1344.
53. *Id.*
54. CEQ., Exec. Off. of the President, Memorandum for Heads of Federal Departments and Agencies, Final Guidance for Federal Departments and Agencies on Consideration of Greenhouse Gas Emissions and the Effects of Climate Change in NEPA Review, 13–14, 16 (2016); Final Guidance for Federal Departments and Agencies on Consideration of Greenhouse Gas Emissions and the Effects of Climate Change in National Environmental Policy Act Reviews, 81 Fed. Reg. 51866 (Aug. 5, 2016) (recommending agencies "quantify project direct and indirect GHG emissions").
55. Exec. Order No. 13783, 82 Fed. Reg. 16093 (Mar. 28, 2017); Exec. Order No. 13807, 82 Fed. Reg. 40463 (Aug. 15, 2017) (directing CEQ to propose changes to NEPA regulations); Update to the Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act, 83 Fed. Reg. 28591 (proposed June 20, 2018); Withdrawal of Final Guidance for Federal Departments and Agencies on Consideration of Greenhouse Gas Emissions and the Effects of Climate Change in National Environmental Policy Act Reviews, 82 Fed. Reg. 16576 (Apr. 5, 2017).

guidance that explained that "agencies should assess effects when a sufficiently close causal relationship exists between the proposed action and the effect. A 'but for' causal relationship is not sufficient" and such effects are excused from analysis where "quantification would not be practicable or would be overly speculative."[56] In 2020, the Trump Administration proposed new regulations addressing indirect effects.[57] Specifically, it proposed amending the definition of effects "to provide clarity on the bounds of effects consistent with" *Public Citizen*, and

> to codify a key holding of *Public Citizen* relating to the definition of effects to make clear that effects do not include effects the agency has no authority to prevent or would happen even without the agency action, because they would not have a sufficiently close causal connection to the proposed action.[58]

Over one million people provided comments on the proposed rule,[59] the majority opposed to the changes. Seven months later, the Trump Administration finalized the revisions.[60] Several lawsuits were immediately filed.[61]

On his first day in office, President Biden directed federal agencies to review regulations issued Jan. 20, 2017, through Jan. 20, 2021, and issued an executive order ("E.O.") establishing a policy of using science, improving human health, protecting the environment, holding polluters accountable, and other environmental goals.[62] This E.O. also revoked E.O. 13807, and directed agencies to rescind any rules implementing it.[63] Following this change in presidential administrations, the CEQ repealed President Trump's NEPA regulations, characterizing *Public Citizen* as having limited applicability to only cases where the agency has "no authority to direct or alter an outcome."[64] The CEQ rejected the 2020 revision finding that it "inappropriately transforms a Court holding affirming an agency's exercise of discretion in a particular factual and legal context into a rule that could be read to limit agency discretion" and restored the 1978 CEQ definitions.[65]

Congress recently amended NEPA via the Fiscal Responsibility Act of 2023 ("FRA"), an enactment intended to address the budget ceiling.[66] Congress declined to specifically define "indirect effects" or directly address *Public Citizen* in this amendment; however, the amendments reiterate Congress' intent that an agency's evaluation of a project consider its "reasonably foreseeable" impacts,[67] whereas, prior to the amendments, Congress had never mentioned a "reasonably foreseeable" standard.[68] The amendments also codify in statute agency actions excluded from NEPA as those actions that are "non-discretionary and made in accordance with the agency's statutory authority."[69] On July 31, 2023, the CEQ published proposed regulatory revisions consistent with the FRA explaining that the environment effected by a proposed action includes the "global, national, regional, and local environment" including "reasonably foreseeable global indirect and cumulative effects."[70] The common thread in court opinions prior to *Public Citizen*, CEQ regulations post-*Public Citizen*, and even congressional action on NEPA demonstrate that *Public Citizen* is entitled to only the narrowest interpretation, specific to the nuanced facts of that particular case.

B. *The Supreme Court Tightened NEPA's Indirect Effects Analysis's "Close Causal Relationship" Standard in* Public Citizen

Although federal agencies themselves have been occasionally reluctant,[71] prior to *Public Citizen*, it was well-established that agencies funding or authorizing actions must analyze the impacts of those actions,[72] including

56. Draft National Environmental Policy Act Guidance on Consideration of Greenhouse Gas Emissions, 84 Fed. Reg. 30097, 30098 (June 26, 2019).
57. Update to the Regulations Implementing the Procedural Provisions of the National Environmental Policy Act, 85 Fed. Reg. 1684 (proposed Jan. 10, 2020).
58. 85 Fed. Reg. 1684, 1708.
59. 87 Fed. Reg. at 23454.
60. Update to the Regulations Implementing the Procedural Provisions of the National Environmental Policy Act, 85 Fed. Reg. 43375 (July 16, 2020) (codified at 40 C.F.R. § 1508.1(g), (g)(2) (2020)):
    > *Effects* or *impacts* means changes to the human environment from the proposed action or alternatives that are reasonably foreseeable and have a reasonably close causal relationship to the proposed action or alternatives . . . [a] 'but for' causal relationship is insufficient to make an agency responsible for a particular effect under NEPA. Effects should generally not be considered if they are remote in time, geographically remote, or the product of a lengthy causal chain. Effects do not include those effects that the agency has no ability to prevent due to its limited statutory authority or would occur regardless of the proposed action.
61. Wild Virginia v. Council on Env't Quality, 56 F.4th 281 (4th Cir. 2020); Env't Just. Health All. v. Council on Env't Quality, No. 1:20-cv-06143 (S.D.N.Y. 2020); Alaska Cmty. Action on Toxics v. Council on Env't Quality, No. 3:20-cv-5199 (N.D. Cal. 2020); California v. Council on Env't Quality, No. 20-cv-06057 (N.D. Cal. 2020); Iowa Citizens for Cmty. Improvement v. Council on Env't Quality, No. 1:20-cv-02715 (D.D.C. 2020); Clinch Coal. v. U.S. Forest Serv., No. 2:21-cv-00003 (W.D. Va. 2020).
62. Exec. Order No. 13990, 86 Fed. Reg. 7037 (Jan. 25, 2021).
63. *See also* Press Release, The White House, Fact Sheet: List of Agency Actions for Review (Jan. 20, 2021), https://www.whitehouse.gov/briefing-room/statementsreleases/2021/01/20/fact-sheet-list-of-agencyactions-for-review/ [https://perma.cc/Z4W5-B4V5] (specifically directing CEQ to review the 2020 regulations for consistency with E.O. 13990's policy).
64. National Environmental Policy Act Implementing Regulations Revisions, 87 Fed. Reg. 23435, 23464 (Apr. 20, 2022) (codified at 40 C.F.R. pts. 1502, 1507, 1508).
65. National Environmental Policy Act Implementing Regulations, 87 Fed. Reg. at 23465. The CEQ also gave federal agencies until September 2023 to update their NEPA regulations to be consistent with NEPA and CEQ regulations. Deadline for Agencies to Propose Updates to National Environmental Policy Act Procedures, 86 Fed. Reg. 34154 (June 29, 2021) (to be codified at 40 C.F.R. § 1507).
66. Pub. L. No. 118-5, 137 Stat. 1 (2023).
67. *Id.* at § 106 (to be codified at 42 U.S.C. § 4336) (adding "reasonably foreseeable" and similar language concerning the procedure for determination of level of review, so that agencies must create an EIS for projects with "reasonably foreseeable" significant impacts to the human environment).
68. *See* 2023 amendments at Section 102(2)(C) (to be codified at 42 U.S.C. § 4332 (C)(i)–(ii)); *see also* CEQ, Amendments to NEPA From the Fiscal Responsibility Act of 2023, https://ceq.doe.gov/laws-regulations/fra.html [https://perma.cc/XFJ6-7QDN].
69. *See* 2023 amendments at Sec. 111. Definitions (10)(B)(vii) (to be codified at 42 U.S.C. § 4336e).
70. National Environmental Policy Act Implementing Regulations Revisions Phase 2, 88 Fed. Reg. 49924, 49935 (July 31, 2023) (to be codified at 40 C.F.R. pts. 1500–08).
71. Jayni Hein & Natalie Jacewicz, *Implementing NEPA in the Age of Climate Change*, 10 Mich. J. Env't & Admin. L. 1 (2020).
72. *See generally supra* Part II.A.

their reasonably foreseeable indirect effects under NEPA's unequivocal mandate.[73] In 2004, the Supreme Court in *Department of Transportation v. Public Citizen*, seemingly recalibrated NEPA's indirect effects analysis when it held that the Department of Transportation ("DOT") need not analyze and disclose the indirect effect of increased greenhouse gas emissions related to its proposed regulations because the DOT lacked the statutory discretion to prevent the cross-border traffic causing the emissions.[74]

At issue in *Public Citizen* was whether NEPA required the Federal Motor Carrier Safety Administration ("FMCSA") to "evaluate the environmental effects of cross-border operations of Mexican-domiciled motor cars."[75] The FMCSA is an agency within the DOT charged with motor carrier safety and registration,[76] and has "only limited discretion regarding motor vehicle carrier registration: It must grant registration to all domestic or foreign motor carriers" that meet certain statutory conditions.[77] The events leading up to *Public Citizen* date back decades. In 1982, Congress imposed a moratorium on new Mexican motorcars from entering the United States because it wanted to protect U.S. motor carriers against discriminatory treatment in Mexico and Canada, and gave the president the power to lift, modify, or extend the moratorium.[78] Following a North American Free Trade Agreement ("NAFTA") arbitration panel's determination that the United States' moratorium violated NAFTA by prohibiting Mexican trucks from entering the United States, the president instructed the DOT to promulgate safety and certification rules for Mexican trucks.[79]

In publishing rules on application, safety, and inspection, the FMCSA evaluated under NEPA three possible scenarios: (1) the president does not lift the moratorium; (2) the president lifts the moratorium, but FMCSA does not issue new rules; and (3) the president lifts the moratorium and FMCSA issues new rules. The agency evaluated traffic, congestion, safety, health, air quality, noise, and other factors, but did not evaluate the potential impacts caused by more trucks entering the United States because FMSCA determined that lifting the moratorium, not the new rules, would cause those impacts.[80] The president lifted the moratorium several months later.[81] The Ninth Circuit found that the agency's new safety rules were major federal actions and that the "President's rescission of the moratorium was 'reasonably foreseeable.'"[82] It held the agency's failure to evaluate "the overall environmental impact of lifting the moratorium" violated NEPA.[83]

Justice Clarence Thomas, delivering the unanimous decision of the Supreme Court, found the agency was not the proximate or legal cause of the Mexican truck emissions and held that an agency need not analyze the indirect effects of the actions its authorizes regardless of foreseeability where it "has no ability to prevent a certain effect due to its limited statutory authority over the relevant actions."[84] The Court held that there must be "'a reasonably close causal relationship' between the environmental effect and the alleged cause," and not merely the proximate, but-for test in torts,[85] but also that the agency action must be the "legally relevant" cause of the indirect effect. The Court instructed that "courts must look to the underlying policies or legislative intent in order to draw a manageable line between those causal changes that may make an actor responsible for an effect and those that do not."[86]

The Court also found that because NEPA's "rule of reason" allows "that agencies determine whether and to what extent to prepare an EIS based on the usefulness of any new potential information to the decision-making process,"[87] the DOT's decision to not prepare an EIS was lawful not only because the president had the exclusive ability to prevent the Mexican truck activity, but because the appropriations statute authorizing FMCSA to act states it "shall register a person to provide transportation . . . as a motor carrier if it finds that person is willing and able to comply with" the safety and economic requirements.[88]

The Court's holding focused on what FMCSA could and could not do in terms of the cross-border operations, rather than on the effects of cross-border operations. Accordingly, the Court held the agency was not required to analyze the environmental effects of cross-border operations, because it lacked "discretion to prevent these cross-border operations," not that it merely lacked the discretion to analyze the environmental effects.[89] It held that not only was FMCSA not the legally relevant cause of increased border traffic, but that FMCSA lacked the discretion to limit such traffic because if a motor carrier is "willing and able" to comply with the safety requirements, FMSCA is required to register the vehicle.[90]

When read in the narrow context of these facts, there is hardly anything controversial or new about the holding insofar as it explains that NEPA only applies to "major federal actions" and "major federal actions" categorically do not include "activities or decisions that are non-discretionary and made in accordance with the agency's statutory authority."[91] But some circuits have instead interpreted the holding in *Public Citizen* to mean that agencies analyzing their major federal actions need not analyze impacts of any

73. *See* Draft National Environmental Policy Act Guidance on Consideration of Greenhouse Gas Emissions, 84 Fed. Reg. 123 (June 26, 2019).
74. U.S. Dep't of Transp. v. Pub. Citizen, 541 U.S. 752, 756, 758–59 (2004).
75. *Id.* at 756.
76. *Id.* at 758; 49 U.S.C. § 113(f).
77. *Pub. Citizen*, 541 U.S. at 759–60.
78. *Id.* at 759; 49 U.S.C. § 13902(c)(3). For a detailed explanation of the events leading up to the litigation, see Elizabeth Townsend, *NAFTA, Mexican Trucks, and the Border: Making Sense of Years of International Arbitration, Domestic Debates, and the Recent U.S. Supreme Court Decision*, 31 Transp. L.J. 131 (2004).
79. *Pub. Citizen*, 541 U.S. at 759–60.
80. *Id.* at 761.
81. *Id.* at 762.
82. Pub. Citizen v. U.S. Dep't of Transp., 316 F.3d 1002, 1031–32 (9th Cir. 2003).
83. *Pub. Citizen*, 541 U.S. at 762.
84. *Id.* at 770.
85. *Id.* at 767.
86. *Id.*
87. *Id.*
88. *Id.* at 772–73.
89. *Id.* at 756.
90. *Id.* at 759–60, 769.
91. 40 C.F.R. § 1508.1(q)(2).

other effect later in time or farther in distance when the effect can be attributed to an action other than the major federal action that is the subject of the NEPA analysis.

III. Federal Courts Are Not Interpreting *Public Citizen* Consistently Across the Circuits

By the time the Supreme Court decided *Public Citizen*, it had resolved the merits of 13 prior NEPA cases, each time in favor of the government.[92] In each case, the environmental plaintiffs had won in the courts below, and except for the *Vermont Yankee* case, the solicitor general had petitioned for cert.[93] Even Harvard's Prof. Richard Lazarus, in his learned review of the Supreme Court and NEPA, who argues there is "significantly more nuance and balance in the Court's consideration of NEPA than has routinely been supposed" about SCOTUS's treatment of NEPA,[94] admits that "there is no question that *Public Citizen* was a significant loss for NEPA plaintiffs."[95] Federal courts have cited *Public Citizen* 851 times and have followed or distinguished its indirect effects holding 65 times.[96] Of those 65 cases, only about one-half offer any meaningful analysis of *Public Citizen*.[97]

Of those cases, about half of the courts read *Public Citizen* narrowly in finding agency decisions that forego indirect effects evaluation are unlawful.[98] The other half broadly construe *Public Citizen* to defer to agencies' decisions to not evaluate the reasonably foreseeable indirect effects where the agency has determined it is not the legally relevant cause of the effects.[99]

A narrow reading of *Public Citizen*, taking into account the context of the facts, mitigates much of the potential damage from a broad reading of the holding. NEPA still provides, *Public Citizen* notwithstanding, adequate authority for agencies to consider all reasonably foreseeable impacts of their actions, even if they cannot act to avoid the foreseeable impacts.[100] The Ninth Circuit, the U.S. Court of Appeals for the Tenth Circuit, and the U.S. Court of Appeals for the District of Columbia ("D.C.") Circuit have largely used this approach.[101]

92. As explained by Prof. Richard Lazarus, "when it comes to the Supreme Court, NEPA cases rarely get past the gate—and when they do, it is almost always at the Solicitor General's request." Richard Lazarus, *The National Environmental Policy Act in the U.S. Supreme Court: A Reappraisal and a Peek Behind the Curtains*, 100 Geo. L.J. 1507, 1510, 1523 (2012); Robertson v. Seattle Audubon Soc'y, 503 U.S. 429 (1992); Marsh v. Or. Natural Res. Council, 490 U.S. 360 (1989); Robertson v. Methow Valley Citizens Council, 490 U.S. 332 (1989); Balt. Gas & Electric Co. v. Natural Res. Def. Council, Inc., 462 U.S. 87 (1983); Metro. Edison Co. v. People Against Nuclear Energy, 460 U.S. 766 (1983); Weinberger v. Cath. Action of Haw., 454 U.S. 139 (1981); Strycker's Bay Neighborhood Council, Inc. v. Karlen, 444 U.S. 223 (1980); Andrus v. Sierra Club, 442 U.S. 347 (1979); Vt. Yankee Nuclear Power Corp. v. Nat. Res. Def. Council, Inc., 435 U.S. 519 (1978); Kleppe v. Sierra Club, 427 U.S. 390 (1976); Flint Ridge Dev. Co. v. Scenic Rivers Ass'n of Oklahoma, 426 U.S. 776 (1976); Aberdeen & Rockfish R. Co. v. Students Challenging Regul. Agency Procedures ("S.C.R.A.P."), 422 U.S. 289 (1975); United States v. S.C.R.A.P., 412 U.S. 669 (1973).
93. *See* Petition for Writ of Certiorari, *Vt. Yankee*, 435 U.S. 519 (No. 76-419); Petition for Writ of Certiorari, Consumers Power Co. v. Aeschliman, 435 U.S. 519 (1978) (No. 76-528); Briefs for the Federal Respondents, *Vt. Yankee*, 435 U.S. 519 (Nos. 76-419, 76-528); Lazarus, *supra* note 92, at 1523 n.82.
94. Lazarus, *supra* note 92, at 1526.
95. *Id.* at 1558.
96. Chart created by author based on data located in LexisNexis, updated on Aug. 16, 2023. To compile the data, starting from the Dep't of Transp. v. Public Citizen, 541 U.S. 752 (2004), opinion, the author selected "Citing Decisions" > "Analysis" > "Select Multiple" > "All" *not* "Cited by" > "Headnotes" > "Select Multiple" > HN1, HN16, HN17, HN22, HN24, HN67 > manually filtered for cases ruling on the issue of indirect effects. However, it is possible that federal courts have ruled on NEPA's indirect effects requirement without specifically citing to *Public Citizen.* See Appendix A, for the list of cases.
97. *See generally* Appendix A.
98. *See infra* Part III.A.; *see, e.g.*, League of Wilderness Defenders v. U.S. Forest Serv., 549 F.3d 1211, 1217 (9th Cir. 2008) (recognizing that the Supreme Court in *Public Citizen* "emphasized twice that its analysis and holding were limited to the 'critical feature' of the case—*i.e.*, that FMCSA lacked authority to countermand the presidential order allowing Mexican carriers into the United States, subsequent Ninth Circuit cases have limited their application of *Public Citizen* on that basis") (cleaned-up); Stand Up for Cal.! v. U.S. Dep't of Interior, 959 F.3d 1154, 1164 (9th Cir. 2020) ("Public Citizen, which held that the 'rule of reason' obviated NEPA's requirements, is distinguishable because that case involved a situation in which an agency unambiguously had no discretion to change the decision made by the President"); WildEarth Guardians v. Zinke, No. CV 17-80-BLG-SPW-TJC, 2019 U.S. Dist. LEXIS 30357, *17–18 (D. Mont. Feb. 11, 2019) ("[i]n *Public Citizen*, the Supreme Court held agencies do not have to consider effects if they have no statutory authority to act on the information . . . [b]ut as federal appellate courts have subsequently explained, if an agency has statutory authority to act, the rule from Public Citizen does not apply"); Humane Soc'y of U.S. v. Johanns, 520 F. Supp. 2d 8, 26–27 (D.D.C. 2007); Sierra Club v. Mainella, 459 F. Supp. 2d 76, 105 (D.D.C. 2006) ("The holding in Public Citizen extends only to those situations where an agency has 'no ability' because of lack of 'statutory authority' to address the impact. [National Park Service], in contrast, is only constrained by its own regulation from considering impacts on the Preserve from adjacent surface activities.").
99. *See infra* III.B.; *see also, e.g.*, Sierra Club v. U.S. Army Corps of Eng'rs, No. 2:20-CV-00396-LEW, 2020 U.S. Dist. LEXIS 236545, 2020 WL 7389744, *30–31 (D. Me. Dec. 16, 2020). holding
> because it is doubtful that the Corps has the final authority and responsibility to decide whether or not a transmission line project can run through Maine's western mountain region and the non-wetland values present in it, it is unreasonable to expect the Corps to prepare an EIS for all regional impacts.

Aff'd, 997 F.3d 395 (1st Cir. 2021); Ohio Valley Env't Coal. v. Aracoma Coal Co., 556 F.3d 177, 197 (4th Cir. 2009); Nat'l Wildlife Fed'n v. U.S. Dep't of Transp., 960 F.3d 872, 880 (6th Cir. 2020) ("[t]hus, like in Public Citizen, the impact-statement requirement does not apply because the agency had 'no discretion' to act otherwise"); Ctr. for Biological Diversity v. U.S. Forest Serv., 444 F. Supp. 3d 832, 863 (S.D. Ohio 2020):
> if it is true that Defendants do not have the ability to control what development occurs on private land, i.e. through regulations or stipulations, then it would seem that *Public Citizen* precludes Plaintiffs' argument here, because Defendants would be powerless to act on any information in an EIS about private indirect effects.

Sierra Club v. Fed. Energy Regul. Comm'n (*Freeport*), 827 F.3d 36, 47–48 (D.C. Cir. 2016) (*Freeport*).
100. Calvert Cliffs' Coordinating Comm., Inc. v. U.S. Atomic Energy Comm'n, 449 F.2d 1109, 1112 (D.C. Cir. 1971):
> NEPA, first of all, makes environmental protection a part of the mandate of every federal agency and department. The Atomic Energy Commission, for example, had continually asserted, prior to NEPA, that it had no statutory authority to concern itself with the adverse environmental effects of its actions. Now, however, its hands are no longer tied. It is not only permitted, but compelled, to take environmental values into account. Perhaps the greatest importance of NEPA is to require the Atomic Energy Commission and other agencies to *consider* environmental issues just as they consider other matters within their mandates.

101. Sierra Club v. U.S. Fed. Energy Regul. Comm'n, 867 F.3d 1357 (D.C. Cir. 2017); Ctr. for Biological Diversity v. Nat'l Highway Traffic Safety Admin., 538 F.3d 1178 (9th Cir. 2008); Ctr. for Biological Diversity v. Bernhardt, 982 F.3d 723 (9th Cir. 2020); WildEarth Guardians v. Bureau of Land

But a broad reading of *Public Citizen* would gut NEPA's effects analysis and threaten to unravel the statute almost entirely. It would subvert the purpose and text of NEPA, which mandates a broad reading of the statute: Congress declared that "to the fullest extent possible . . . the policies, regulations, and public laws of the United States shall be interpreted and administered in accordance with the policies" of NEPA,[102] and requires assessment of "any impacts" from agency action.[103] A broad interpretation of *Public Citizen* would render virtually meaningless CEQ regulations that call on agencies to review the effects of their actions that are further removed in time or distance, yet still reasonably foreseeable. The Fourth, Sixth, and Eleventh Circuits have applied such an expansive interpretation of *Public Citizen*.[104]

A. *Some Federal Circuit Courts of Appeals and District Courts Narrowly Construe* Public Citizen *to Require Agencies to Analyze the Reasonably Foreseeable Indirect Effects of Their Actions*

In the wake of *Public Citizen*, courts in the Ninth, Tenth, and D.C. Circuits have held agencies must still analyze the indirect upstream and downstream effects of the actions they authorize under NEPA where they are "reasonably foreseeable."[105] For example, the Ninth Circuit has held that downstream air impacts from the transport and offsite processing of ore are "prime examples" of indirect effects under NEPA.[106] Likewise, the Tenth Circuit has held an agency violated NEPA when it failed to analyze indirect effects of coal combustion emissions.[107] The D.C. Circuit has also come to this conclusion holding an agency unlawfully failed to analyze the indirect effects of authorizing a liquified natural gas facility, which included burning natural gas and the resulting greenhouse gas emissions.[108]

1. The Ninth Circuit Considers Federal Agencies' Statutory Discretion to Address Impacts

The Ninth Circuit has been the most steadfast in its application of CEQ regulations to agency actions post-*Public Citizen*, and has continued to require that federal agencies disclose and analyze the reasonably foreseeable downstream greenhouse gas emissions as indirect effects under NEPA.[109] The first post-*Public Citizen* case decided by the Ninth Circuit was *Ocean Advocates v. United States Army Corps of Engineers*, which involved an Army Corps 404 Clean Water Act ("CWA") permit to fill waters of the United States to extend an oil tanker dock.[110] The court's original decision was released a few months before *Public Citizen* and held that because the dock extension would increase tanker traffic "beyond what market forces might bring about alone," the expansion was "a 'but for' cause of this increase in tanker traffic even if it is not the sole source of the increase."[111] After the Supreme Court released *Public Citizen*, the Ninth Circuit amended its original opinion—maintaining the holding—but updating its "but for" language to be consistent with the Supreme Court's *Public Citizen* holding: "because a 'reasonably close causal relationship' exists between the Corps' issuance of the permit, the environmental effect of increased vessel traffic, and the attendant increased risk of oil spills, the Corps had a duty to explore this relationship further in an EIS."[112]

The next case the Ninth Circuit decided on *Public Citizen* grounds, *Save Our Sonoran v. Flowers*, also involved an Army Corps 404 CWA permit to fill waters of the United States—this time "washes"—under the CWA.[113] A developer applied for a 404 permit to fill seven acres of washes in the course of constructing a 700-plus acre residential development,[114] but the Army Corps limited its environmental analysis to only the impacts of filling the washes, not the entire development.[115] It also held that the scope of the Army Corps' responsibility under NEPA "is directed by statute" and not by the applicant or the Army Corps' regulations.[116] The court acknowledged that the Army Corps "must determine the potential impact that a proposed development would have on the jurisdictional waters,

Mgmt., 870 F.3d 1222 (10th Cir. 2017); and Diné Citizens Against Ruining Our Env't v. Haaland, 59 F.4th 1016 (10th Cir. 2023).

102. 42 U.S.C. § 4332(1).
103. 42 U.S.C. § 4332(2)(C)(ii).
104. Ohio Valley Env't Coal. v. Aracoma Coal Co., 556 F.3d 177, 195-96 (4th Cir. 2009); Kentuckians for the Commonwealth v. U.S. Army Corps of Eng'rs, 746 F.3d 698, 712 (6th Cir. 2014); Ctr. for Biological Diversity v. U.S. Army Corps of Eng'rs, 941 F.3d 1288, 1294 (11th Cir. 2019).
105. 40 C.F.R. § 1508.8(b). *But see* EarthReports, Inc. v. U.S. Fed. Energy Regul. Comm'n, 828 F.3d 949 (D.C. Cir. 2016); Sierra Club v. U.S. Fed. Energy Regul. Comm'n, 827 F.3d 36 (D.C. Cir. 2016); Sierra Club v. U.S. Fed. Energy Regul. Comm'n (*Sabine Pass*), 827 F.3d 59 (D.C. Cir. 2016).
106. S. Fork Band Council of W. Shoshone of Nevada v. U.S. Dep't of Interior, 588 F.3d 718, 725 (9th Cir. 2009) (finding the Bureau of Land Management ("BLM") failed to evaluate the environmental impacts of transporting and processing ore at a facility 70 miles away); *see also* N. Plains Res. Council, Inc. v. Surface Transp. Bd., 668 F.3d 1067, 1077–79 (9th Cir. 2011) (finding EIS for railroad line failed to review cumulative impacts from coal mine that would utilize the rail line).
107. WildEarth Guardians v. Bureau of Land Mgmt., 870 F.3d 1222, 1233–40 (10th Cir. 2017).
108. Sierra Club v. U.S. Fed. Energy Regul. Comm'n (*Sabal Trail*), 867 F.3d 1357, 1374 (D.C. Cir. 2017).
109. Save Our Sonoran, Inc. v. Flowers, 408 F.3d 1113, 1122 (9th Cir. 2005) ("[I]t is the impact of the permit on the environment at large that determines the Corps' NEPA responsibility."). *But see* Friends of the Earth, Inc. v. Mosbacher, 488 F. Supp. 2d 889, 918 (N.D. Cal. 2007) ("Because the Court is unable to determine whether the alleged actions would have gone forward without Defendants' participation and cannot determine whether Defendants could exercise control over the projects, the Court cannot determine whether Defendants are a legally relevant cause of the alleged effects on the domestic environment.").
110. 361 F.3d 1108 (9th Cir. 2004).
111. *Id.* at 1127 (citing Pub. Citizen v. U.S. Dep't of Transp., 316 F.3d 1002, 1024 (2003)) (holding that even where "it is impossible to separate" the causes of increases in traffic, the influence of the challenged activity on increased traffic is still an important causal effect).
112. Ocean Advocates v. U.S. Army Corps of Eng'rs, 402 F.3d 846, 868 (9th Cir. 2005) (citing U.S. Dep't of Transp. v. Pub. Citizen, 541 U.S. 752 (2004) (quoting Metro. Edison Co. v. People Against Nuclear Energy, 460 U.S. 766, 774 (1983))).
113. 408 F.3d 1113 (9th Cir. 2005).
114. *Id.* at 1118.
115. *Id.*
116. *Id.*

and on 'those portions of the entire project over which the district engineer has sufficient control and responsibility to warrant Federal review,'"[117] but found that although the Army Corps' permitting authority is limited to those aspects of a development that directly affect jurisdictional waters, it has responsibility under NEPA to analyze all of the environmental consequences of a project.

Put another way, the court's reasoning explains that while it is the development's impact on jurisdictional waters that determines the scope of the Army Corps' permitting authority, it is the impact of the permit on the environment at large that determines the Army Corps' NEPA responsibility. The court held that the Army Corps' responsibility under NEPA to consider the environmental consequences of a permit extends even to environmental effects with no impact on jurisdictional waters at all.[118] The court found significant to its holding that the Army Corps itself had determined that the "no action" alternative, effectively a permit denial, would stop the project.[119] The court found "the entire development was affected by the decisions concerning the washes. . . . Because the jurisdictional waters run throughout the property like capillaries through tissue, any development the Corps permits would have an effect on the whole property" and held the Army Corps' NEPA analysis should have included the entire property.[120] The court held that because the wash fill permitted by the Army Corps would affect the entire property, causal nexus requirement of *Public Citizen* was satisfied.

In *Oregon Natural Res. Council Fund v. Brong*,[121] the Ninth Circuit again looked to the federal agency's statutory authority to conclude the agency had discretion to consider environmental effects. The court held that the Bureau of Land Management ("BLM") did not take a "hard look" at the impact of a salvage logging project on interspersed private lands and deferred watersheds. The court held that unlike the agency in *Public Citizen*, which "had no authority" under statute to regulate the indirect effects, the BLM has "significant authority" under the Federal Land Policy and Management Act to regulate the indirect effects.[122] Several other Ninth Circuit cases have invoked this reasoning. For example, in *Ctr. for Biological Diversity v. Nat'l Highway Traffic Safety Admin*., the Ninth Circuit held that the National Highway Transportation Safety Administration has the statutory authority to impose or enforce fuel economy standards which gives it the discretion to set higher standards based on environmental impacts.[123] The environmental plaintiffs alleged the agency's environmental assessment of greenhouse gas emissions was unlawful where the agency argued the environmental assessment did not need to include greenhouse gas emissions under *Public Citizen* because it lacked authority to regulate the emissions. The court rejected the agency's *Public Citizen* argument holding, "*Public Citizen* extends only to those situations where an agency has 'no ability' because of lack of 'statutory authority' to address the impact."[124] The court found the agency had "broad discretion" under the Energy Policy and Conservation Act, and that NEPA's legislative history required a broad reading of NEPA instructing agencies to comply to the "fullest extent possible" where the agency has "power to act on information contained in the EIS."[125]

In *Center for Biological Diversity v. Bernhardt*, the Ninth Circuit held that the Bureau of Energy Ocean Management ("BOEM") "has the statutory authority to act on the emissions resulting from foreign oil consumption" under the Outer Continental Shelf Lands Act in approving an offshore oil drilling and production facility and could choose a different alternative or "deny the lease altogether."[126] Plaintiffs argued BOEM unlawfully failed to consider the increase in global emissions from the project and that the agency had wrongly determined that if the oil did not come from the project, it would come from foreign sources with weaker environmental protections and therefore increased greenhouse gas emissions.[127] The court considered the holding in the D.C. Circuit's *Sabal Trail* case regarding the certainty of reasonably foreseeable effects and held that "even if the extent of the emissions resulting from increased foreign consumption is not foreseeable, the nature of the effect is."[128] Likewise, in *League of Wilderness Defenders v. United States Forest Serv*., the Ninth Circuit, in describing the issue in that case as "narrow," held that "because the Forest Service has statutory authority to regulate the environmental consequences of the Project, *Public Citizen* does not support the agency's position" that it need not analyze the cumulative effects of past timber sales.[129]

The Ninth Circuit has also grappled with the holding in *Public Citizen*'s holding regarding the "rule of reason."[130] In *San Luis Obispo Mothers for Peace v. NRC*, the court held that the NRC was required to consider the possibility of a terrorist attack in reviewing an energy company's application for a license to construct a storage installation for spent fuel.[131] The court found the possibility of a terrorist attack was not too far removed from the consequences of the agency's action. The NRC had argued that analyzing the threat of a terrorist attack would not serve its rule of reason à la *Public Citizen* because that information was sensitive and could not be released to the public. The court agreed that the two purposes of NEPA are to ensure the agency has and considers information regarding significant environmental impacts and that the public can both con-

117. *Id.* at 1121 (citing 33 C.F.R. pt. 325, App. B § 7(b)(1)).
118. *Id.* at 1121–22.
119. *Id.* at 1122.
120. *Id.*
121. 492 F.3d 1120 (9th Cir. 2007).
122. *Id.* at 1134 n.20.
123. 538 F.3d 1172 (9th Cir. 2008).
124. *Id.* at 1213.
125. *Id.*
126. 982 F.3d 723 (9th Cir. 2020).
127. *Id.* at 736–37.
128. *Id.* at 738.
129. 549 F.3d 1211 (9th Cir. 2008).
130. *See* Stand Up for Cal.! v. U.S. Dep't of Interior, 959 F.3d 1154, 1162 (9th Cir. 2020) (holding the agency does not lack "discretion to consider any other applicable federal law . . . and so the 'rule of reason'" does not excuse it from considering indirect effects).
131. 449 F.3d 1016 (9th Cir. 2006).

tribute to and access that information,[132] but held it was unreasonable for the NRC to be unwilling to hear and consider public information that "would fulfill both the information-gathering and the public participation functions of NEPA."[133]

District courts in the Ninth Circuit have also continued to directly distinguish *Public Citizen*,[134] including the federal district court of Alaska in *Sovereign Iñupiat for a Living Arctic v. BLM*, which held "BLM's greenhouse gas emissions analysis suffers from the same flaws the Ninth Circuit identified in *Liberty*" in distinguishing *Public Citizen* where BLM was the "legally relevant cause" of the environmental impacts of oil development.[135] In *WildEarth Guardians v. Bernhardt*, the federal district court of Montana also distinguished the discretion FMCSA lacked in *Public Citizen* where the Office of Surface Mining Reclamation and Enforcement had "broad statutory authority to recommend approval or disapproval of a mining plan based on the information compiled in accordance with the mandates of NEPA."[136]

Several other Ninth Circuit cases have directly addressed NEPA's indirect effects requirement without expressly citing *Public Citizen*, finding that agencies must analyze the indirect effects of their actions where they are the but-for cause, unless they have no statutory authority to do so.[137] For example, in *South Fork Band Council of West Shoshone of Nevada v. U.S. Department of the Interior*, the Ninth Circuit explained that "[t]he air quality impacts associated with transport and off-site processing of the five million tons of refractory ore are prime examples of indirect effects that NEPA requires be considered."[138] Several district court cases in the Ninth Circuit have reached similar results.[139]

Unlike the Ninth Circuit, the Tenth Circuit has not ruled squarely on a *Public Citizen* claim; though, it has repeatedly held post-*Public Citizen* that federal agencies must analyze the downstream impacts such as greenhouse gas emissions as indirect effects of their actions under NEPA. In *WildEarth Guardians v. U.S. Bureau of Land Management*, the Tenth Circuit held that a BLM EIS for coal leases unlawfully failed to review impacts from coal combustion emissions where BLM "is often in the business of approving mining infrastructure and issuing mining leases."[140] In *Dine' CARE v. Haaland*, the Tenth Circuit held that the U.S. Department of the Interior ("DOI") was required to evaluate the downstream greenhouse gas emissions from projects it approved to drill for oil and gas.[141] The court held that "it is arbitrary for an agency to quantify an action's benefits while ignoring its costs" in determining that the emissions would not be significant.[142]

Likewise, district courts in the Tenth Circuit have continued to find agencies must evaluate the reasonably foreseeable indirect effects of their actions.[143] For example, in *Dine' CARE v. OSM*, the federal district court of Colorado

132. 449 F.3d at 1034–35 (citing Dep't of Transp. v. Pub. Citizen, 541 U.S. 752, 768 (2004)).
133. *Id.* at 1034.
134. *See* Backcountry Against Dumps v. U.S. Dep't of Energy, No. 12-CV-03062, 2017 U.S. Dist. LEXIS 114496, at *13 (S.D. Cal. Jan. 30, 2017) (holding where the agency's approval of a construction and operation project "is a proximate cause of the construction and operation of" another project, the agency must analyze any associated environmental impacts); League for Coastal Prot. v. Norton, No. C-05-0991-CW, 2005 U.S. Dist. LEXIS 32379, at *15 (N.D. Cal. Aug. 31, 2005) (holding "[Minerals Management Services] may not restrict its NEPA analysis to activity during the lease suspensions; the agency must consider the environmental impact of future exploration and development activity in preparing environmental analyses in conjunction with the thirty-seven suspensions in this case"); Border Power Plant Working Grp. v. U.S. Dep't of Energy, No. 02-CV-513, 2006 U.S. Dist. LEXIS 107077, at *21 (S.D. Cal. Feb. 8, 2006) (holding "the [U.S. Department of Energy] can 'practicably control' the emissions from the Mexican power plants within the meaning of the CAA and its implementing regulations"); Ctr. for Food Safety v. Vilsack, 2009 U.S. Dist. LEXIS 86343, at *27–28 (N.D. Cal. Sept. 21, 2009) (holding that where "[the Animal and Plant Health Inspection Service] has authority to examine the environmental impacts of deregulation, and in response to the petition for deregulation," the agency must analyze those effects under NEPA); *cf.* Quechan Indian Tribe of the Fort Yman Indian Resv. v. U.S. Dep't of Interior, 547 F. Supp. 2d 1033, 1043 (D. Ariz. 2008) (holding that where the Bureau of Reclamation's land transfers were not for the purpose of building a refinery and the Bureau had "no ability to prevent the environmental effects of the proposed refinery [nor] authority over the existence, location or construction of the refinery," it need not consider those indirect effects); Kahea v. Nat'l Marine Fisheries Serv., 547 F. Supp. 2d 1033 (D. Hawaii 2017) (holding that the National Marine Fisheries Service's failure to consider regional aquaculture development as an indirect effect of a project did not violate NEPA where they lacked "reasonably close causal relationship between the environmental effect and the alleged cause").
135. 555 F. Supp. 3d 739, 765 (D. Alaska 2021).
136. 2021 U.S. Dist. LEXIS 20792, at *17–18 (D. Mont. Feb. 10, 2021), *aff'd*, Mont. Env't Info. Ctr. v. Haaland, No. 21-35294, 2021 U.S. App. LEXIS 18786, 2021 WL 3077586 (9th Cir. June 23, 2021), *prior history*, Wildearth Guardians v. Zinke, 368 F. Supp. 3d 41, 52 (D.D.C. 2019) (holding BLM's statutory authority directs it to oversee mineral development to safeguard public welfare and has discretion to determine "where, when, and under what terms and conditions" it authorizes lease sales).
137. *See* 350 Montana v. Haaland, 29 F.4th 1158 (9th Cir. 2022), *reprt. as amended at* 50 F.4th 1254 (9th Cir. 2022) (holding the Office of Surface mining must consider the downstream combustion from coal mine), *but see dissent* arguing "[t]he majority ignores the fact that federal laws and regulations direct Interior not to consider effects that it has no ability to prevent . . . due to its limited statutory authority over the relevant actions." 29 F.4th 1158 at 1191 (citing Dep't of Transp. v. Pub. Citizen, 541 U.S. 752, 770 (2004)).
138. S. Fork Band Council of W. Shoshone of Nev. v. U.S. Dep't of Interior, 588 F.3d 718, 725 (9th Cir. 2009) (finding that BLM failed to evaluate the environmental impacts of transporting and processing ore at a facility 70 miles away); *see also* N. Plains Res. Council, Inc. v. Surface Transp. Bd., 668 F.3d 1067, 1077–79 (9th Cir. 2011) (finding an EIS for a railroad line failed to review cumulative impacts from a coal mine that would utilize the rail line).
139. *See, e.g.*, Montana Env't Info. Ctr. v. U.S. Off. of Surface Mining, 274 F. Supp. 3d 1074, 1090–99 (D. Mont. 2017) (finding an environmental assessment for the expansion of a coal mine failed to take a hard look at the indirect and cumulative effects of coal transportation, coal combustion, and foreseeable greenhouse gas emissions); WildEarth Guardians v. U.S. Off. of Surface Mining, No. 14-103-BLG-SPW, 2015 U.S. Dist. LEXIS 145149, at *19–20 (D. Mont. Oct. 23, 2015) (finding the Office of Surface Mining's FONSI failed to take a hard look at environmental impacts including downstream greenhouse gas emissions from federal coal leasing), *report and recommendation adopted in part, rejected in part on other grounds*, 2016 U.S. Dist. LEXIS 7223 (D. Mont. Jan. 21, 2016); W. Org. Res. Councils v. Bureau of Land Mgmt., CV-16-21-GF-BMM, 2018 U.S. Dist. LEXIS 49635, 2018 WL 1475470 (D. Mont. Mar. 26, 2018) (holding the agency needed to analyze the downstream air pollution from oil and gas and coal); Columbia Riverkeeper v. U.S. Army Corps of Eng'rs, No. 19-6071 RJB, 2020 U.S. Dist. LEXIS 219535, 2020 WL 6874871 (W.D. Wash. Nov. 23, 2020) (holding agency needed to analyze upstream fracking impacts from the construction of a methanol facility).
140. 870 F.3d 1222, 1227, 1233–40 (10th Cir. 2017).
141. 59 F.4th 1016 (10th Cir. 2023).
142. *Id.* at 1041 (citing California v. Bernhardt, 472 F. Supp. 3d 573, 623 (N.D. Cal. 2020)).
143. Utah Physicians for a Healthy Env't v. Bureau of Land Mgmt., 528 F. Supp. 3d 1222 (D. Utah 2021) (holding "BLM's NEPA analysis of environmental impacts of a proposed coal lease expansion failed, in its final EIS, to take the requisite hard look at the handling of greenhouse gases (GHGs), climate change, and socioeconomics."); San Juan Citizens All. v. Bureau of Land Mgmt., 326 F. Supp. 3d 1227 (D.N.M. 2018), finding BLM's argument

rejected the Office of Surface Mining's ("OSM's") argument that it had "little, if any, authority to assess downstream impacts" of coal combustion.[144] The court noted the narrow language of *Public Citizen* that holds only where the agency has "no ability" to prevent impacts is it exempted from analyzing them, and held that the OSM has the statutory authority to deny the permit due to indirect impacts.[145]

2. The D.C. Circuit Looks to What Factors the Agency Can Consider When Regulating in "Its Proper Sphere"

Where the Ninth Circuit has been bold and consistent, the D.C. Circuit has been restrained and inconsistent. The D.C. Circuit was silent on *Public Citizen* for nearly a decade, leaving the lower district court to sort out which agency actions required indirect effects analyses.[146] One of the first post-*Public Citizen* cases decided by a D.C. district court was *Sierra Club v. Mainella*, where the court rejected the National Park Service's ("NPS's") argument that it had "no authority to regulate surface operations outside park boundaries or otherwise prevent their impacts" under its oil and gas regulations.[147] The court held that NPS must assess impacts from adjacent surface activities even though NPS regulations state "NPS has no authority to regulate surface operations outside park boundaries or otherwise prevent their impacts" because the NPS's Organic Act gives it the authority to regulate access to parks, including private parcels.[148] The court held that an agency's alleged constraint created by its own regulation was not the same statutory lack of control the Supreme Court found dispositive in *Public Citizen*.[149]

The D.C. Circuit handed down its initial read on *Public Citizen* in 2014 with *Town of Barnstable v. FAA*, where Judge Judy Rogers, joined by Judge Janice Rogers Brown and then-Judge Merrick Garland held that the Federal Aviation Administration ("FAA") did not need to comply with NEPA in making a safety determination regarding wind turbines and navigable air space.[150] The FAA was charged with conducting a safety review for proposed turbines approved by the DOI, which had done its own NEPA review in siting the project. The court found that a FAA hazard determination does not typically require NEPA analysis,[151] and that because the DOI had already complied with NEPA on the turbines, it would not serve the "rule of reason" to require FAA to "duplicate" that analysis, which had also been challenged in a different proceeding.[152] Citing *Public Citizen*, the court held that the FAA had "no authority to countermand Interior's approval of the project or to require changes to the project in response to environmental concerns."[153]

The next major D.C. Circuit *Public Citizen* case came in 2017 with the *Sabal Trail* case. Just a year earlier, the D.C. Circuit had handed down three factually similar cases regarding liquified natural gas ("LNG") facilities where it held that the Federal Energy Regulatory Commission ("FERC") was not required to evaluate the indirect effects of greenhouse gas emissions from exporting LNG where the agency was considering permits to retrofit facilities to export LNG.[154] The first of the three cases, *Sierra Club v. FERC* ("*Freeport*"), was decided by Judge Patricia Millet, joined by Judges Thomas Griffith and Judy Rogers, and involved FERC's approval of a LNG facility's request to modify it to produce LNG for export under the Natural Gas Act.[155] Plaintiffs argued FERC failed to consider the upstream and downstream impacts of approving the permit to modify the facility, like an increased demand for coal and gas and increased greenhouse gas emissions.[156] Plaintiffs argued that the modified facility would lead to the U.S. Department of Energy to approve export licenses, which would cause increased LNG production, which would lead to price increases, which would cause consumers to demand cheap coal.[157]

The court began by noting that "export authorizations for natural gas implicate a tangled web of regulatory processes."[158] The Natural Gas Act delegates authority to approve LNG facility modifications to FERC and authority to export LNG to the DOE.[159] Under this regime, the DOE "maintains exclusive authority over the export of natural

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that consumption is not "an indirect effect of oil and gas production because production is not a proximate cause of GHG emissions resulting from consumption" . . . [to be] circular and worded as though it is a legal conclusion. However, it is contrary to the reasoning in several persuasive cases that have determined that combustion emissions are an indirect effect of an agency's decision to extract those natural resources.

144. 82 F. Supp. 3d 1201, 1217 (D. Colo. 2015), *vacated in part*, 643 Fed. App'x 799 (10th Cir. 2016).
145. *Id. See also* Colorado Env't Coal. v. Off. of Legacy Mgmt., 819 F. Supp. 2d 1193, 1212 (D. Colo. 2011), *amended in part on other grounds*, No. 08-01624-WJM-MJW, 2012 U.S. Dist. LEXIS 24126 (D. Colo. Feb. 27, 2012); Sierra Club v. U.S. Dep't of Energy, 255 F. Supp. 2d 1177, 1185 (D. Colo. 2002) (holding the agency must review impacts from a "reasonably foreseeable" mine on private land when preparing a NEPA document for federal land easement related to the future mine); High Country Conservation Advocs. v. U.S. Forest Serv., 52 F. Supp. 3d 1174, 1189–94 (D. Colo. 2014) (finding an EIS for coal lease modification and mine expansion must consider downstream emissions from coal combustion).
146. Sierra Club v. U.S. Dep't of Agric., 777 F. Supp. 2d 44, 65 (D.D.C. 2011) (holding that "[i]n contrast to *Public Citizen*, defendants in the instant action can point to no authority, executive or otherwise," prohibiting the agency from imposing conditions "related to any identified environmental impacts").
147. 459 F. Supp. 2d 76, 102 (D.D.C. 2006).
148. *Id.* at 104.
149. *Id.* at 105, 108.
150. 740 F.3d 681 (D.C. Cir. 2014).
151. *Id.* at 691 (citing BFI Waste Sys. of N. Am., Inc. v. Fed. Aviation Admin., 293 F.3d 527, 530 (D.C. Cir. 2002)).
152. *Id.*
153. *Id.* (holding that "because the FAA 'simply lacks the power to act on whatever information might be contained in the [environmental impact statement (EIS)],' NEPA does not apply to its no hazard determinations" (internal citations omitted)).
154. Sierra Club v. Fed. Energy Regul. Comm'n (*Freeport*), 827 F.3d 36 (D.C. Cir. 2016); Sierra Club v. Fed. Energy Regul. Comm'n (*Sabine Pass*), 827 F.3d 59 (D.C. Cir. 2016); EarthReports, Inc. v. Fed. Energy Regul. Comm'n, 828 F.3d 949 (D.C. Cir. 2016).
155. 827 F.3d 36 (D.C. Cir. 2016).
156. *Sierra Club*, 827 F.3d at 40.
157. *Id.* at 49.
158. *Id.* at 40.
159. *Id.* at 41.

gas as a commodity."[160] Through this statutory framework, the DOE must authorize export unless it finds that doing so "will not be consistent with the public interest,"[161] and where the United States maintains a free trade agreement with the receiving nation, the Act explains that the authorization is de facto consistent with the public interest.[162] Because the plaintiffs did not challenge the adequacy of DOE's NEPA review, the court limited its analysis "solely to whether the Commission discharged its NEPA duty to adequately consider the indirect and cumulative environmental effects" of the modification of the LNG facility.[163]

The court held DOE's decision to authorize LNG exports broke the "NEPA causal chain" which "absolves" FERC from considering the upstream and downstream effects of LNG exports.[164] The court held that because the DOE has "sole authority" for approving LNG exports, FERC could not be responsible for analyzing the impacts of LNG exports. Relying on *Public Citizen*, the court concluded that because FERC "has no ability to prevent" the effects of DOE's LNG export approval due to its "limited statutory authority," FERC was not the "legally relevant cause of the effect for NEPA purposes."[165]

The second case, *Sierra Club v. FERC* ("*Sabine Pass*"), was decided on the same day and by the same three judges that decided *Freeport*, with Judge Judy Rogers authoring the opinion joined by Judges Griffith and Millett.[166] This case also involved FERC's approval of a LNG facility's request to modify its operations to produce LNG for export under the Natural Gas Act.[167] Like the plaintiffs in *Freeport*, the plaintiffs in *Sabine Pass* argued that FERC's approval would increase LNG capacity which would cause increased domestic production, which would raise the cost of natural gas, which would make coal—which has more significant greenhouse gas consequences—more attractive as a fuel source.[168] Echoing its rationale in *Freeport*, the court held that because the DOE "alone has the legal authority to authorize" exports, FERC was "not the legally relevant cause of the indirect effects" of such exports.[169] The court also found that FERC adequately explained that it was not reasonably foreseeable that granting the modification would lead to increased domestic natural gas production.[170]

The third case, *EarthReports, Inc. v. FERC*, was decided by two of the same judges that decided *Freeport* and *Sabine Pass* with Judge Judy Rogers authoring the opinion, joined by Judges Griffith and Brett Kavanaugh and was issued two weeks after *Freeport* and *Sabine Pass*.[171] The case also dealt with FERC's authorization of an LNG facility's expansion of production capacity. Plaintiffs argued FERC was required to consider the indirect effects of authorizing the modification, including the potential induced increase in exports, increased fossil fuel development, and increased greenhouse gas emissions.[172] The court found that when the DOE delegated authority to permit facility expansion to FERC, the DOE retained "exclusive authority over the export of natural gas as a commodity."[173] The court held FERC did not need to consider indirect impacts from increased exports because the DOE "alone has the legal authority to authorize" commodity exports of LNG.[174]

Consistent with the holding in *Public Citizen*, *Freeport*, *Sabine Pass*, and *EarthReports* establish D.C. Circuit precedent that when a federal agency lacks the statutory discretion to address reasonably foreseeable effects and another agency has sole jurisdiction over the action causing the reasonably foreseeable effects, the first federal agency is not required to analyze those effects under NEPA.

One year after the D.C. Circuit decided these three LNG cases, it issued a fourth opinion regarding FERC's NEPA responsibilities while permitting under the Natural Gas Act in *Sierra Club v. FERC* ("*Sabal Trail*").[175] Two of the three judges that ruled on the three prior LNG cases, Judges Griffith and Judge Judy Rogers, held that unlike the three prior LNG cases, FERC violated NEPA in *Sabal Trail* by failing to analyze the indirect effects of burning natural gas transported by the "Sabal Trail" natural gas pipeline.[176] As opposed to the three prior LNG cases that involved FERC's approval of a LNG *facility* modification under section 3 of the Natural Gas Act, the issue in *Sabal Trail* was FERC's approval of a LNG *pipeline* under section 9 of the Natural Gas Act.

The court distinguished the three prior LNG cases explaining that these cases were not merely based on the fact that a second agency's approval was needed before the environmental effects could even occur, but that FERC "had no legal authority to consider the environmental effects" of exports it could not authorize.[177] The court found that while FERC could not deny a permit for a facility modification based on the environmental impact of an export,[178] FERC was "not so limited" in authorizing LNG pipelines because "Congress broadly instructed the agency to consider 'the public convenience and necessity'" and to "balance the public benefits against the adverse effects of the project."[179] The court held that "because FERC could deny a pipeline certificate on the ground that the pipeline would be too harmful to the environment, the agency is a 'legally relevant cause' of the direct and indirect environmental effects of pipelines it approves."[180] The court found *Freeport* turned not on the question "'what activities

160. *Id.* at 40.
161. *Id.*
162. *Id.*
163. *Id.* at 47.
164. *Id.* at 48.
165. *Id.*
166. Sierra Club v. Fed. Energy Regul. Comm'n, 827 F.3d 59 (D.C. Cir. 2016).
167. *See generally Sierra Club*, 827 F.3d 59.
168. *Id.* at 68.
169. *Id.* at 68.
170. *Id.* at 69.
171. EarthReports, Inc. v. Fed. Energy Regul. Comm'n, 828 F.3d 949 (D.C. Cir. 2016).
172. *Id.* at 955.
173. *Id.* at 952–53.
174. *Id.* at 956.
175. 867 F.3d 1357 (D.C. Cir. 2017).
176. The third judge, Judge Brown, who did not hear the prior FERC cases, dissented.
177. *Sabal Trail*, 867 F.3d at 1373.
178. *Id.*
179. *Id.*
180. *Id.*

does FERC regulate?' but instead on the question 'what factors can FERC consider when regulating in its proper sphere?'"[181] The court held it was not only reasonably foreseeable that downstream power plants would use the gas to generate electricity, but that it was the pipeline's explicit purpose to convey that gas,[182] and because FERC had the "legal authority" to mitigate it, it should have analyzed the effects of burning fossil fuels.[183]

The court distinguished the Sabal Trail pipeline project from the FMSCA truck safety regulations in *Public Citizen*, explaining that Congress "broadly instructed" FERC to consider public benefits against adverse effects in the Natural Gas Act. It held that "[b]ecause FERC could deny a pipeline certificate on the ground that the pipeline would be too harmful to the environment, the agency is a 'legally relevant cause' of the direct and indirect environmental effects of pipelines it approves."[184] The court concluded that *Public Citizen* "did not excuse FERC from considering these indirect effects."[185] Judge Brown dissented, finding "the actual distinction between this case" and *Public Citizen* and the LNG cases "is doctrinally invisible."[186] Judge Brown stated "if this court wishes to apply the 'touchstone of *Public Citizen*' that 'an agency has no obligation to gather or consider environmental information if it has no statutory authority to act on that information' . . . case law is clear" when an agency "has no ability to prevent a certain effect due to [its] limited statutory authority over the relevant action[ ] then that action 'cannot be considered a legally relevant cause' of an indirect environmental effect."[187] Citing *Freeport*, she concluded

> the fact that the Commission's action is a 'but for' cause of an environmental effect is insufficient to make it responsible for a particular environmental effect. Instead, the effect must be 'sufficiently likely to occur that a person of ordinary prudence, would take it into account in reaching a decision. There is a further caveat: An effect the agency is powerless to prevent does not fall within NEPA's ambit.[188]

Sabal Trail has been cited in 211 opinions.[189]

FERC subsequently adopted a policy declaring that emissions associated with natural gas pipelines are categorically not cumulative or indirect impacts and are therefore outside the scope of NEPA.[190] This policy was unsuccessfully challenged.[191] In addition to fashioning regulatory changes to avoid indirect effects analyses,[192] FERC has also consistently narrowly interpreted the holding in *Sabal Trail* with apparent success. In 2018, the D.C. Circuit upheld a FERC determination that it need not analyze the downstream impacts of the Otsego 2000 pipeline project because it did not connect to power plants and therefore did not have enough information to evaluate the future impacts.[193] In *Birckhead v. FERC*, the D.C. Circuit held FERC's authorization of a new natural gas compression facility was not sufficiently linked to upstream emissions.[194] The court held that the plaintiffs failed to show how the agency could have acquired the information, and found that downstream emissions too "remain a mystery" and that "it is impossible to assess whether the Project will result in increased emissions overall or offset emissions by reducing demand for other (perhaps dirtier fuel sources)."[195] Ultimately, the court found that FERC had to consider downstream effects, but because neither FERC nor the plaintiffs raised the issue in FERC proceedings, the court lacked jurisdiction to rule on the claim.[196]

The Ninth, Tenth, and D.C. Circuits have been fairly consistent in reading *Public Citizen* narrowly and in light of the facts of the case at issue. They appear to agree that *Public Citizen* merely stands for the proposition that agencies should not waste resources on performing an analysis of impacts that Congress has not authorized them to address.

B. *Other Federal Circuit Courts of Appeals and District Courts Broadly Construe* Public Citizen *to Allow Agencies to Avoid Analyzing the Reasonably Foreseeable Indirect Effects of Their Actions*

Compared to the Ninth, Tenth, and D.C. Circuits, the Fourth, Sixth, and Eleventh Circuits broadly interpreted *Public Citizen* more broadly to conclude that agencies need not consider or disclose the reasonably foreseeable indirect effects of the actions they authorize.[197] This started with *Ohio Valley* in 2009 in the Fourth Circuit, where the court

181. *Id.*
182. *Sabal Trail*, 867 F.3d at 1372.
183. *Id.* at 1374; *see also* WildEarth Guardians v. Zinke, 368 F. Supp. 3d 41, 74–75 (D.D.C. 2019); Sierra Club v. U.S. Dep't of Agric., 777 F. Supp. 2d 44, 55–57 (D.D.C. 2011).
184. *Sabal Trail*, 867 F.3d at 1373.
185. *Id.*; *see also* Sierra Club v. Mainella, 459 F. Supp. 2d 76, 105 (D.D.C. 2006) ("The holding in *Public Citizen* extends only to those situations where an agency has 'no ability' because of lack of 'statutory authority' to address the impact . . . .").
186. *Sabal Trail*, 867 F.3d at 1382.
187. *Id.* at 1379–80, 1382.
188. *Id.* at 1380–81.
189. The author determined this using LEXIS's *Shepard's* list. Last accessed Aug. 16, 2023.
190. Order Denying Rehearing, Dominion Transmission, Inc., No. CP14-497, 163 FERC ¶ 61128 (May 18, 2018).
191. Otsego 2000 v. Fed. Energy Regul. Comm'n, No. 18-1188, 767 Fed. Appx. 19 (D.C. Cir. May 9, 2019) (per curiam).
192. Florida Southeast Connection, LLC, 162 FERC ¶ 61233 (2018); Notice of Inquiry, Certification of New Interstate Natural Gas Facilities, No. PL18-1-000, 163 FERC ¶ 61042 (2018).
193. Dominion Transmission, Inc., 163 FERC ¶ 61128 (2018); *see also* Old Dominion Electric Coop. v. Fed. Energy Regul. Cmm'n, 892 F.3d 1223 (D.C. Cir. 2018).
194. 925 F.3d 510 (D.C. Cir. 2019).
195. *Id.* at 518.
196. *Id.* at 519–20.
197. The U.S. Court of Appeals for the Fifth Circuit nearly decided a *Public Citizen* case in *City of Shoreacres v. Waterworth*, 420 F.3d 440, 453 (5th Cir. 2005), reasoning that

> [i]f the rationale of *Public Citizen* is applicable, the deepening of the Houston Ship Channel, if it ever occurs, would not be treated as a 40 C.F.R. § 1508.8(b) "indirect effect" "caused" by the Corps' decision to grant a 33 U.S.C. § 1344 dredge and fill permit to the Port . . . [but] [w]e need not, and do not, ultimately determine whether such a *Public Citizen* analysis is appropriate in this context.

held that the Army Corps did not need to analyze the indirect effects of a 404 CWA permit it had issued to a coal mining company on nearby waters of the United States ("WOTUS"). The court held that because the Surface Mining Control and Reclamation Act ("SMCRA") gave Ohio exclusive jurisdiction over all aspects of coal mining, the "rule of reason" holding in *Public Citizen* compelled it to conclude that the Army Corps was not required to analyze effects that it had no discretion to address.

Then, the Sixth Circuit Court of Appeals in *Kentuckians for Commonwealth* in 2014, relying heavily on *Ohio Valley* in a case with very similar facts, Judge John Rodgers held the Army Corps was not the proximate cause of the 404 applicant coal mining company's actions where there was another statutory regime—again SMCRA—that provided exclusive jurisdiction to a different agency.

A few years later, conservation organizations challenged the Army Corps' failure to analyze the indirect effects of phosphate mines it had authorized via 404 CWA permits. In *Center for Biological Diversity v. Corps*, the Eleventh Circuit, in a decision authored by the same judge who decided *Kentuckians*, held that the Army Corps need not analyze the indirect effects of phosphate mining where it is not the legally relevant cause "because the Corps lacks the authority to regulate phosphogypsum wholesale" finding that the state and other federal agencies also had jurisdiction to regulate phosphogypsum.

1. The Fourth and Sixth Circuits Do Not Require Agencies to Evaluate Reasonably Foreseeable Indirect Effects Where the Project Is Subject to the "Exclusive Jurisdiction" of a State Agency

In *Ohio Valley Environmental Coalition v. Aracoma Coal Co.*, the Fourth Circuit held, in its first opinion interpreting *Public Citizen*, that NEPA does not require that the Army Corps disclose the environmental impact of a mining project under section 404 of the CWA because SMCRA gives the state "exclusive jurisdiction" over the regulation of surface coal mining and reclamation operations.[198] The case arose from the Army Corps' approval of four CWA permits for "valley fill" associated with surface coal mining. Surface coal mining involves mountaintop removal to access coal, and where the tops of the mountains cannot be returned, the spoil is placed in the valley. Judge Roger Gregory writing the opinion for the court found that "[a] complex statutory framework undergirds the regulation" of surface coal mining—that is, SMCRA, a nationwide program using cooperative federalism for regulating surface coal mining.[199] States have "exclusive jurisdiction over the regulation of surface coal mining and reclamation operations" on nonfederal land.[200] While disposal of spoil material falls under SMCRA, when the valley contains waters of the United States, the applicant must seek Section 401, 402, and 404 permits under the CWA to ensure the mine will comply with water quality standards and that the discharge and fill complies with the CWA.[201] The Army Corps argued that it "reasonably determined that, under its regulations, its jurisdictional reach was limited to the affected waters and adjacent riparian areas and that this determination is entitled to deference."[202]

The court reasoned that to require an evaluation beyond that would "encroach on the regulatory authority" of the state which had exclusive jurisdiction over "all aspects of the valley fill projects beyond the filling of jurisdictional waters."[203] The court found that those regulations limited the Army Corps' scope of analysis only "to address the impacts of the specific activity" requiring the permit "and those portions of the entire project over" over which the Army Corps has "sufficient control and responsibility."[204] The court held that even though the Army Corps' 404 permits were the but-for cause of the environmental effects,[205] to find that the Army Corps' has control over the entire project would "effectively read out of the equitation the elaborate, congressionally mandated schema for the permitting of surface mining operations prescribed by SMCRA."[206] The court held that the Army Corps' interpretation of its own regulations limiting its authority were entitled deference.[207] Notably, the dissent cautioned "Today's decision will have far-reaching consequences for the environment . . . By failing to require the Corps to undertake a meaningful assessment of the functions of the aquatic resources being destroyed . . . this court risks significant harm to the affected watersheds and water resources."[208] *Ohio Valley* has been cited 488 times, more than twice as many times as *Sabal Trail*, but the most significant decision to follow the case was the Sixth Circuit in *Kentuckians for the Commonwealth v. United States Army Corps of Engineers*.[209]

Kentuckians involved similar facts as *Ohio Valley*, i.e., Army Corps permits for disposal of valley fill in coal mining projects falling under SMCRA, and even some of the same parties and attorneys.[210] In *Kentuckians*, Judge John Rogers began his opinion "more than six years after the Commonwealth of Kentucky authorized a surface mining operation . . . this appeal raises the issue of the proper scope of environmental analysis a federal agency must use in issuing a permit related to a small but necessary part

198. 556 F.3d 177 (4th Cir. 2009). The only other case out of the Fourth Circuit squarely addressing *Public Citizen* is *Ctr. for Biological Diversity v. U.S. Forest Serv.*, 444 F. Supp. 3d 832 (S.D. Ohio 2020) (holding the BLM does not need to consider indirect impacts occurring on private lands when issuing leases on patchwork network of public lands because "[e]ven if BLM's decision and [U.S. Forest Service]'s approval to lease federal lands will perpetuate growth on private lands, neither agency will have the ability to control the development or other activities on private land").

199. *Ohio Valley Env't Coal.*, 556 F.3d at 189.

200. *Id.*

201. *Id.* at 189–90.

202. *Id.* at 193.

203. *Id.* at 197.

204. *Id.* at 194.

205. *Id.* at 196.

206. *Id.* at 195.

207. *Id.* at 196.

208. *Id.* at 226.

209. 746 F.3d 698 (6th Cir. 2014).

210. *Compare* Ohio Valley Env't Coal. v. Aracoma Coal Co., 556 F.3d 177 (4th Cir. 2009), *and* Kentuckians for the Commonwealth, 746 F.3d 698 (counsel for the nongovernmental parties: Robert McLusky (coal industry), Joseph Mark Lovett and EarthJustice (conservationists)).

of the operation" otherwise regulated under SMCRA.[211] Like Judge Gregory in *Ohio Valley*, Judge John Rogers in *Kentuckians* detailed at considerable length the statutory framework, congressional intent, and express exclusive jurisdiction of SMCRA in regulating all aspects of surface coal mining.[212] He agreed with the lower court that "given the Corps's relatively minor role in the congressionally designed scheme for regulating surface mining, the Army Corps did not have sufficient control and responsibility over other aspects of the surface mining operation" to analyze indirect effects of surface coal mining.[213]

The court also held the Army Corps was entitled deference in interpreting its own regulations in finding that "the scope of NEPA analysis should be limited to the local, proximate effects of the dredging and filling activities that were specifically authorized by the permit."[214] These regulations describe the scope of the Army Corps' NEPA analysis for 404 permits and explain that the NEPA document's scope should "address the impacts of the specific activity requiring a [Corps] and those portions of the entire project over which the district engineer has sufficient control and responsibility to warrant Federal review."[215] The regulations provide a non-exhaustive list of factors the Army Corps can consider in determining whether it has sufficient "control and responsibility" and conclude with "[i]n all cases, the scope of analysis used for analyzing both impacts and alternatives should be the same scope of analysis used for analyzing the benefits of a proposal."[216] However, Judge John Rogers discounted the requirement to use the same scope for impacts as benefits, explaining that the Army Corps was permitted to highlight the benefits of the project for purposes of its 404(b)(1) analysis while simultaneously discounting the project impacts under NEPA because the Army Corps "can limit the scope of its review in one part and expand it in another, as each regulatory task requires."[217] The court found that otherwise one would "conflate the substantive decision whether to grant a 404 permit with the procedural requirements under NEPA."[218]

While courts have not cited *Kentuckians* nearly as often as *Ohio Valley*, 24 times, this opinion has nonetheless had a profound impact in the Eleventh Circuit.[219]

211. *Kentuckians for the Commonwealth*, 746 F.3d at 701.
212. *Id.* at 701–03, 711.
213. *Id.* at 708.
214. *Id.* at 707–08 n.3 (citing *Ohio Valley Env't Coal.*, 556 F.3d at 193).
215. 33 C.F.R. pt. 325, app. B § 7(b)(1).
216. *Id.*
217. *Kentuckians for the Commonwealth*, 746 F.3d at 712.
218. *Id.*
219. The author determined this using LEXIS's *Shepard's* list. Last accessed Aug. 16, 2023.

2. The Eleventh Circuit Defers to an Agency's Interpretation of Its Regulations in Determining Whether It Has Sufficient Discretion to Evaluate the Reasonably Foreseeable Indirect Effects of Its Actions

The first time the Eleventh Circuit discussed *Public Citizen* was in *Florida Key Deer v. Paulison*, in the context of a claim under Section 7(a)(2) of the Endangered Species Act ("ESA"), which has similar language regarding the evaluation of the indirect effects of discretionary agency action.[220] In a ruling regarding FEMA's administration of the National Flood Insurance Program, the court found that *Public Citizen* "stands for nothing more than the intuitive proposition that an agency cannot be held accountable for the effects of actions it has no discretion not to take."[221] Prior to the Eleventh Circuit's decision in the *Key Deer* case, a southern district of Florida judge had already squarely found that the Army Corps, notwithstanding *Public Citizen*, was required to analyze the indirect growth-inducing effects of the activities it authorizes under section 404 of the CWA because the project could not happen without the permits, the Army Corps had jurisdiction over the development of the project, and "the purposes of NEPA's EIS requirement would be served by requiring the agency to consider these indirect effects."[222]

However, the Eleventh Circuit seemingly foreclosed future, similar holdings with *Ctr. for Biological Diversity et al. v. Corps*. There, conservation and public health organizations challenged the Army Corps' failure to analyze the reasonably foreseeable indirect effects of four 404 CWA permits for phosphate mining projects.[223] Plaintiffs claimed phosphogypsum, the waste of processing mined phosphate, was the reasonably foreseeable result of authorizing a 404 CWA permit for phosphate mines.[224] Plaintiffs argued that phosphogypsum waste would not occur "but-for" the phosphate mining and was therefore the "indirect effect" of the Army Corps' permit.[225] Plaintiffs also pointed to the Army Corps' and applicant's stated "purpose and need" for the phosphate mines, which they explained was to make fertilizer, and the proposed benefits of the phosphate mines, which they described as making fertilizer to feed more than 40 countries.[226] The U.S. District Court for the Middle District of Florida held "it was reasonable for the Corps to conclude that the environmental effects of phosphogypsum production and storage fell outside the scope of its NEPA review."[227]

220. Fla. Key Deer v. Paulison, 522 F.3d 1133, 1143–44 (11th Cir. 2008).
221. *Id.*
222. Fla. Wildlife Fed'n v. U.S. Army Corps of Eng'rs, 401 F. Supp. 2d 1298, 1325 (S.D. Fla. 2005).
223. Ctr. for Biological Diversity v. U.S. Army Corps of Eng'rs, No. 8:17-cv-618 (M.D. Fla. Mar. 15, 2017), *aff'd*, 941 F.3d 1288 (11th Cir. 2019).
224. Plaintiffs' Complaint for Declaratory and Injunctive Relief, Ctr. for Biological Diversity v. U.S. Army Corps of Eng'rs, No. 8:17-cv-00618-SDM-MAP (M.D. Fla. Mar. 15, 2017) [hereinafter CBD Complaint].
225. *Id.* at 36, 41, 42.
226. *Id.* at 50.
227. Ctr. for Biological Diversity v. U.S. Army Corps of Eng'rs, No. 8:17-cv-618-T-23MAP, 2017 U.S. Dist. LEXIS 205629 (M.D. Fla. Dec. 14, 2017).

The plaintiffs appealed to the Eleventh Circuit,[228] arguing that like FERC in *Sabal Trail*, the Army Corps had to balance "'the public benefits against the adverse effects of the project' . . . including adverse environmental effects,"[229] and like FERC, the Army Corps had the discretion to condition or deny a permit "on the ground that [it] would be too harmful to the environment," and therefore made the agency the "'legally relevant cause' of the direct and indirect environmental effects of the project it approves."[230]

In a decision authored by Judge John Rogers—the same judge that authored *Kentuckians for Commonwealth v. Corps* in 2014—the Eleventh Circuit held that "it was reasonable for the Corps to conclude that the environmental effects of phosphogypsum production and storage fell outside the scope of its NEPA review."[231] The court held that (1) "even if the Corps' permit is a but-for cause of those effects, it is not a proximate—or legally relevant—cause"; (2) "because the Corps lacks the authority to regulate phosphogypsum wholesale, the 'rule of reason' instructs that the Corps need not consider its effects"; and (3) "the Corps' scoping decision is consistent with its own regulations, the Corps' interpretation of which is entitled to deference."[232] The court characterized the ruling in *Sabal Trail* as a "outlier opinion" and "questionable at best" and found it at odds with earlier D.C. Circuit cases holding downstream effects from different licenses cannot be the legally relevant cause.

The court acknowledged the Army Corps' authorization of phosphate mining through its 404 permitting was the but-for cause of phosphogypsum waste: "the Corps could, in fact, mitigate the effects of phosphogypsum by rejecting the Section 404 permit and choking off Mosaic's supply of phosphate ore;" but that because "the Corps is not statutorily authorized to base its permitting decision on environmental effects that are so indirectly caused by its action," such effects are not proximately caused by the permit and therefore need not be considered under NEPA.[233] It held that given the "tenuous causal chain" linking phosphate mining to fertilizer production, "it was sensible for the Corps to draw the line at the reaches of its own jurisdiction."[234] It also appeared to find compelling that the Army Corps "has no subject-matter expertise" in phosphogypsum,[235] when it is independent of the regulators more directly responsible for evaluating those effects."[236] It also speculated about the fertilizer market and the permittee's business operations.[237]

The court found "the Corps did not issue a mining permit, nor a permit to produce fertilizer or to store phosphogypsum—it has no jurisdiction to regulate or authorize any of that."[238] At oral argument, Judge John Rogers asserted that "this is a permit to put sludge into waters,"[239] and sought to clarify "but we're not authorizing the mining though . . . we're authorizing the activity which is necessary to the mining . . . it's a permit to deposit stuff into the waters?"[240] It is possible Judge John Rogers' experience with *Kentuckians*, SMCRA, and mountaintop removal confused the analysis. In mountaintop removal, the mountain tops—which are not within the Army Corps' jurisdiction—are blasted to access the coal beneath.[241] The leftover "overburden" is relocated into valleys, which when containing "waters of the United States," can require an Army Corps permit. The process also requires a surface coal mining permit under SMCRA.[242] Meanwhile, with phosphate mining, wetlands are dredged to access the phosphate beneath, and the overburden is placed in previously mined, former wetlands. Each mine that impacts "waters of the United States" require its own 404 CWA permit and neither SMCRA nor any other comprehensive regulatory scheme governs phosphate mining.

Judge Beverly Martin dissented finding that the majority opinion "is forced to reason based on hypothetical facts because the actual facts cannot support its conclusion."[243] The dissent states that the majority's ruling runs counter to *Public Citizen* and limitations on *Auer* deference and eviscerates NEPA's requirements insofar as they bear on the consideration of foreseeable indirect effects.[244] This case has been cited 27 times—more times than Judge John Rogers' *Kentuckians* opinion.[245]

IV. *Public Citizen* Need Not Gut NEPA

The circuits have diverging trends in their treatment of *Public Citizen*. The Ninth and Tenth Circuits look to the agency's statutory authority in determining whether the agency has discretion to consider the indirect effects of its actions. The D.C. Circuit looks to both the statutory authority as well as whether other agencies enjoy exclusive jurisdiction over another action actually causing the indirect effects. The Sixth and Fourth Circuits look to whether another agency has exclusive jurisdiction over the action causing the indirect impacts. The Eleventh Circuit defers to the agency's interpretation of its regulations in limiting its discretion to consider indirect effects.

228. Ctr. for Biological Diversity v. U.S. Army Corps of Eng'rs, 941 F.3d 1288 (11th Cir. 2019).
229. *Id.* at 1373 (quoting Minisink Residents for Env't Pres. & Safety v. Fed. Energy Reg. Comm'n, 762 F.3d 97, 101–02 (D.C. Cir. 2014)).
230. *Id.* at 1373, 1375 (holding that even though the power plants will be subject to "state and federal air permitting processes," "the existence of permit requirements overseen by another federal agency or state permitting authority cannot substitute for a proper NEPA analysis").
231. *Id.* at 1294.
232. *Id.*
233. *Id.* at 1298.
234. *Id.*
235. *Id.* at 1296.
236. *Id.*
237. *Id.* at 1295.
238. *Id.*
239. Oral Argument at 7:44, Ctr. for Biological Diversity v. U.S. Army Corps of Eng'rs, 941 F.3d 1288 (11th Cir. 2019) (No.18-10541), https://www.ca11.uscourts.gov/content/18-10541-0 (last visited Jan. 23, 2024).
240. *Id.* at 12:45.
241. 30 C.F.R. § 785.14(b); Patrick C. McGinley, *From Pick and Shovel to Mountaintop Removal: Environmental Injustice In the Appalachian Coalfields*, 34 Env't L. 21, 57 (2004).
242. *Ohio Valley Env't Coal.*, 556 F.3d at 190; *see* 33 U.S.C. §§ 1341, 1342(12), 1344(a).
243. Ctr. for Biological Diversity v. U.S. Army Corps of Eng'rs, 941 F.3d at 1308.
244. *Id.* at 1306–15.
245. The author determined this using LEXIS's *Shepard's* list. Last accessed Aug. 16, 2023.

Understanding why there are these trends may help litigators navigate the legal landscape and may facilitate NEPA reform. One explanation is the more general trends in the circuit courts, and even more specifically, the tendencies of judicial decision using presidential appointment as a proxy. Another factor has been whether the court looked to statutory authority to exercise discretion, and which statutes are at play. A final related factor is whether the court deferred to the agency's interpretation of its regulations to find it lacked discretion to consider impacts.

A. *A Judge's Political Ideology May Be a Proxy for Predicting How a Court Will Interpret* Public Citizen

While the patterns in treatment of *Public Citizen* in the different courts are evident, the reasons are perhaps less obvious. It is clear Judge John Rogers had an outsized influence in the *Public Citizen* jurisprudence of the Sixth and Eleventh Circuits, but there must be other explanations for the divergences among the circuits. One explanation could be the well-documented reality that the circuits have proclivities.[246] Multiple authors have documented differences in how circuit judges rule depending on party affiliation.[247] Cass Sunstein et al. (2006) used the party affiliation of the appointing president as a proxy for liberal (Democrat) and conservative (Republican) positions and found that Democratic judges ruled in favor of affirmative action plans 75% of the time, as compared to Republican judges who only ruled for the plans 47% of the time.[248] Another study comparing environmental cases of President Trump-appointed judges to a control group of non-President Trump-appointed judges found that Trump judges ruled for business interests 9% more often than the control group and against public interest litigants 15% more often than the control group.[249]

President Trump insisted that "every" case that went through the Ninth Circuit was an "automatic loss" for his Administration.[250] While none of the *Public Citizen* cases had Trump-appointed judges on their panels, the Ninth Circuit, which has more narrowly applied *Public Citizen* resulting in more victories for environmental plaintiffs, has long-enjoyed judicial Democrat dominance.[251] Hope Babcock (2014) explained that the Ninth Circuit "has become a unique and useful foil for the Court's conservative wing to advance its pro-business agenda through the manipulation of the certiorari process" as evidenced by the fact that the Ninth Circuit has the worst reversal record of all circuits, particularly so for environmental cases.[252] *Public Citizen* itself was taken up on appeal from the Ninth Circuit.

A study of the D.C. Circuit—which handles the majority of administrative and environmental law cases—found statistically significant evidence of strong ideological voting within the D.C. Circuit finding that panels with at least two judges appointed by Democratic presidents ruled in favor of more stringent health and safety protections more than 50% of the time, as opposed to panels with at least two judges appointed by Republican judges at less than 28% of the time.[253]

A review of the appointments of the judges participating in the major circuit *Public Citizen* cases appears to support this theory of prediction. The judges authoring precedential opinions narrowly interpreting *Public Citizen* have all been appointed by Democratic presidents. Judge Ryan Nelson from the Ninth Circuit Court of Appeals who authored *Oceans Advocates*, was appointed by President Jimmy Carter, a Democrat. Judge Sydney Thomas from the Ninth Circuit who authored *Save Our Sonoran*, was appointed by President Bill Clinton, a Democrat. Judge Mary Kathryn Briscoe from the Tenth Circuit who authored *Wildearth Guardians*, was also appointed by President Clinton. Judge Judy Rogers from the D.C. Circuit Court who participated in the LNG cases, was also appointed by President Clinton. Judge Brown, who authored the dissent in D.C. Circuit's *Sabal Trail*, was appointed by President George W. Bush, a Republican.

Meanwhile, the judges authoring precedential opinions broadly interpreting *Public Citizen* have all been appointed by Republican presidents, with the dissents authored by judges appointed by Democratic presidents. Judge Gregory from the Fourth Circuit who authored the *Ohio Valley* opinion was also appointed by President Bush, but Judge M. Blane Michael, who wrote the dissent in *Ohio Valley*, was appointed by President Clinton. Judge John Rogers from the Sixth Circuit who authored *Kentuckians* and sitting by special designation in the Eleventh Circuit

246. Frank B. Cross & Emerson H. Tiller, *Judicial Partisanship and Obedience to Legal Doctrine: Whistleblowing on the Federal Courts of Appeals*, 107 Yale L.J. 2155 (1998); Gregory C. Sisk et al., *Charting the Influences on the Judicial Mind: An Empirical Study of Judicial Reasoning*, 73 N.Y.U. L. Rev. 1377 (1998); Thomas J. Miles & Cass R. Sunstein, *Do Judges Make Regulatory Policy? An Empirical Investigation of Chevron*, 73 U. Chi. L. Rev. 823 (2006); Frank B. Cross, *Decisionmaking in the U.S. Circuit Courts of Appeals*, 91 Cal. L. Rev. 1457 (2003).

247. *See generally* Cass Sunstein et al., Are Judges Political?: An Empirical Analysis of the Federal Judiciary (2006) (exploring whether circuit judges appointed by Republican presidents vote differently than Democratic presidents); Donald R. Songer & Sue Davis, *The Impact of Party and Region on Voting Decision in the U.S. Courts of Appeals, 1955–1986*, 43 W. Pol. Q. 317 (1990); Robert Carp & C.K. Rowland, Policymaking and Politics in the Federal District Courts (1983) (analyzing the liberal and conservative tendencies of Republican and Democratic trial judges); C. Neal Tate, *Personal Attribute Models of Voting Behavior of U.S. Supreme Court Justices: Liberalism in Civil Liberties and Economic Decisions, 1946–1978*, 75 Am. Pol. Sci. Rev. 355, 355–67 (1981).

248. Sunstein et al., *supra* note 247, at 17–46.

249. Richard Yates & Grayson Peters, *Analyzing Environmental Decision-Making of Trump-Appointed Federal Judges*, Berkeley L. Ctr. for L. Energy, & Env't (2022).

250. Jeremy Diamond & Ariane de Vogue, *Trump Rails Against 9th Circuit Court of Appeals in Wake of Asylum Ruling*, CNN (Nov. 20, 2018), https://www.cnn.com/2018/11/20/politics/donald-trump-9th-circuit-court-of-appeals/index.html [https://perma.cc/3BPR-D8GU].

251. Arthur Hellman, *Liberalism Triumphant? Ideology and the En Banc Process in the Ninth Circuit Court of Appeals*, 31 Wm. & Mary Bill Rts. J. 1, 12 (2022).

252. Hope Babcock, *How the Supreme Court Uses the Certiorari Process in the Ninth Circuit to Further Its Pro-Business Agenda: A Strange Pas de Deux With an Unfortunate Coda*, 41 Ecology L.Q. 653 (2014).

253. *See generally* Richard Revesz, *Congressional Influence on Judicial Behavior: An Empirical Examination of Challenges to Agency Action in the D.C. Circuit*, 76 N.Y.U. L. Rev. 1100 (2001).

authored *Center for Biological Diversity*, was also appointed by President Bush, but Judge Martin, who wrote the dissent in *Center for Biological Diversity*, was appointed by President Obama, a Democrat.

Anecdotally, it appears that party affiliation of the judge's appointing president may be a helpful indicator of whether a judge is likely construe *Public Citizen* narrowly, as seen in the Ninth, Tenth, and D.C. Circuits, or broadly, as seen in Fourth, Sixth, and Eleventh Circuits. This knowledge may allow litigators to argue particular points more precisely in their forum.

B. *Litigators Should Try to Train the Judge's Eye Toward Statutory, as Opposed to Regulatory, Discretion as Required by* Public Citizen

The Supreme Court in *Public Citizen* says "when an agency has no ability to prevent a certain effect due to its limited *statutory* authority over the relevant actions, the agency cannot be considered a legally relevant cause of the effect for NEPA purposes."[254] The Supreme Court in *Public Citizen* instructed courts to "look to the underlying policies or legislative intent in order to draw a manageable line between those causal changes that may make an actor responsible for an effect and those that do not."[255] The holding is factually narrow: the agency was statutorily required to register trucks and could not do anything to block the president's lifting of the moratorium, therefore the analysis of the effect could not inform the decisionmaking.[256] As the court in *Sabal Trail* explained, the "touchstone" of *Public Citizen* is that an agency has "no obligation to gather or consider environmental information if it has no *statutory* authority to act on that information."[257]

A similar standard was articulated by the Supreme Court in 2007 with *National Association of Home Builders v. Defenders of Wildlife* regarding a discretion-threshold found in applying section 7 of the ESA.[258] There, the Supreme Court looked to the language of section 402 of the CWA in concluding EPA lacked discretion to delegate regulatory authority to states that met statutorily described criteria and therefore did not need to consult with wildlife management agencies under the ESA in making those decisions.[259] The Court doubled-down on the significance of statutory, as opposed to regulatory, language enabling discretion in agency decisionmaking.

Lower courts should be held to that standard, that is, courts should look to the statute giving the agency the power to make its decision to discover the extent of the agency's discretion. The Ninth, Tenth, and D.C. Circuits embrace this approach. The Fourth, Sixth, and Eleventh Circuits have strayed from that standard, instead looking to the agency's own interpretation of its NEPA regulations, not the CEQ regulations or the statutes at issue, to determine the agency lacked discretion to analyze the reasonably foreseeable indirect effects of their 404 CWA permits. Incidentally, in *Ohio Valley*, *Kentuckians*, and *Center for Biological Diversity*, the Army Corps' CWA regulations were at issue, and not the diversity of statutes and regulations that were at issue in the seminal Ninth, Tenth, and D.C. Circuit cases.

NEPA has long had a "small handles problem" where agencies struggle against analyzing the impacts of the nonfederal components of a project.[260] Kenta Tsuda (2021) argues an agency's duty to review impacts is broad and that the "scope of its review reaches at least as far and wide as the causal chains running from the agency's choice, as recognized in causation doctrine at common law."[261] J.B. Ruhl and Kyle Robisch (2016) describe a "discretion aversion syndrome" a growing trend where agencies attempt to disown their statutory discretion in an effort to avoid compliance with NEPA.[262] There, they note instances of "an agency flexing its muscle when broadly describing the scope of its discretion in a regulatory program to regulated entities or the public, but then backing off when confronted with claims that it improperly omitted ESA or NEPA assessments for particular actions under the program."[263] This is a reality litigators will continue to wrestle with, and they should be vigilant in holding a line on requiring that agencies look to their statutory authority to exercise discretion as opposed to their self-imposed regulatory limitations on discretion. The CEQ's July 2023 proposed revisions to NEPA regulations support this interpretation, explaining that in determining the scope of their actions, agencies engage in a fact-specific inquiry "informed by their statutory authority and control and responsibility over the activity."[264] This should also be emphasized during NEPA scoping.

C. *An Examination of the Differences Among Agency Regulations May Influence How Courts Apply* Public Citizen

Courts should not defer to agency interpretation of NEPA regulations that purport to deprive the agency of discretion to address impacts. In fact, courts owe no deference to the agencies' interpretation of NEPA or the CEQ regulations "because NEPA is addressed to all federal agencies and Congress did not entrust administration of NEPA to"

254. Dept. of Transp. v. Public Citizen, 541 U.S. 752, 770 (2004) (emphasis added).
255. *Id.* at 767.
256. *Id.* at 766–69.
257. 867 F.3d 1357, 1383 (emphasis added).
258. 551 U.S. 644 (2007).
259. *Id.* at 663.
260. Patrick Parenteau, *Small Handles, Big Impacts: When Do Corps Permits Federalize Private Development?*, 20 Env't L. 747, 749 (1990); Jeslyn Miller, *Clarifying the Scope of NEPA Review and the Small Handles Problem* (2010); Save Our Sonoran, Inc. v. Flowers, 408 F.3d 1113, 1122 (holding that "[a]lthough the Corps' permitting authority is limited to those aspects of a development that directly affect jurisdictional waters, it has responsibility under NEPA to analyze all of the environmental consequences of a project").
261. Kenta Tsuda, *Administrative Bulkheads*, 51 Env't L. 1 (2021).
262. J.B. Ruhl & Kyle Robisch, *Agencies Running From Agency Discretion*, 58 Wm. & Mary L. Rev. 97 (2016).
263. *Id.* at 140.
264. National Environmental Policy Act Implementing Regulations Revisions Phase 2, 88 Fed. Reg. 49924, 49964 (July 31, 2023).

a single agency.[265] Moreover, the Supreme Court in *Kisor v. Wilkie* established significant limits to *Auer* deference holding that a regulation must be "genuinely ambiguous" after the court has "resorted to all the standard tools of interpretation" and even then "not all the reasonable agency constructions of those truly ambiguous rules are entitled to deference."[266] Meanwhile, federal agencies must follow CEQ regulations.[267] *Public Citizen* calls on courts to examine statutory authority to exercise discretion in considering impacts; notably it does not call on courts to defer to agency regulations regarding NEPA implementation.

As for the CEQ's regulations, which are binding on all federal agencies, they explicitly limit *Public Citizen* as only applying to cases whether the agency has "no authority to direct or alter an outcome."[268] The final rule squarely concluded that the holding in *Public Citizen* should not guide agencies in their indirect analysis review because that case "dealt with a unique context in which an agency had no authority to direct or alter an outcome" and that "agencies were better guided by the long-standing principle of reasonable foreseeability and the rule of reason in implementing NEPA's directives."[269] The CEQ's 2022 updates to 50 C.F.R. section 1508 explain that the CEQ has determined it is "not necessary to import principles of tort law into the NEPA regulations" because NEPA "serves different purposes, such as guiding sound agency decision making and future planning, that may reasonably entail a different scope of effects analysis than the distinct tort law context."[270] The CEQ emphasized the NEPA regulations are "a floor, rather than a ceiling, for the environmental review standards that federal agencies should be meeting."[271]

The CEQ's 2023 guidance states that "indirect effects generally include reasonably foreseeable emissions related to a proposed action that are upstream or downstream of the activity resulting from the proposed action,"[272] and explains by way of example that for a proposed action involving fossil fuel extraction, the reasonably foreseeable indirect effects would likely include "the processing, refining, transportation, and end-use of the fossil fuel being extracted, including combustion of the resource to produce energy."[273] The guidance reasons that "indirect emissions are often reasonably foreseeable since quantifiable connections frequently exist between a proposed activity that involves use or conveyance of a commodity or resource, and changes relating to the production or consumption of that resource."[274] The guidance also cautions that agencies "should not simply assume that if the federal action does not take place, another action will perfectly substitute for it and generate identical emissions."[275]

Additionally, agencies promulgate their own NEPA regulations. CEQ has given the approximately 85 federal agencies who must comply with NEPA 12 months following the publication of CEQ's Phase II rules to propose updates to their NEPA procedures consistent with CEQ regulations.[276] Practitioners and other advocates can push these agencies to adopt regulations that follow CEQ's lead and make explicit their obligations—rooted in their enabling legislation—to consider the environmental effects that stem from the actions they authorize. Although agencies that have been reluctant to evaluate are unlikely to improve their regulations in this regard.

To the extent courts seek guidance from *Auer* deference, litigators should be unambiguous about context of the regulations and their plain meaning—including that the agency and court cannot defer to some but ignore others. For example, Kevin Cassidy and Craig Johnston (2022) argue that not only the CWA's plain language but the Army Corps' own regulations give it "broad discretion and authority to deny or condition" a 404 permit "to prevent or minimize impacts."[277] They explain that the gulf between the Army Corps' discretion in issuing permits and its NEPA review lies in a "forgotten sentence" in the Army

265. Grand Canyon Trust v. Fed. Aviation Admin., 290 F.3d 339, 342 (D.C. Cir. 2002):

> [a]lthough federal agencies have discretion to decide whether a proposed action is significant enough to warrant preparation of an EIS, the court owes no deference to the [Federal Aviation Administration's] interpretation of NEPA or the CEQ regulations because NEPA is addressed to all federal agencies and Congress did not entrust administration of NEPA to the [Federal Aviation Administration] alone.

(internal quotations omitted); *see also* Citizens Against Rails-to-Trails v. Surface Transp. Bd., 267 F.2d 1144, 1150 ("[b]ecause NEPA's mandate is addressed to all federal agencies, the [Surface Transportation Board's] determination that NEPA is inapplicable . . . is not entitled to the deference that courts must accord to an agency's interpretation of its governing statute"); Morris Cnty. Tr. v. Pierce, 714 F.2d 271, 276 ("CEQ guidelines are entitled to substantial deference in interpreting the meaning of NEPA provisions, even when CEQ regulations are in conflict with an interpretation of NEPA adopted by one of the Federal agencies.") (citing Andrus v. Sierra Club, 442 U.S. 347, 358 (1979)).

266. Kisor v. Wilkie, 139 S. Ct. 2400, 2414 (2019).

267. Marsh v. Oregon Nat. Res. Council, 490 U.S. 360, 372 (1989) (citations omitted); *see also* Citizens Against Burlington, Inc. v. Busey, 938 F.2d 190, 200 (D.C. Cir. 1991).

268. National Environmental Policy Act Implementing Regulations Revisions, 87 Fed. Reg. 23435, 23464 (Apr. 20, 2022) (codified at 40 C.F.R. pts. 1502, 1507, 1508).

269. National Environmental Policy Act Implementing Regulations Revisions, 87 Fed. Reg. at 23465.

270. *Id.* (citing Metro. Edison Co. v. People Against Nuclear Energy, 460 U.S. 766, 775 n.7 (1983):

> [W]e do not mean to suggest that any cause-effect relation too attenuated to merit damages in a tort suit would also be too attenuated to merit notice in an EIS; nor do we mean to suggest the converse. In the context of both tort law and NEPA, courts must look to the underlying policies or legislative intent in order to draw a manageable line between those causal changes that may make an actor responsible for an effect and those that do not.

271. Press Release, The White House, CEQ Restores Three Key Community Safeguards during Federal Environmental Reviews (Apr. 19, 2022), https://www.whitehouse.gov/ceq/news-updates/2022/04/19/ceq-restores-three-key-community-safeguards-during-federal-environmental-reviews/ [https://perma.cc/L39V-APY3].

272. National Environmental Policy Act Guidance on Consideration of Greenhouse Gas Emissions and Climate Change, 88 Fed. Reg. 1196 (Jan. 9, 2023).

273. *Id.* at 1204.

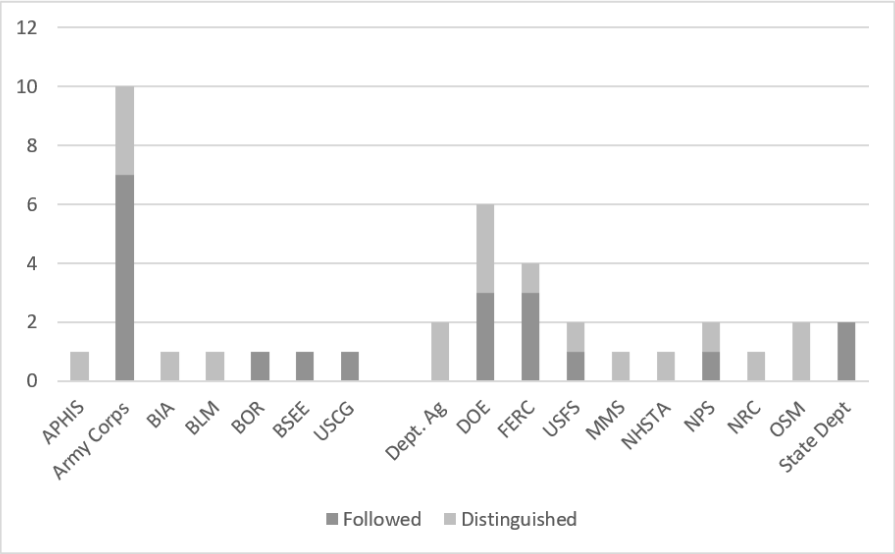
274. *Id.*

275. *Id.*

276. National Environmental Policy Act Implementing Regulations Revisions Phase 2, 88 Fed. Reg. 49924, 49935 (July 31, 2023) (to be codified at 40 C.F.R. pts. 1500–08). Formerly, agencies had until Sept. 14, 2023, to comply. Deadline for Agencies to Propose Updates to National Environmental Policy Act Procedures, 86 Fed. Reg. 34154 (codified at 40 C.F.R. pt. 1507).

277. Kevin Cassidy & Craig Johnston, *Tear Down This Wall: Aligning the Corps' Environmental Review Obligations Under NEPA and the Clean Water Act for Section 404 Wetland Permits*, 52 Env't. L. 395 (2022).

Figure 2: Federal Court Cases Distinguishing or Following *Public Citizen*, by Agency*



* *LexisNexis*, *supra* note 96 (explaining the author's research methods).

Corps' own NEPA regulations: "In all cases, the scope of analysis used for analyzing both impacts and alternatives should be the same scope of analysis used for analyzing the benefits of a proposal."[278] Indeed, the plaintiffs in *Center for Biological Diversity* argued this very point but ultimately the court deferred to the agency's interpretation of its NEPA regulations, an interpretation which omitted that key provision.[279]

The Corps' regulation requiring that it use the same scope of analysis to analyze the impacts of a proposed project as the benefits of a proposed project is unambiguous.[280] Likewise, CEQ regulation 40 C.F.R. § 1508.8(b), adopted by the Army Corps at 33 C.F.R. § 230.4, is also unambiguous. It defines indirect effects as those that "are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable." Applying *Kisor*, the Army Corps' interpretations of 33 C.F.R. pt. 325, App. B § 7(b) and 40 C.F.R. § 1508.8(b) should not be entitled deference because these regulations are not genuinely ambiguous, and even if the Army Corps were entitled deference, because the agency is ignoring rather than interpreting the regulations, its interpretation of the regulations do not "implicate its substantive expertise" or "reflect 'fair and considered judgment.'"[281]

Save Our Sonoran's holding is helpful in this respect: "while it is the development's impact on jurisdictional waters that determines the scope of the Corps' permitting authority, it is the impact of the permit on the environment at large that determines the Corps' NEPA responsibility."[282] It continues: "The Corps' responsibility under NEPA to consider the environmental consequences of a permit extends even to environmental effects with no impact on jurisdictional waters at all,"[283] and found "*Public Citizen*'s causal nexus requirement is satisfied" where "any development by the Corps would affect the entire property."[284] The holding in *Freeport* is likewise instructive, which, as explained by the court in *Sabal Trail*, turned not on the question "'What activities does FERC regulate?' but instead on the question 'What factors can FERC consider when regulating in its proper sphere?'"[285]

Courts should be reminded that NEPA section 102(1) requires "the policies, regulations, and public laws of the United States shall be interpreted and administered" in accordance with NEPA. It may be helpful for practitioners to point to not just CEQ regulations, but other agencies' NEPA regulations as well. For example, the BLM manual which adopts the CEQ's definition of indirect effects, offers a helpful hypothetical right-of-way request from a company to build a road to access a quarry. The BLM manual explains that "changes in the effects of the quarry creation and operation must be analyzed as indirect effects

278. *Id.* at 409–10, citing 33 C.F.R. § 325 app. B(7)(b)(3), which is nearly identical to the Army Corps' CWA regulations, which state in relevant part: "The benefits which reasonably may be expected to accrue from the proposal must be balanced against its reasonably foreseeable detriments." 33 C.F.R. § 320.4(a)(1).

279. Oral Argument at 4:00–5:40, Ctr. for Biological Diversity v. U.S. Army Corps of Eng'rs, 941 F.3d 1288 (11th Cir. 2019) (No.18-10541), https://www.ca11.uscourts.gov/content/18-10541-0 (last visited Jan. 23, 2024); Reply Brief of Plaint0ffs-Appellants at 12-13, Ctr. for Biological Diversity v. U.S. Army Corps of Eng'rs, 941 F.3d 1288 (11th Cir. 2019) (No.18-10541).

280. 33 C.F.R. pt. 325, App. B § 7(b)(3) ("In all cases, the scope of analysis used for analyzing both impacts and alternatives should be the same scope of analysis used for analyzing the benefits of a proposal.").

281. *Kisor*, 139 S. Ct. at 2417.

282. Save Our Sonoran, Inc. v. Flowers, 408 F.3d 1113, 1122 (9th Cir. 2005).

283. *Id.*

284. *Id.*

285. Sierra Club v. U.S. Fed. Energy Regul. Comm'n (*Sabal Trail*), 867 F.3d 1357, 1373 (D.C. Cir. 2017).

of the conditions on the BLM right-of-way grant."[286] It also separately acknowledges that socioeconomic impacts can be indirect and must be evaluated even when mitigation strategies are outside of BLM's control.[287] This comparison on a 404 permit challenge could be helpful as the CWA also calls on the Army Corps to expansively weigh impacts extending beyond the directly impacted waters, including the authority to deny permits that "will have an unacceptable adverse effect" on things like wildlife and recreational areas.[288]

V. Conclusion

NEPA is not merely a paperwork exercise, nor is it a paper tiger. It serves as a check on humanity's impact on its environment, ensuring that we collectively look before we leap. Because it applies to nearly every "major federal action," it has allowed us to pause and debate, often through litigation and judicial opinions, the merits of proposed projects relative to their likely impacts. We are better for it.

While the Supreme Court's holding in *Public Citizen* somewhat destabilized NEPA's guardrails, leaving communities and natural resources in the Fourth, Sixth, and Eleventh Circuits less protected from significant impacts from federal agency actions, NEPA remains strong across most of the nation as agencies must still disclose and analyze reasonably foreseeable indirect effects. *Public Citizen* declares that only "when an agency has no ability to prevent a certain effect due to its limited *statutory* authority over the relevant actions, the agency cannot be considered a legally relevant cause of the effect for NEPA purposes."[289] Despite the emerging circuit trends in the treatment of *Public Citizen*, there remains opportunity to preserve and even restore NEPA's purpose and power.

The Ninth and Tenth Circuits continue to look to the agency's statutory authority in determining whether the agency has discretion to consider the indirect effects of its actions. The D.C. Circuit looks to both the statutory authority as well as whether other agencies enjoy exclusive jurisdiction over another action causing the indirect effects. And while the Sixth and Fourth Circuits have instead relied on the presence of another agency's exclusive jurisdiction over the action to excuse review of indirect impacts, those cases are largely restricted to Army Corps CWA permitting.[290] The Eleventh Circuit's deference to the Army Corps' interpretation of its regulations in limiting its discretion to consider indirect effects under NEPA likewise appears largely restricted to those fact sets. Courts should uphold the purpose of NEPA and resist agency arguments that their regulations deprive them the ability to analyze and disclose impacts because the NEPA regulations are controlling and repudiate *Public Citizen*'s blanket application to agency action and the better-reasoned cases appropriately cabin *Public Citizen* to its unique facts.

286. U.S. Bureau of Land Mgmt., National Environmental Policy Act Handbook H-1790-1 47 (2008), https://www.blm.gov/sites/blm.gov/files/uploads/Media_Library_BLM_Policy_Handbook_h1790-1.pdf [https://perma.cc/Q6MQ-NQDZ].

287. *Id.* at 62.

288. 33 U.S.C. § 1344(c).

289. Dep't of Transp. v. Pub. Citizen, 541 U.S. 752, 770 (2004) (emphasis added).

290. Sackett v. U.S. Env't Prot. Agency, 598 U.S. 651 (2023), redefined "waters of the United States" to remove many wetlands from the Army Corps' jurisdiction, meaning that opportunities to challenge Army Corps decisions may become less common. *See* Royal C. Gardner, *What the US Supreme Court Decision Means for Wetlands*, 618 Nature 215, 215 (2023).

Appendix A

Jurisdiction	Case Name	Treatment	Agency
1st Circuit - U.S. District Court	*Sierra Club v. United States Army Corp of Eng'rs*, No. 2:20-cv-00396, 2020 U.S. Dist. LEXIS 236545, 2020 WL 7389744 (D. Maine Dec. 16, 2020); *aff'd Sierra Club v. Corps*, 997 F.3d 395, 2021 U.S. App. LEXIS 14206, 2021 WL 1921128 (1st Cir. May 13, 2021)	Followed	Army Corps
2nd Circuit - U.S. District Court	*Coalition for Healthy Ports v. United States Coast Guard*, No. 13-CV-5347 (RA), 2015 U.S. Dist. LEXIS 159090 (S.D.N.Y. Nov. 14, 2015)	Followed	Coast Guard
4th Circuit	*Ohio Valley Env't Coalition v. Aracoma Coal Co.*, 556 F.3d 177 (4th Cir. 2009)	Followed	Army Corps
5th Circuit - U.S. District Court	*Bishop v. Bostick*, CIVIL ACTION NO. 9:13-CV-82, 2015 U.S. Dist. LEXIS 128305 (E.D. Tex. Aug. 31, 2015)	Followed	Army Corps
6th Circuit	*Kentuckians for the Commonwealth v. United States Army Corps of Eng'rs*, 746 F.3d 698 (6th Cir. 2014)	Followed	Army Corps
6th Circuit	*Nat'l Wildlife Fed'n v. Sec'y of the United States DOT*, 960 F.3d 872 (6th Cir. 2020)	Followed	Army Corps
6th Circuit - U.S. District Court	*Ctr. for Biological Diversity v. United States Forest Serv.*, 444 F. Supp. 3d 832 (S.D. Ohio 2020)	Followed	Forest Service
8th Circuit - U.S. District Court	*Sierra Club v. Clinton*, 746 F. Supp. 2d 1025 (D. Minn. 2010)	Followed	State Department, Corps, Forest Service
8th Circuit - U.S. District Court	*Sierra Club v. Clinton*, 689 F. Supp. 2d 1123 (D. Minn. 2010)	Followed	State Department, Corps, Forest Service
9th Circuit	*Ocean Advocates v. United States Army Corps of Eng'rs*, 402 F.3d 846 (9th Cir. 2005)	Distinguished	Corps
9th Circuit	*350 Montana v. Haaland*, 50 F.4th 1254 (9th Cir. 2022)	Distinguished	Office of Surface Mining
9th Circuit	*Alaska Wilderness League v. Jewell*, 788 F.3d 1212 (9th Cir. 2015)	Followed	Bureau of Safety and Environmental Enforcement
9th Circuit	*League of Wilderness Defenders v. United States Forest Serv.*, 549 F.3d 1211 (9th Cir. 2008)	Distinguished	Forest Service
9th Circuit	*Ctr. for Biological Diversity v. Nat'l Highway Traffic Safety Admin.*, 538 F.3d 1172 (9th Cir. 2008)	Distinguished	National Highway Traffic Safety Administration
9th Circuit	*Or. Natural Res. Council Fund v. Brong*, 492 F.3d 1120 (9th Cir. 2007)	Distinguished	Bureau of Land Management
9th Circuit	*San Luis Obispo Mothers for Peace v. NRC*, 449 F.3d 1016 (9th Cir. 2006)	Distinguished	Nuclear Regulatory Commission
9th Circuit	*Save Our Sonoran, Inc. v. Flowers*, 408 F.3d 1113 (9th Cir. 2005)	Distinguished	Army Corps
9th Circuit	*Stand Up for Cal.! v. United States DOI*, 959 F.3d 1154 (9th Cir. 2020)	Distinguished	Bureau of Indian Affairs
9th Circuit - U.S. District Court	*WildEarth Guardians v. Zinke*, CV 17-80-BLG-SPW-TJC, 49 ELR 20030, 2019 WL 2404860, 2019 U.S. Dist. LEXIS 30357 (D. Montana 2019)	Distinguished	Office of Surface Mining
9th Circuit - U.S. District Court	*Backcountry Against Dumps v. United States DOE*, 2017 U.S. Dist. LEXIS 114496 (S.D. Cal. 2017)	Distinguished	Department of Energy
9th Circuit - U.S. District Court	*Kahea v. Nat'l Marine Fisheries Serv.*, 2014 U.S. Dist. LEXIS 101283 (D. Hawaii 2017)	Followed	National Marine Fisheries Service
9th Circuit - U.S. District Court	*Ctr. for Food Safety v. Vilsack*, 2009 U.S. Dist. LEXIS 86343 (N.D. Cal. 2009)	Distinguished	Animal and Plant Health Inspection Service

Jurisdiction	Case Name	Treatment	Agency
9th Circuit - U.S. District Court	*Quechan Indian Tribe v. United States DOI*, 547 F. Supp. 2d 1033 (D. Ariz. 2008)	Followed	Bureau of Reclamation
9th Circuit - U.S. District Court	*Border Power Plant Working Grp. v. DOE*, 2006 U.S. Dist. LEXIS 107077 (S.D. Cal. 2006)	Distinguished	Department of Energy
9th Circuit - U.S. District Court	*League for Coastal Prot. v. Norton*, 2005 U.S. Dist. LEXIS 32379 (N.D. Cal. 2005)	Distinguished	Minerals Management Services
11th Circuit - U.S. District Court	*Fla. Wildlife Fed'n v. United States Army Corps of Eng'rs*, 401 F. Supp. 2d 1298 (S.D. Fla. 2005)	Distinguished	Army Corps
11th Circuit	*Ctr. for Biological Diversity, Manasota-88, Inc. v. United States Army Corps of Eng'rs*, 941 F.3d 1288 (11th Cir. 2019)	Followed	Army Corps
D.C. Circuit	*Sierra Club v. FERC*, 867 F.3d 1357 (D.C. Cir. 2017) (*Sabal Trail*)	Distinguished	FERC
D.C. Circuit	*Sierra Club v. FERC*, 827 F.3d 36 (D.C. Cir. 2016) (*Freeport*)	Followed	FERC
D.C. Circuit	*Sierra Club v. FERC*, 827 F.3d 59 (D.C. Cir. 2016) (*Sabine Pass*)	Followed	FERC
D.C. Circuit	*EarthReports, Inc. v. FERC*, 828 F.3d 949 (D.C. Cir. 2016)	Followed	FERC
D.C. Circuit - U.S. District Court	*Standing Rock Sioux Tribe v. United States Army Corps of Eng'rs*, 205 F. Supp. 3d 4 (D.D.C. 2016)	Followed	Army Corps
D.C. Circuit - U.S. District Court	*Nat'l Parks Conservation Ass'n v. Jewell*, 965 F. Supp. 2d 67 (D.D.C. 2013)	Followed	National Park Service
D.C. Circuit - U.S. District Court	*Sierra Club v. USDA*, 777 F. Supp. 2d 44 (D.D.C. 2011)	Distinguished	Department of Agriculture
D.C. Circuit - U.S. District Court	*Humane Soc'y of the United States v. Johanns*, 520 F. Supp. 2d 8 (D.D.C. 2007)	Distinguished	Department of Agriculture
D.C. Circuit - U.S. District Court	*Sierra Club v. Mainella*, 459 F. Supp. 2d 76 (D.D.C. 2006)	Distinguished	National Park Service

EXPANDING THE SCOPE: A FRAMEWORK FOR EFFECTIVE ENFORCEMENT OF SCOPE 3 GREENHOUSE GAS REGULATIONS

Brendan Jonathan Haskin*

ABSTRACT

In early 2022, the Securities and Exchange Commission ("SEC") proposed a new rule to standardize regulation of greenhouse gas emissions, including a provision asking registered companies to disclose Scope 3 emissions data "if material." However, the Scope 3 emissions proposal as currently written is inadequate to accomplish the SEC's goal of ensuring reliable emissions data are reported due to the difficulty of gathering and calculating this data, the lack of litigation incentives created by the materiality requirement, and the likelihood the proposed rule will be challenged in court. This Note proposes redrafting the SEC's proposal by changing the safe harbor provision and penalties for Scope 3 emissions to better ensure consistent and reliable greenhouse gas emissions data are reported.

I. Introduction

On November 17, 2022, the Securities and Exchange Commission's ("SEC's") Mark Uyeda made an unusual public statement.[1] Speaking at the 2022 Summit on Financial Regulation hosted by the Cato Institute as one of the SEC's five commissioners, Uyeda warned that his own commission's new proposed rules formalizing environmental, social, and governance ("ESG") measurements into securities law would swell regulatory costs from $2 billion to between $6 and $8.4 billion,[2] and were designed on metrics with no agreed-upon definition.[3] More strikingly, he questioned the premise that ESG investing would provide any benefit to investors at all.[4] While Uyeda was careful to clarify his views were his own and not those of the SEC as a whole,[5] his comments were evidence of an unusually passionate wave of interest in a securities law proposal, including over 15,000 public comments[6] and accusations that the SEC was engaged in a "power grab."[7] By the end of 2022, opposition to the proposal had turned into a unifying cause for political conservatives,[8] and even some Democrats expressed skepticism.[9]

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1. *See generally* Remarks of Commissioner Mark Uyeda at the 2022 Cato Summit on Financial Regulation, U.S. Sec. & Exch. Comm'n (Nov. 17, 2022), https://www.sec.gov/news/speech/uyeda-remarks-cato-summit-financial-regulation-111722 [https://perma.cc/WJZ9-KATJ].
2. *Id.* at ¶ 5.
3. *Id.* at ¶ 9.
4. *Id.* at ¶ 8.
5. *Id.* at ¶ 1.
6. *Comments for the Enhancement and Standardization of Climate-Related Disclosures for Investors*, U.S. Sec. & Exch. Comm'n, https://www.sec.gov/comments/s7-10-22/s71022.html [https://perma.cc/L9MB-BEV2]; Chelsey Cox, *SEC Weighs Making "Adjustments" to Controversial Climate Risk Disclosure Rule, Chairman Gensler Says*, CNBC (Feb. 10, 2023), https://www.cnbc.com/2023/02/10/sec-weighs-making-adjustments-to-controversial-climate-risk-disclosure-rule-chairman-gensler-says.html [https://perma.cc/3FZK-EACE] (citing a comment by SEC Chairman Gary Gensler stating there were more than 15,000 comments).
7. Ellen R. Wald, *Stop the SEC's Power Grab to Require Emissions Disclosure*, The Hill (July 14, 2022), https://thehill.com/opinion/energy-environment/3557924-stop-the-secs-power-grab-to-require-emissions-disclosure/ [https://perma.cc/JX8Z-5F8T].
8. Bill Flook, *Scope 3 Emissions Disclosure Emerges as Top GOP Target in SEC Climate Risk Rules*, Reuters (Aug. 24, 2022), https://tax.thomsonreuters.com/news/scope-3-emissions-disclosure-emerges-as-top-gop-target-in-sec-climate-risk-rules/ [https://perma.cc/FG93-FJKV].
9. Mark Schoeff Jr., *Investment News: Sen. Tester Concerned About Impact of SEC Climate Rules on Farmers*, Sen. Jon Tester (Nov. 11, 2022), https://www.tester.senate.gov/newsroom/news-coverage/investment-news-sen-tester-concerned-about-impact-of-sec-climate-rules-on-farmers/ [https://perma.cc/C6UP-6G7P] (citing Commissioner Uyeda's November 2022 remarks and emphasizing personal skepticism despite being a Democrat).

The controversy began in March 2022 when the SEC proposed rules to require registered entities to disclose climate-related information to investors.[10] Recognizing an increasing practice of voluntary disclosure in the private sector, the proposal seeks to formalize and standardize release of ESG information related to a registered entity's impact on the climate.[11] The proposal requires registrants to disclose their greenhouse gas emissions, as well as information about climate-related risks that could have a material impact on a registrant's business.[12]

Following the standard laid out by the private Greenhouse Gas Protocol ("GHG Protocol"), the most widely used standardized international framework for measuring greenhouse gas emissions, these proposed rules divide greenhouse gas emissions into three "scopes," each reflecting how directly the emissions can be attributed to a company's activities.[13] Scope 1 emissions are greenhouse gas emissions that occur directly from sources owned by the company.[14] Scope 2 emissions are those resulting from the generation of energy purchased or consumed by the company.[15] Scope 3 emissions are all other indirect emissions generated by a company's activities but not by the company itself.[16] These include material sourcing, processing, and the activities of suppliers (i.e., "upstream" activities), as well as transportation, distribution, and the processing or end-of-life treatments of sold products (i.e., "downstream" activities).[17] For many companies, Scope 3 emissions are their most significant source of greenhouse gas emissions.[18] For example, 98% of automobile industry emissions are "downstream" Scope 3 emissions related to private ownership and use of cars after purchase.[19] Similarly, 88% of emissions from the oil and gas sector come from a mix of upstream and downstream Scope 3 emissions.[20] One study found that the average company's supply chain emissions were on average 5.5 times higher than their direct greenhouse gas emissions.[21]

Reflecting mounting private-sector concern about climate change, the SEC's Scope 3 proposal is likely to have a significant long-term impact on publicly available information about climate risk.[22] The rule also has significant implications for the feasibility of many companies' stated plans to transition toward net zero emissions.[23] Furthermore, the rule is likely to reallocate billions of dollars in compliance costs based on the SEC's own estimates that compliance with the proposed rule will cost between $3.9 and $10.2 billion in direct costs to companies[24] and could lead to over $18 billion in fees for lawyers and consultants.[25]

This Note argues that the current text of the Scope 3 provision of the SEC's proposed rule is insufficient to accomplish its goal of standardizing disclosures of greenhouse gas emission information because the rule as currently written is overly ambiguous, unlikely to incentivize accurate disclosure, and vulnerable to litigation. Part II of this Note will discuss a brief history of ESG, including how private entities developed the GHG Protocol that the SEC will adopt into a formal agency rule, and explain the language and aims of the SEC's proposed regulation. Part III of this Note will discuss likely problems with the proposed rule, including ambiguities related to the rule's calculating and reporting standards, disclosure incentive problems with the proposal, and potential constitutional challenges that could invalidate the rule. Part IV of this Note will propose a framework for rewriting the Scope 3 rule to ensure more greenhouse gas emissions data are reported without sacrificing accuracy or putting the rule at risk of constitutional challenge. Finally, Part V will briefly summarize and conclude.

II. Factual and Legal Background

A. *Historical Context for the Practice of ESG Disclosure*

ESG disclosure evolved over the last three decades in response to changing norms in environmental protection and the business world. In June 1992, the member states of the United Nations ("UN") convened at the United

10. Press Release, U.S. Sec. & Exch. Comm'n, SEC Proposes Rule to Enhance and Standardize Climate-Related Disclosures for Investors (Mar. 21, 2022), https://www.sec.gov/news/press-release/2022-46 [https://perma.cc/HQ7K-EYZU].
11. The Enhancement and Standardization of Climate-Related Disclosures for Investors, 87 Fed. Reg. 21334, 21473 (proposed Apr. 11, 2022) (to be codified at 17 C.F.R. pts. 210, 219, 232, and 249).
12. *Id.*
13. *See generally* World Bus. Council for Sustainable Dev. & World Res. Inst., The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (rev. ed. 2004), *available at* https://ghgprotocol.org/sites/default/files/standards/ghg-protocol-revised.pdf [https://perma.cc/KVD9-M46B].
14. *Id.* at 27.
15. *Id.*
16. *Id.* at 29.
17. *See generally* World Bus. Council for Sustainable Dev. & World Res. Inst., Greenhouse Gas Protocol: Corporate Value Chain (Scope 3) Accounting and Reporting Standard (2011), https://ghgprotocol.org/sites/default/files/standards/Corporate-Value-Chain-Accounting-Reporing-Standard_041613_2.pdf [https://perma.cc/ZP6D-9Q73].
18. *Id.* at 5.
19. *Carmakers' Global Emissions 50% Higher Than Reported*, Transp. & Env't (Sept. 28, 2022), https://www.transportenvironment.org/discover/carmakers-lifetime-emissions-50-higher-than-reported/ [https://perma.cc/56GH-D6ZH].
20. Alexandra Thornton, *Why Companies Should Be Required to Disclose Their Scope 3 Emissions*, Ctr. Am. Progress (Dec. 13, 2021), https://www.americanprogress.org/article/why-companies-should-be-required-to-disclose-their-scope-3-emissions/ [https://perma.cc/98TX-5UL8].
21. CDP, Cascading Commitments: Driving Ambitious Action Through Supply Chain Engagement 18 (2019), *available at* https://www.cdp.net/en/research/global-reports/global-supply-chain-report-2019 [https://perma.cc/H5K5-9ZQ3].
22. Sara Dewey, *What to Know About the SEC's Proposed Climate Risk Disclosure Rule*, HLS Env't & Energy L. Program (Apr. 27, 2022), https://eelp.law.harvard.edu/2022/04/what-to-know-about-the-sec-proposed-climate-risk-disclosure-rule/ [https://perma.cc/57Y8-8J37].
23. *Id.*
24. Jean Eaglesham & Paul Kiernan, *Fight Brews Over Cost of SEC Climate-Change Rules*, Wall St. J. (May 17, 2022), https://www.wsj.com/articles/fight-brews-over-cost-of-sec-climate-change-rules-11652779802 [https://perma.cc/8988-TJ27].
25. Nathan R. Dean, *SEC Climate Rule May Reap $18.4 Billion for Lawyers, Consultants*, Bloomberg (Nov. 8, 2022), https://www.bloomberg.com/professional/blog/sec-climate-rule-may-reap-18-4-billion-for-lawyers-consultants-2/ [https://perma.cc/5663-62E8].

Nations Conference on Environment and Development ("UNCED"), a summit dedicated to developing an international framework for environmental issues related to economic development.[26] The states present at the summit drafted the United Nations Framework Convention on Climate Change ("UNFCC"), an international treaty dedicated to developing international environmental policies through subsequent treaties intended to respond to the threat of climate change.[27] In 1997, the 192 states party to the UNFCCC implemented the Kyoto Protocol, an international treaty that sought to realize the goals of the UNFCCC by committing states to greenhouse gas reductions targets.[28] In the decades following the Kyoto Protocol, interest in environmentally conscious investing gradually increased in response to climate change, as well as UN and asset manager initiatives to incentivize consideration of environmental protection factors in investment.[29] Investors and managers began to view environmental sustainability as an outgrowth of a business's ability to create long-term value.[30] ESG emerged as a popular taxonomy because it provides firms a framework for grouping and measuring their environmental and social impacts, as well as their corporate governance strategies as relevant to shareholders.[31] Investors began to consider the environmental consequences of business decisions as intertwined with risk management and long-term value creation, creating a method by which a firm's analysis of its business strategy could also become a form of assessing its environmental impact.[32] By 2020, 836 registered investment companies were using ESG criteria in making investment decisions.[33]

In parallel, a series of Delaware court cases created legal obligations to implement reasonable legal compliance programs for corporate boards chartered in Delaware.[34] In 1996, shareholders of the publicly traded company Caremark International, Inc. brought a shareholder's derivative action in Delaware alleging the firm's board of directors failed to implement internal control systems to prevent employees from committing criminal offenses.[35] The Delaware Chancery Court found that corporate directors can be held liable where they engage in "[s]ustained or systematic failure of the board to exercise oversight—such as an utter failure to attempt to assure a reasonable information and reporting system exists."[36] The *Caremark* rule led to a significant increase in resources dedicated to internal compliance and reporting structures by private corporations.[37] At the same time, courts have shown an increasing willingness to hold private corporations liable under *Caremark* where compliance programs fail to prevent violations of statutory environmental regulations.[38]

Responding to these pressures, many private companies began to conduct voluntary ESG disclosures.[39] The methods for calculating and reporting such disclosures are themselves an extension of the implementation of a compliance program, meaning that companies fulfilling their *Caremark* obligation were better situated to institute a voluntary ESG disclosure program.[40] Furthermore, since investors began to view ESG factors as part of their long-term investment decisionmaking, companies were incentivized to use these disclosures to attract investment.[41] By 2021, more than 90% of the companies traded on the S&P 500 issued a voluntary ESG report, and almost all of them included an estimate of their greenhouse gas emissions.[42] With all relevant actors converging on making emissions data available in ESG reports into an industry standard, they thus needed a framework that standardized the calculation and presentation of this data.

B. *The Greenhouse Gas Protocol Becomes the Greenhouse Gas Emissions Standard*

The Kyoto Protocol identified six greenhouse gases as emission reductions targets: carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride.[43] However, despite setting a framework for

26. UNCED, *United Nations Conference on Environment and Development, Rio de Janeiro, Brazil, 3–14 June 1992*, https://www.un.org/en/conferences/environment/rio1992 [https://perma.cc/KG88-VERR].
27. UNFCCC, *What Is the United Nations Framework Convention on Climate Change?*, https://unfccc.int/process-and-meetings/what-is-the-united-nations-framework-convention-on-climate-change [https://perma.cc/7L3M-E7A9].
28. UNFCCC, *What Is the Kyoto Protocol?*, https://unfccc.int/kyoto_protocol [https://perma.cc/9PTM-CUCA] ("[i]n short, the Kyoto Protocol operationalizes the United Nations Framework Convention on Climate Change by committing industrialized countries and economies in transition to limit and reduce greenhouse gases emissions in accordance with agreed individual targets").
29. *See* Jess Liu, *ESG Investing Comes of Age: A Timeline*, Morningstar (Feb. 11, 2020), https://www.morningstar.com/features/esg-investing-history [https://perma.cc/3VCB-UGQL]; *see also A Legal Framework for the Integration of Environmental, Social and Governance Issues Into Institutional Investment*, UNEP Fin. Initiative (2005), https://www.unepfi.org/fileadmin/documents/freshfields_legal_resp_20051123.pdf [https://perma.cc/ESD9-RFTL].
30. Ashley C. Walter, *Profound Change: A Discussion Among E. Christopher Johnson, Jr., John H. Stout & Ashley C. Walter*, 75 Bus. L. 2567, 2568 (2020).
31. *Id.* at 2593.
32. *Id.*
33. *2020 Report on US Sustainable and Impact Investing Trends*, US SIF Found. (2020), https://www.ussif.org/files/Trends/2020_Trends_Onepager_Registered%20Investment%20Companies.pdf [https://perma.cc/G866-7CMU].
34. The Lawyer's Corporate Social Responsibility Deskbook: Practical Guidance for Corporate Counsel and Law Firms (Alan S. Gutterman et al. eds., 2019).
35. In re Caremark Int'l Inc. Derivative Litig., 698 A.2d 959 (Del. Ch. 1996).
36. *Id.* at 971.
37. Donald C. Langevoort, Caremark *and Compliance: A Twenty-Year Lookback*, 90 Temp. L. Rev. 727, 728 (2018) ("Since [the *Caremark* decision], compliance has grown in size, scope, and stature at nearly all large corporations.").
38. Mercier ex rel. Massey Energy Co. v. Blankenship, 662 F. Supp. 2d 562, 575–76 (S.D. W. Va. 2009) (finding violations of environmental and worker safety laws traceable to lack of compliance oversight); In re Massey Energy Co., No. 5430, 2011 WL 2176479, at *18–21 (Del. Ch. May 31, 2011) (discussing possible *Caremark* violation resulting from violations of environmental and mine safety laws).
39. The Enhancement and Standardization, 87 Fed. Reg. at 21341–42 (2022).
40. Leo E. Strine Jr. et al., Caremark *and ESG, Perfect Together: Historical Insights on Civil Rights and the Future of Shareholder Activism*, 106 Iowa L. Rev. 1885, 1906 (2021) ("[c]orporate compliance programs that effectively addressed these environmental risks have thus better-positioned their companies to confront emerging demands to meet the 'environmental' prong of EESG").
41. Walter, *supra* note 30, at 2593.
42. Robert S. Kaplan & Karthik Ramanna, *Accounting for Climate Change*, Harv. Bus. Rev. (Nov. 1, 2021), https://hbr.org/2021/11/accounting-for-climate-change [https://perma.cc/76BP-MAZ9].
43. Kyoto Protocol to the United Nations Framework Convention on Climate Change, annex A, Dec. 11, 1997, 2303 U.N.T.S. 148.

its signatory nations, the Kyoto Protocol did not implement a standardized international methodology for calculating greenhouse gas emissions.[44] Recognizing this need, the World Resources Institute, a research nongovernmental organization ("NGO"), and an association of private companies called the World Business Council for Sustainable Development entered a partnership to establish the GHG Protocol.[45] The GHG Protocol provides a series of standards and calculation tools for determining the total carbon emissions attributable to a company, organization, country, or city.[46]

To fulfill the demand for environmental disclosure, many corporations either purchase the services of private emissions reporting entities or base their internal compliance standards on the GHG Protocol's guidelines.[47] A nonexhaustive list of major private reporting entities includes the Global Reporting Initiative ("GRI"), the Climate Disclosure Standards Board ("CDSB"), the CDP (formerly known as the Carbon Disclosure Project), the Task Force on Climate-Related Financial Disclosures ("TCFD"), and the Value Reporting Foundation of the International Financial Reporting Standards Foundation ("IFRS").[48] The GRI,[49] CDSB,[50] CDP,[51] TCFD,[52] and the Value Reporting Foundation[53] have adopted all or some portion of the GHG Protocol standard for calculating emissions.

C. *Issues With Current Voluntary ESG Reporting Framework*

The current private, voluntary framework of ESG ratings has several documented issues with collecting and reporting accurate emissions data. First, the proliferation of private ESG measuring entities has made reporting greenhouse gas emissions more difficult for companies who submit data.[54] The U.S. Chamber of Commerce issued a report determining that some companies have been asked to fill out more than 250 surveys related to their ESG performance,[55] while there are now at least 600 distinct ESG ratings in total.[56] This has in turn fueled confusion and methodological inconsistency, making much of the existing data less reliable.[57] Second, since ESG disclosures are currently voluntary, many companies choose simply not to disclose emissions data at all.[58] Third, ESG disclosures have drawn criticism as a source of "greenwashing," where companies engage in public relations to create a positive association between their product or service and the concept of environmental sustainability, even if the underlying product or service is in fact unsustainable.[59] An empirical study of ESG investors found many had abused the voluntary nature of ESG disclosure to obfuscate holdings in fossil fuel and related industries.[60] Some private ESG metrics also facilitate greenwashing by measuring something other than what they purport to measure, often to the confusion of investors and laypeople.[61] For example, "water stress," a metric that might be understood to measure if a company is adversely affecting local water, in fact measures whether a local community has enough water to sustain the company's business practices.[62] Some companies also received upgraded ratings for adjustments to their internal corporate governance that were trivial or redundant, including issuing rules banning money laundering and bribery,

44. *Kyoto Protocol Reference Manual: On Accounting of Emissions and Assigned Amount*, UNFCC (2008), *available at* https://unfccc.int/resource/docs/publications/08_unfccc_kp_ref_manual.pdf [https://perma.cc/S4VH-326D] ("This [official Kyoto Protocol] manual does not address methodologies and baselines or procedures for crediting of emission reduction.").
45. *See About Us*, Greenhouse Gas Protocol, https://ghgprotocol.org/about-us [https://perma.cc/JAV7-GWE5]; *About Us*, World Res. Inst., https://www.wri.org/about [https://perma.cc/6JWB-GCVC]; *About Us*, World Bus. Council for Sustainable Dev., https://www.wbcsd.org/Overview/About-us [https://perma.cc/J6TR-LXXB].
46. *See About Us*, Greenhouse Gas Protocol, https://ghgprotocol.org/about-us [https://perma.cc/JAV7-GWE5].
47. ESG in the Boardroom: A Guidebook for Directors xxv (Katayun I. Jaffari & Stephen A. Pike eds., 2022).
48. The Enhancement and Standardization, 87 Fed. Reg. at 21341 (2022).
49. Glob. Reporting Initiative, GRI 305: Emissions 2016 4 (2016), https://www.globalreporting.org/standards/media/1012/gri-305-emissions-2016.pdf [https://perma.cc/4D2S-HZSJ].
50. *CDSB Announces Climate Change Reporting Framework—Edition 1.1 October 2012*, Climate Disclosure Standards Bd. (Oct. 17, 2012), https://www.cdsb.net/climate-change-reporting-framework/updates-framework [https://perma.cc/9YXU-5FBQ].
51. *CDP Climate Change 2022 Reporting Guidance*, CDP, https://guidance.cdp.net/en/guidance?ctype=ExternalRef&idtype=RecordExternalRef&cid=C10.1c&otype=Guidance&incchild=0%C2%B5site=0&gettags=0 [https://perma.cc/4XPR-H5EP].
52. TCFD, *Metrics and Targets*, CDP, https://www.tcfdhub.org/metrics-and-targets/ [https://perma.cc/Z8F3-JZ4Q].
53. *ISSB Unanimously Confirms Scope 3 Emissions Disclosure Requirements With Strong Application Support, Among Key Decisions*, Int'l Fin. Reporting Standards Found. (Oct. 21, 2022), https://www.ifrs.org/news-and-events/news/2022/10/issb-unanimously-confirms-scope-3-ghg-emissions-disclosure-requirements-with-strong-application-support-among-key-decisions/ [https://perma.cc/X7YA-YMD7]. Note that IFRS merged with the Value Reporting Foundation in August 2022. *IFRS Foundation Completes Consolidation With Value Reporting Foundation*, Int'l Fin. Reporting Standards Found. (Aug. 1, 2022), https://www.ifrs.org/news-and-events/news/2022/08/ifrs-foundation-completes-consolidation-with-value-reporting-foundation/ [https://perma.cc/E6ZJ-43ND].
54. Dan Esty et al., Yale Initiative on Sustainable Finance, Toward Enhanced Sustainability Disclosure: Identifying Obstacles to Broader and More Actionable ESG Reporting 41 (2020), https://envirocenter.yale.edu/sites/default/files/files/YISF%20ESG%20Reporting%20White%20Paper.pdf [https://perma.cc/W9TE-XKQV].
55. *Id.* at 16 (citing U.S. Chamber of Com. Found., Corporate Sustainability Reporting: Past, Present, and Future (Nov. 2018), https://www.uschamberfoundation.org/sites/default/files/Corporate%20Sustainability%20Reporting%20Past%20Present%20Future.pdf [https://perma.cc/WQM8-YDLF]).]).
56. *Id.*; Sustainability, Rate the Raters 2019: Expert Views on ESG Ratings 4 (2019), https://www.sustainability.com/globalassets/sustainability.com/thinking/pdfs/sa-ratetheraters-2019-1.pdf [https://perma.cc/7VGZ-GWWQ].
57. Esty et al., *supra* note 54, at 16–17.
58. *Id.* at 43.
59. Richard Dahl, *Green Washing: Do You Know What You Are Buying?*, 118 Env't Health Persps. A246, A247 (2010).
60. Leaders, *Sustainable Finance Is Rife With Greenwash. Time for More Disclosure*, Economist (May 22, 2021), https://www.economist.com/leaders/2021/05/22/sustainable-finance-is-rife-with-greenwash-time-for-more-disclosure [https://perma.cc/5QX7-W2WS].
61. *See* Cam Simpson et al., *The ESG Mirage*, Bloomberg (Dec. 10, 2021), https://www.bloomberg.com/graphics/2021-what-is-esg-investing-msci-ratings-focus-on-corporate-bottom-line/ [https://perma.cc/2G58-DSDD] ("Fernandez concedes ordinary investors piling into such funds have no idea that his ratings, and ESG overall, gauge the risk the world poses to a company, not the other way around. 'No, they for sure don't understand that,' he said in an interview . . .").
62. *Id.*

which were already banned in the criminal law.[63] These problems with the current disclosure system have led even some investment fund managers to call for more extensive disclosure practices.[64]

D. SEC Regulation S-K's Effect on Registration Disclosures

Regulation S-K of the Securities Act of 1933 and the Securities Exchange Act of 1934 govern the standard instructions for information that must be included when filing registration statements with the SEC.[65] While both Regulation S-K and other subparts of the Securities and Securities Exchange acts govern the disclosure of financial statements, Regulation S-K deals in particular with "textual" disclosures, including disclosure of non-financial information.[66] These include qualitative disclosures of how the registrant's business is run,[67] descriptions of its property,[68] legal proceedings,[69] risk factors for investors,[70] and information about the firm's management.[71] Regulation S-K is also notable for placing an emphasis on "forward-looking" information, such as "management's projections of future economic performance that have a reasonable basis and are presented in an appropriate format."[72]

Regulation S-K also includes a "safe harbor" provision that provides a blanket protection that a forward-looking disclosure statement filed with the SEC is not a fraudulent statement unless there is no reasonable basis for it, or the statement is not made in good faith.[73]

Though the term "good faith" is not defined in the SEC rules or in the statute, "good faith" in a securities law context is an affirmative defense to a claim of fraud and defined as a "lack of fraudulent intent" despite an apparent misrepresentation or mistake.[74] Regulation S-K broadly encompasses three kinds of safe harbors: (1) a safe harbor for false forward-looking statements that are qualified with "meaningful cautionary statements,"[75] (2) a safe harbor for false statements that lack meaningful cautionary statements where there is not actual knowledge that the original statement was false,[76] and (3) a safe harbor for oral statements that reference a readily available written document.[77] The underlying policy justification for safe harbor provisions is the belief that reasonable projections about a firm's future that later prove to be inaccurate could trigger the filing of securities class action lawsuits, which would in turn incentivize the disclosure of less information.[78] It is generally believed that the existence of the safe harbor provision has significantly improved the quality of information disclosed to investors.[79]

E. SEC's Proposed Rules to Formalize Greenhouse Gas Emissions Disclosures in ESG Reporting

The SEC's proposed rule adds a new subpart to Regulation S-K of the Securities Act of 1933 and Securities Exchange Act of 1934 requiring registrants to disclose climate-related information that can have a material impact on business or financial statements.[80] The proposed rule requires broad categories of disclosures under Regulation S-K's "textual" categories, including oversight and governance of climate-related risks by a registrant's board, how-climate related risks are likely to affect the registrant's business strategy, and the impact of climate-related events on financial statements.[81] The proposed rule also requires that a registrant disclose greenhouse gas emissions metrics and institutes a uniform ESG disclosure requirement for greenhouse gases based largely on the "scope" system in the GHG Protocol,[82] with minor methodological differences regarding what financial statements belong to the registered entity.[83] The rule requires disclosure of Scope 1 and Scope 2 emissions for all SEC-registered entities.[84] However, it only requires Scope 3 emissions disclosure "if material, or if the registrant has set a GHG emissions reduction target or goal that includes its Scope 3 emissions."[85]

Similar to the SEC's general standard for materiality, the proposed rule defines "material" Scope 3 emissions as those where "there is a substantial likelihood that a reasonable investor would consider them important when making an investment or voting decision."[86] If an investor claims that they would have made an investment decision differently

63. *Id.*
64. *See* Laurence Fink, *Larry Fink's Chairman's Letter to Shareholders*, Blackrock (2021), https://www.blackrock.com/corporate/investor-relations/2021-larry-fink-chairmans-letter [https://perma.cc/XZP7J2FW] (". . . the SEC . . . is moving forward on enhanced disclosure, which I support").
65. 17 C.F.R. § 229.10(a) (1982).
66. Alexander F. Cohen et al., *Financial Statement Requirements in US Securities Offerings: What You Need to Know*, Latham & Watkins and KPMG 17 (2018 ed.), *available at* https://web.archive.org/web/20200229051520/https:/www.lw.com/thoughtLeadership/us-financial-statements-guide-2018 [https://perma.cc/7DSZ-Z7NP].
67. 17 C.F.R. § 229.101.
68. 17 C.F.R. § 229.102.
69. 17 C.F.R. § 229.103.
70. 17 C.F.R. § 229.105.
71. 17 C.F.R. § 229.401–406.
72. 17 C.F.R. § 229.10(b).
73. Louis Loss & Joel Seligman, Fundamentals of Securities Regulation 159 (5th ed. 2004) (citing 17 C.F.R. 230.175(a) and 17 C.F.R. 240.3b 6(a)); *see also* 15 U.S.C. § 78u-5 (2022).
74. In re Bernard L. Madoff Inv. Sec. LLC, 12 F.4th 171, 192 (2d Cir. 2021), *cert. denied sub nom.* Citibank, N.A. v. Picard, 142 S. Ct. 1209 (2022).
75. Securities Act § 27A(c)(1)(A) Securities Exchange Act § 21E(c)(1)(A), as amended, 15 U.S.C. § 77z-2(c)(1)(A).The exact meaning of the term "meaningful cautionary statements" is disputed and may vary based on the court in which a securities action is filed. *See also* 2 Louis Loss et al., Securities Regulation 131 (6th ed. 2019).
76. Securities Act § 27A(c)(1)(B) and Securities Exchange Act § 21E(c)(1)(B), as amended, 15 U.S.C. § 77z-2(c)(1)(B).
77. Securities Act of 1933 § 27A(c)(2) and Securities Exchange Act of 1934 § 21E(c)(2), as amended, 15 U.S.C. § 77z-2(c)(2).
78. Loss et al., *supra* note 75, at 160.
79. *Id.* at 161 (citing Grace Pownall et al., *The Stock Price Effects of Alternative Types of Management Earnings Forecasts*, 68 Acct. Rev. 896 (1993). For an empirical study of the relationship between the safe harbor provision and class action securities lawsuits, see Marilyn F. Johnson et al., *The Impact of Securities Litigation Reform on the Disclosure of Forward-Looking Information by High Technology Firms*, 39 J. Acct. Rsch. 297 (2001).
80. The Enhancement and Standardization, 87 Fed. Reg. at 21345 (2022).
81. *Id.*
82. *Id.*
83. *Id.* at 21384 n.492 (2022) (noting that the GHG Protocol defines the term "organizational boundaries" based on an equity share approach, whereas the proposed rule defines on a company's consolidated financial statements).
84. *Id.* at 21345 (2022).
85. *Id.*
86. The Enhancement and Standardization, 87 Fed. Reg. at 21378 (2022).

if certain information was available, U.S. Supreme Court precedents and the SEC's prior rules regarding materiality mandate that doubts about the materiality of that information be resolved in favor of investors.[87] The Scope 3 rule also includes a safe harbor provision protecting a disclosing entity from liability under federal securities law if their Scope 3 disclosure is deemed to be in good faith, or is made or affirmed on a reasonable basis.[88] The proposed safe harbor provision extends "to any statement regarding Scope 3 emissions that is disclosed pursuant to [the SEC's proposed revision] of Regulation S-K."[89] Like the policy justification for Regulation S-K's general safe harbor provision, the policy justification for the proposed rule's safe harbor is to both encourage more robust disclosures of information and to limit liability to cases where the disclosure was not made in good faith.[90] Finally, in recognition of the logistical difficulties of implementing the rule, the SEC has added several provisions meant to ease the process of transition. These include an exemption for smaller firms from any obligation to report Scope 3 emissions data, a later date for complying with the Scope 3 rule than for the other provisions of the proposal, and accommodations under existing securities rules for instances where certain third-party Scope 3 data are not reasonably available to the registrant.[91]

F. *Bringing a Fraud Action Under the SEC's Disclosure Rules*

Section 10(b) of the Securities Exchange Act of 1934 prohibits "any manipulative or deceptive device or contrivance in contravention of such rules or regulations as the [SEC] may prescribe as necessary or appropriate in the public interest or for the protection of investors."[92] This "catch-all" fraud provision is given meaning by the SEC's rules for different categories of fraud actions, the most commonly deployed of which is SEC Rule 10b-5.[93] Rule 10b-5 states that it is unlawful to engage in a scheme intended to defraud, or to "make any untrue statement of material fact or to omit to state a material fact necessary in order to make the statements made."[94] An untrue statement of material fact includes feeding misleading information to the market as well as withholding information.[95] All disclosures, both required and voluntary, including material misrepresentations are subject to Rule 10b-5.[96]

To bring a securities fraud action under Rule 10b-5 based on the content of a disclosure, a plaintiff must prove a culpable state of mind at the time of the disclosure and plead with facts indicating a strong inference of fraud.[97] The plaintiff must also demonstrate a causal relationship between the fraud and their injury by proving they relied on this erroneous information and were harmed by their reliance.[98] As a result of these high burdens of proof, securities class action litigation remains relatively rare; less than 200 federal Rule 10b-5 claims are filed in a typical year,[99] and nearly half of those cases settle without judgment.[100]

In contrast, Section 11 of the Securities Act of 1933 provides a civil remedy wherever a registration statement contains "an untrue statement of a material fact or omit[s] to state a material fact required to be stated therein or necessary to make the statements therein not misleading."[101] Section 11 allows any purchaser of a registered security to sue as long as they simply demonstrate they believed that the registration statement did not contain a misstatement or omission.[102] Unlike Rule 10b-5, the plaintiff does not need to prove detrimental reliance on the false registration statement or that the registrant misstated a fact with a culpable state of mind.[103] Section 11 securities fraud actions have increased steadily since 1995,[104] and in 2020 federal Section 11 claims were the only type of securities fraud filing that had increased compared to previous years.[105]

G. *Reach of the SEC's Proposed Safe Harbor for Greenhouse Gas Emission Disclosures With Respect to Securities Fraud Litigation*

The SEC's proposed safe harbor for Scope 3 emissions generally does not extend to forward-looking statements under Regulation S-K.[106] To create a safe harbor for Scope 3 disclosures under those provisions, the SEC's proposed safe harbor must extend protection to forward-looking statements qualified with "meaningful cautionary statements."[107] While the SEC's proposal includes a provision granting safe harbor protections for forward-looking statements regarding "aspects of the proposed

87. *Id.* (citing TSC Industries, Inc. v. Northway, 426 U.S. 438, 448 (1977)).
88. 87 Fed. Reg. at 21390–91 (2022).
89. *Id.* at 21391.
90. *Id.*
91. *Id.*
92. Securities Exchange Act of 1934 § 10(b), as amended, 15 U.S.C. § 78j.
93. *See* Loss & Seligman, *supra* note 73, at 904.
94. 17 C.F.R. § 240.10b-5.
95. Loss & Seligman, *supra* note 73, at 1038.
96. *Id.* at 950.
97. John C. Coffee Jr., *Unpacking the SEC's Climate-Related Disclosures: A Quick Tour of the Issues*, Colum. Blog Corp. & Cap. Mkts. (Mar. 29, 2022), https://clsbluesky.law.columbia.edu/2022/03/29/unpacking-the-secs-climate-related-disclosures-a-quick-tour-of-the-issues/ [https://perma.cc/2ARD-FEUC].
98. *The Guide to Securities Fraud Elements and SEC Rule 10b-5*, Brown Neri Smith & Khan, LLP, https://bnsklaw.com/the-guide-to-securities-fraud-elements-and-sec-rule-10b-5/ [https://perma.cc/BJ8P-DYMR].
99. Laarna T. Bulan et al., *Securities Class Action Filings: 2021 Year in Review*, Cornerstone Rsch. 4 (2022), *available at* https://www.cornerstone.com/wp-content/uploads/2022/02/Securities-Class-Action-Filings-2021-Year-in-Review.pdf [https://perma.cc/T2ZP-44KA].
100. *Id.* at 18.
101. 17 U.S.C. § 77k.
102. *See generally* Larry Soderquist & Theresa Gabaldon, Securities Law, Chapter 8 (6th ed. 2019).
103. *Id.*
104. Paul C. Curnin & Christine M. Ford, *The Critical Issue of Standing Under Section 11 of the Securities Act of 1933*, 6 Fordham J. Corp. & Fin. Law 155 (2001) (noting an increase in Section 11 filings after the Private Securities Litigation Reform Act of 1995 and citing *Gustafson v. Alloyd Co.*, 513 U.S. 561, 604 n.8 (1995) (Ginsburg, J., dissenting) (noting an increase in 1933 litigation after a prior Supreme Court decision regarding Rule 10b-5)).
105. Bulan et al., *supra* note 99.
106. Coffee, *supra* note 97.
107. Securities Act § 27A(c)(1)(A) and Securities Exchange Act § 21E(c)(1)(A)(i), as amended, 15 U.S.C. § 77z-2(c)(1)(A)(i) ("The forward-looking statement is identified as a forward-looking statement, and is accompanied by meaningful cautionary statements.").

disclosures,"[108] the language of the proposed rules limits protected forward-looking statements to categories other than Scope 3 disclosures.[109] Instead, the SEC's proposed safe harbor for Scope 3 disclosures holds that an erroneous or false statement in a disclosure will be "deemed not to be a fraudulent statement unless it is shown that such statement was made or reaffirmed without a reasonable basis or was disclosed other than in good faith."[110] In effect, the main impact of the SEC's proposal for the safe harbor for Scope 3 disclosures is to shift the burden of proof in securities fraud cases brought under SEC Rule 10b-5, which is only relevant when a securities fraud action has already been filed successfully.[111]

H. The Major Questions Doctrine

The major questions doctrine was first articulated by the Supreme Court as a rule of statutory construction limiting when federal agencies could infer the outer boundaries of their authority as delegated by the U.S. Congress.[112] The doctrine was later expanded upon to mean that "when regulatory action brings about an enormous and transformative expansion in [the agency's] regulatory authority" there must be "clear Congressional authorization" underlying an agency's rule or action.[113] The policy justification for this doctrine is to incentivize Congress to clearly state the key principles of any regulatory scheme explicitly in legislation so that an agency does not exceed the boundaries of those principles during rulemaking.[114] Stated memorably in one case, the major questions doctrine is a tool designed to ensure that "Congress . . . does not, one might say, hide elephants in mouseholes."[115]

The major questions doctrine is arguably an extension of the Supreme Court's general authority to decide whether to grant an agency deference when reviewing if an agency has exceeded its authority during rulemaking.[116] However, in a recent series of cases, the Supreme Court invoked the doctrine not merely to analyze whether to grant deference to an agency, but as an affirmative tool to overturn agency rules.[117] In one recent case, Justice Neil Gorsuch's concurrence appears to elevate the major questions doctrine to a key principle for protecting the separation of powers under the U.S. Constitution, stating that an executive agency must "properly invoke a constitutionally enumerated source of authority" before it issues a rule.[118] Despite its recent importance, the Supreme Court has not articulated the scope or applicability of the major questions doctrine, its precise relationship to other doctrines of statutory interpretation, or when a major questions analysis is relevant.[119] Moreover, the Supreme Court has recently acknowledged confusion about the status of the major questions doctrine without coming to a definitive conclusion about its status.[120] Administrative law commentators note with increasing alarm that the doctrine allows "unelected judges . . . to make critical value judgments overturning democratic majorities in the absence of any recognized criteria or formula."[121] Accordingly, any new agency regulation that potentially transforms an agency's area of authority requires a consideration of how that regulation can survive major questions review.

I. Developments Since the SEC Published the Proposed Rules

At the time of writing, political controversy with the Scope 3 provision has generated several legislative attempts to restrict the SEC's Scope 3 proposed rules.[122] Some investment funds and industry groups have also objected to the proposed rule.[123] This backlash has led the SEC to imply it will likely soften the Scope 3 disclosure rule.[124] West Virginia Attorney General Patrick Morrisey strongly hinted that he would pursue litigation against ESG regulation before the SEC even announced its proposed rule,[125] and

108. The Enhancement and Standardization, 87 Fed. Reg. at 21338 (2022).
109. *See* The Enhancement and Standardization, 87 Fed. Reg. 21358 (applying a forward-looking statement safe harbor to internal firm carbon prices); *Id.* at 21361–62 (applying a forward-looking statement safe harbor to transition plans for mitigating climate-related risk)).
110. *Id.* at 21391.
111. Coffee, *supra* note 97.
112. *See* Food & Drug Admin. v. Brown & Williamson Tobacco Corp., 529 U.S. 120, 159 (2000) ("In extraordinary cases, however, there may be reason to hesitate before concluding that Congress has intended . . . an implicit delegation.").
113. Util. Air Regul. Grp. v. Env't Prot. Agency, 573 U.S. 302, 303 (2014).
114. *See* Gonzales v. Oregon, 546 U.S. 243, 267 (2006); *see also* Whitman v. Am. Trucking Ass'ns, 531 U.S. 457 (2001).
115. *Gonzales*, 546 U.S. at 267.
116. Kate R. Bowers, Cong. Rsch. Serv., IF12077, The Major Questions Doctrine (2022).
117. *Id.*; *See generally* Alabama Ass'n of Realtors v. Dep't of Health & Hum. Servs., 141 S. Ct. 2485 (2021) (overturning the Center for Disease Control's Covid-19 eviction moratorium); Nat'l Fed'n of Indep. Bus. v. Dep't of Labor, 595 U.S. 109 (2022) (overturning the Secretary of Labor and Occupational Health and Safety Administration's vaccine mandate and test order for businesses); West Virginia v. Env't Prot. Agency, 142 S. Ct. 2587 (2022) (overturning a Barack Obama Administration-era rule regarding the scope of carbon dioxide emissions regulation under the Clean Air Act).
118. *Nat'l Fed'n of Indep. Bus.*, 595 U.S. at 122 (Gorsuch, J., concurring).
119. *See generally* Kate R. Bowers & Daniel J. Sheffner, Cong. Rsch. Serv., LSB10745, The Supreme Court's "Major Questions" Doctrine: Background and Recent Developments (May 17, 2022).
120. *See* Biden v. Nebraska, 143 S. Ct. 2355, 2376 (2023) (Barrett, J., concurring) ("[T]he parties have devoted significant attention to the major questions doctrine, and there is an ongoing debate about its source and status . . . I grant that some articulations of the major questions doctrine on offer—most notably, that the doctrine is a substantive canon—should give a textualist pause.").
121. John C. Coffee Jr., *The Two-Front War on the Administrative State: How Far Will the Supreme Court Go?*, Colum. Blog Corp. & Cap. Mkts. (July 5, 2022), https://clsbluesky.law.columbia.edu/2022/07/05/the-two-front-war-on-the-administrative-state-how-far-will-the-supreme-court-go/ [https://perma.cc/8TD2-J9Z7].
122. Flook, *supra* note 8 (non-exhaustively listing legislative attempts to restrict the Scope 3 rule, including: a failed bill presented in the U.S. House of Representatives; a failed Congressional Review Act resolution; a failed amendment to a defense authorization bill; and a failed amendment to the Inflation Reduction Act by Pat Toomey, the ranking Republican on the U.S. Senate Banking Committee in 2022).
123. Andrew Ramonas & Amanda Iacone, *SEC Climate Rules Pushed Back Amid Bureaucratic, Legal Woes*, Bloomberg L. (Oct. 19, 2022), https://news.bloomberglaw.com/securities-law/sec-climate-rules-pushed-back-amid-bureaucratic-legal-woes [https://perma.cc/JJG2-Z6EL].
124. Declan Harty, *SEC's Gensler Weighs Scaling Back Climate Rule as Lawsuits Loom,* Politico (Feb. 4, 2023), https://www.politico.com/news/2023/02/04/sec-climate-rule-scale-back-00081181 [https://perma.cc/YXR6-5ALH].
125. *See* Letter from Patrick Morrisey, West Virginia Attorney General, to Allison Herren Lee, Acting Chair, U.S. Sec. & Exch. Comm'n (Mar. 25, 2021),

both he and a group of Republican state attorneys general have subsequently laid out plans to challenge the final rule under the major questions doctrine.[126]

Despite this controversy, the SEC is seeking to finalize some version of its proposal into a formal rule.[127] MSCI, a research firm that provides analysis of financial markets,[128] noted a significant increase in voluntary Scope 3 disclosures in 2022 following the announcement of the proposed rule in March,[129] despite the rule not being codified as final for the rest of that year. Preliminary explanations for this phenomenon include the possibility that Scope 3 disclosures are now a market norm expected by some investors, and even if the SEC rule is never enacted, an equivalent regulation in the European Union will force many firms to engage in Scope 3 disclosures anyway.[130] Furthermore, the state of California has passed legislation requiring certain categories of large companies to disclose Scope 3 emissions,[131] meaning even if the backlash causes the final SEC rule to be softer than the proposed rule, the regulatory fight over Scope 3 disclosure will remain unresolved until state and federal disclosure standards are in accord with each other.

While this Note focuses on the SEC's March 2022 proposal, these developments suggest Scope 3 disclosures are an emerging norm in practice and an ongoing subject of regulatory controversy for the foreseeable future. The framework for Scope 3 regulation suggested by this Note is thus built around the broad goal of accomplishing the most effective standardized form of disclosure. Whether the SEC finalizes a rule based on its March 2022 proposal, restarts the rulemaking process to create a new Scope 3 rule, or chooses not to enact a Scope 3 rule at all, further Scope 3 regulation will still be possible and even likely. The framework suggested by this Note is thus still applicable even if the final rule is revised or challenged successfully in court after implementation.

available at https://www.sec.gov/comments/climate-disclosure/cll12-8563794-230748.pdf [https://perma.cc/G494-ZVNN] ("If you choose to pursue this course, we will defeat it in court.")).

126. *See generally* Letter from Patrick Morrisey et al., to Vanessa A. Countryman, Sec'y, U.S. Sec. & Exch. Comm'n (June 15, 2022), *available at* https://www.sec.gov/comments/s7-10-22/s71022-20131409-301574.pdf [https://perma.cc/5ZG5-MXVS]).

127. Ellen Meyes, *As SEC Works to Finalize Climate Rule, Both Sides Make Their Case*, Roll Call (Nov. 10, 2022), https://rollcall.com/2022/11/10/as-sec-works-to-finalize-climate-rule-both-sides-make-their-case/ [https://perma.cc/G8AB-LST6].

128. *MSCI: Powering Better Investment Decisions*, MSCI (2022), https://www.msci.com/documents/1296102/34522823/MSCI_Company_Brochure.pdf [https://perma.cc/4SUW-FK3B].

129. Paul Verney, *MSCI Sees Jump in US Firms Making Scope 3 Disclosures Following SEC Proposal*, Responsible Investor (Dec. 15, 2022), https://www.responsible-investor.com/msci-sees-jump-in-us-firms-making-scope-3-disclosures-following-sec-proposals/ [https://perma.cc/92PQ-3ZR2].

130. *Id.*

131. *California Enacts Landmark Climate Accountability Package Requiring Expansive Disclosure of Climate-Related Risks*, Sidley Austin LLP (Oct. 10, 2023), https://www.sidley.com/en/insights/newsupdates/2023/10/california-enacts-landmark-climate-accountability-package [https://perma.cc/H8FJ-4VKV].

III. Likely Problems With the SEC's Proposal for Scope 3 Enforcement

A. *Advantages and Disadvantages of the SEC's Proposed Environmental Disclosure Rule*

The SEC's proposed rule is likely to solve several issues with the current voluntary reporting paradigm for greenhouse gas emissions. The rule remedies the overabundance of reporting frameworks by instituting a uniform disclosure requirement.[132] By formalizing ESG into a mandatory securities rule and requiring disclosure of Scope 1 and 2 emissions, it is also likely to solve much of the non-reporting problem.[133] The proposed rule also provides a powerful disincentive to the practice of greenwashing by opening a disclosing entity to the possibility of securities fraud for misrepresentation.[134] However, the SEC's chosen language for Scope 3 emissions creates several problems, which this Note will examine in detail.

There are three basic categories of problems with the SEC's proposed rule for disclosing Scope 3 emissions. The first category encompasses problems related to calculating and reporting Scope 3 greenhouse gas emissions.[135] These include difficulties related to gathering information about upstream and downstream greenhouse gas emissions, ambiguities related to inter-business reporting, and the lack of a bright-line quantitative threshold clarifying what quantity of gases must be emitted to be sufficiently material for a disclosure.[136]

The second category encompasses problems with the incentives created by the rule as currently written. Since the proposed rule does not formally require disclosure of Scope 3 emissions, but rather subjects disclosure to the materiality standard,[137] firms may be incentivized to disclose the minimum amount of information necessary to forestall reputational damage and litigation risk. Because the risk of litigation under the proposed safe harbor provision is very low, the current Scope 3 provision is unlikely to incentivize significant disclosures. This is further exacerbated by the ambiguity of what information is categorized as "qualitatively material" under Regulation S-K.[138]

The third category encompasses potential constitutional challenges to the rule. The most likely constitutional challenge to the rule is rooted in the major questions doctrine, which restricts the ability of federal agencies to institute transformative regulations on "major questions" without express congressional authorization.[139] Because Congress has not expressly authorized the SEC's plan to regulate greenhouse gas emissions and disclosures of climate-related

132. *See* The Enhancement and Standardization, 87 Fed. Reg. at 21346–47.

133. *Id.* at 21345.

134. *Id.* at 21469.

135. *See generally* The Enhancement and Standardization, 87 Fed. Reg. at 21373–90 (Discussion, Subsection G, "GHG Emissions Disclosure Requirement" and "GHG Emissions Methodology and Related Instructions").

136. *Id.* at 21373–77.

137. *Id.* at 21345.

138. 17 C.F.R. § 229.305 (2022).

139. Bowers & Sheffner, *supra* note 119.

information, and there is a dispute over whether such a rule falls under the SEC's existing congressionally delegated powers,[140] the entire proposed rule may be potentially vulnerable to a major questions challenge. The Scope 3 rule is particularly vulnerable because of how it transforms the current standard by which businesses must calculate emissions throughout their value chain and make qualitative projections, which arguably constitute a "transformative expansion" of the SEC's regulatory power.[141]

B. *Calculation and Reporting Problems Likely Caused by Scope 3 Reporting*

The SEC's explanation for its proposed rule concedes that an entity seeking to report Scope 3 emissions data may face "difficulties in obtaining the necessary data from third parties and methodological uncertainties as reasons for limiting or not requiring disclosure of Scope 3 emissions."[142] Subsequent public comments on the proposed rule summarize a variety of logistical difficulties in gathering Scope 3 emissions data.[143] A basic problem is that upstream and downstream emissions data, which is based on the emissions of businesses in a registrant's value chain but lies outside of their direct control, is much harder for a firm to access than other data. For example, some commenters point out that it is much easier for a firm to calculate the downstream emissions created by their staff during regular travel than it would be to calculate upstream emissions created by suppliers, because the traveling staff are directly under the firm's control while the upstream suppliers are not.[144] Other commenters point out that smaller businesses in the supply chains of larger companies will have a harder time gathering emissions data from their partners and may be forced to rely on less accurate estimations,[145] while some businesses might discover their partners do not track emissions data at all.[146]

The SEC's commentary on the proposed rule concedes that the looser reporting standard for Scope 3 emissions data as compared with Scope 1 and 2 emissions data was proposed in recognition of the relative difficulty of collecting and measuring Scope 3 data.[147] Recognizing that smaller companies may be affected more harshly by an immediate Scope 3 disclosure requirement, some advocating mandatory Scope 3 disclosures have proposed mitigating the regulatory burden by implementing a longer phase-in time.[148] However, the SEC has not clarified how a company is supposed to gather emissions data from their partners, or how to calculate this data if their partners do not themselves collect it.[149] At the same time, the SEC has also chosen not to provide a quantitative threshold defining "material" emissions data as emissions above a measurable numerical amount, "because whether Scope 3 emissions are material would depend on the particular facts and circumstances, making it difficult to establish a 'one size fits all' standard."[150] This is an odd comment because the SEC appears to admit the difficulty of implementing its own proposed rule without a calculation standard while justifying its decision not to include one with the same complexities and ambiguities a calculation standard would help resolve.

Furthermore, while the SEC's proposal otherwise attempts to assimilate the most comprehensive standards of private ESG reporting, it chooses not to do so where those same standards increasingly include threshold tests for inclusion of Scope 3 emissions data.[151] For example, one proposed standard from the NGO Science Based Targets suggests that if a company's Scope 3 emissions comprise 40% or more of their total greenhouse gas emissions, then the company should be required to set a Scope 3 emissions reduction target.[152] This standard is increasingly supported by private ESG ratings and calculation services such as TCFD, which listed it as a recommended metric for when to disclose Scope 3 emissions.[153] The SEC's proposal acknowledges such metrics exist,[154] but instead argues that

140. Bruce White, *Scope 3 or Not to Be? That Is the ESG Question*, Barnes & Thornburg LLP (Feb. 8, 2023), https://btlaw.com/insights/alerts/2023/scope-3-to-be-or-not-to-be-that-is-the-esg-question [https://perma.cc/6ZBN-RNER].

141. Seth P. Waxman et al., *Major Decision on Major Questions Doctrine, Agency Regulatory Discretion*, WilmerHale (July 11, 2022), https://www.wilmerhale.com/insights/client-alerts/20220711-major-decision-on-major-questions-doctrine-epas-power-to-regulate-carbon-emissions [https://perma.cc/NL8H-GDD4].

142. 87 Fed. Reg. 21376 (2022).

143. Jacob H. Hupart et al., *What Public Comments on the SEC's Proposed Climate-Related Rules Reveal—And the Impact They May Have on the Proposed Rule*, Mintz (Feb. 1, 2023), https://www.mintz.com/insights-center/viewpoints/2301/2022-07-20-what-public-comments-secs-proposed-climate-related-rules [https://perma.cc/MZ3D-VFBH] (finding 218 comments on costs to businesses, 56 comments on the burdens of gathering information for farmers, and 51 comments on the burdens of gathering information for fossil fuel companies, out of a total of 1,048 comments in opposition, many of them with other unique complaints).

144. *See* Miranda Ballantine, CEO, Clean Energy Buyers Ass'n, Comment Letter on Proposed Rule No. S7-10-22, The Enhancement and Standardization of Climate-Related Disclosures for Investors, U.S. Sec. & Exch. Comm'n (Oct. 11, 2022), https://www.sec.gov/comments/s7-10-22/s71022-20145441-310670.pdf [https://perma.cc/DLF6-YAPG].

145. Cynthia Axne et al., Members of the U.S. House of Representatives, Comment Letter on Proposed Rule File No. S7-10-22, The Enhancement and Standardization of Climate-Related Disclosures for Investors, U.S. Sec. & Exch. Comm'n (Oct. 21, 2022), https://www.sec.gov/comments/s7-10-22/s71022-20147099-312697.pdf [https://perma.cc/3C6L-ML3N].

146. Chris Greissing, President, Indus. Min. Ass'n of N. Am., Comment Letter on Proposed Rule File No. S7-10-22, The Enhancement and Standardization of Climate-Related Disclosures for Investors, U.S. Sec. & Exch. Comm'n (June 17, 2022), https://www.sec.gov/comments/s7-10-22/s71022-20146603-311828.pdf [https://perma.cc/NJ9J-QBJJ].

147. The Enhancement and Standardization of Climate-Related Disclosures for Investors, 87 Fed. Reg. at 21377 (2022).

148. Trillium Asset Mgmt., Comment Letter on Proposed Rule File No. S7-10-22, The Enhancement and Standardization of Climate-Related Disclosures for Investors, U.S. Sec. & Exch. Comm'n (Oct. 21, 2022), https://www.sec.gov/comments/s7-10-22/s71022-20147082-312665.pdf [https://perma.cc/F7RR-ZE39].

149. Greissing, *supra* note 146.

150. The Enhancement and Standardization, 87 Fed. Reg. at 21381 (2022).

151. *Id.* at 21379 ("While we are not proposing a quantitative threshold for determining materiality, we note that some companies rely on, or support reliance on, a quantitative threshold such as 40 percent when assessing the materiality of Scope 3 emissions.").

152. *SBTi Criteria and Recommendations*, SBTi (Apr. 2023), *available at* https://sciencebasedtargets.org/resources/files/SBTi-criteria.pdf [https://perma.cc/CVU4-TCV4TCV4].

153. TCFD, *supra* note 52.

154. The Enhancement and Standardization, 87 Fed. Reg. at 21379 (2022).

even if such a threshold test was implemented, "a quantitative analysis alone would not suffice for purposes of determining whether Scope 3 emissions are material . . . this determination [of materiality] would ultimately need to take into account the total mix of information available to investors, including an assessment of qualitative factors."[155]

The SEC's answer to the calculation issue for Scope 3 emissions is thus unconvincing. The SEC provides no quantitative threshold or guidelines on how to gather Scope 3 emissions data[156] despite acknowledging that their proposal will be difficult to implement without such standards.[157] The SEC attempts to justify their absence by pointing to the materiality standard.[158] But the materiality standard itself states that the information that must be disclosed is simply that which an investor might find important,[159] where here the issue is precisely that there is unresolved confusion about what information may qualify. In effect, the SEC argues that even if they did clarify the calculation problem with a quantitative threshold, an assessment of materiality depending entirely on quantitative factors would be incomplete. Accordingly, it is necessary to examine the incentives created by the materiality standard in the SEC's proposal.

C. *Incentive Issues Likely Caused by the Materiality Standard for the Proposed Scope 3 Framework*

As stated above, the SEC's proposal for Scope 3 emissions only requires their disclosure "if material, or if the registrant has set a GHG emissions reduction target or goal that includes its Scope 3 emissions."[160] Because the SEC has resisted both creating a mandatory disclosure requirement for Scope 3 emissions and creating a quantitative threshold for materiality, the proposal necessarily requires an examination of Scope 3 emissions to be evaluated under the category of qualitative materiality.[161] Yet, even for specialists of SEC disclosure, the question of what information qualifies as qualitatively material "defies [a] neat solution"[162] and has "no easy answers."[163] One SEC commissioner viewed it less as a strict rule and more as "a philosophical rumination of the Commission on the corporate governance process at an early point in time."[164] Some scholars argue that materiality is not best understood as a legal standard itself, but as a means of enforcing the social norms of investors and thus subject to change over time.[165]

The SEC's own explanation for subjecting Scope 3 emissions to the qualitative materiality standard reflects this unclarity. The SEC's comments on the proposed rule state that even if a determination is made that certain emissions data are not material, it may nevertheless "be useful to investors to understand the basis for that determination," and that a company "should consider disclosing why other categories [of emissions data] are not material."[166] Yet, the SEC's Acting Chief Accountant has also resisted any attempt at distinguishing boundaries between quantitative and quantitative materiality, stating that materiality requires analysis of "all relevant facts and circumstances . . . including both quantitative and qualitative factors" that might be used by a hypothetical investor,[167] further obscuring the rule. In effect, the SEC is evading the question of what information counts as material or not by encouraging non-material information to be disclosed anyway, which might defeat the purpose of having "materiality" as the standard.[168] This ambiguity over what data count as material has also fueled the potential litigation challenges to the disclosure rule. In his letter announcing plans to challenge the final rule in court, West Virginia Attorney General Morrisey's letter states that because questions of materiality will generally be resolved in favor of disclosure, "the Proposed Rule thus effectively mandates Scope 3 emissions disclosures."[169]

Furthermore, it is not clear the materiality standard as proposed is sufficient to accomplish the SEC's goal of ensuring Scope 3 disclosure. Studies of disclosure incentives indicate that exposure to litigation risk generally incentivizes auditors and other disclosing entities to improve the

155. *Id.*
156. *Id.*
157. *Id.* at 21381.
158. *Id.*
159. 17 C.F.R. § 240.12b-2 (2005) ("[t]he term 'material,' when used to qualify a requirement for the furnishing of information as to any subject, limits the information required to those matters to which there is a substantial likelihood that a reasonable investor would attach importance in determining whether to buy or sell the securities registered"); *see also* 87 Fed. Reg. 21334, 21378 (Apr. 11, 2022).
160. The Enhancement and Standardization, 87 Fed. Reg. at 21345 (2022).
161. *Id.* at 21379. ("[A] quantitative analysis alone would not suffice for purposes of determining whether Scope 3 emissions are material. Consistent with the concept of materiality in securities law, this determination would ultimately need to take into account the total mix of information available to investors, including an assessment of qualitative factors.").
162. Loss & Seligman, *supra* note 73, at 172.
163. *Id.* at 173.
164. Ralph Ferrara, *Current Issues Between Corporations and Shareholders: Federal Intervention Into Corporate Governance,* 36 Bus. Law. 759, 769 (1981).
165. *See* Jon Lubomnik & James P. Hawley, *Rethinking What Drives Materiality*, High Meadows Inst. (Feb. 25, 2021), https://www.highmeadowsinstitute.org/changes-in-becoming-material/ [https://perma.cc/BEX3-8DSY] ("Shifting societal values cause shifting laws reflecting shifting beliefs . . . norm shifts and new understandings, once adopted by a critical mass of investors, firms, and the general population, and sometimes regulators, become financially relevant and sometimes legally 'material.'").
166. The Enhancement and Standardization, 87 Fed. Reg. at 21379 (2022).
167. Peter I. Altman et al., *Coming to Terms With Materiality Judgments for SEC Financial Statements*, Akin Gump Strauss Hauer & Feld LLP (Apr. 20, 2022), https://www.akingump.com/en/news-insights/coming-to-terms-with-materiality-judgments-for-sec-financial-statements.html [https://perma.cc/A9Q3-FW4P].
168. *See* Bus. Roundtable, The Materiality Standard for Public Company Disclosure: Maintain What Works 6 (Oct. 2015), *available at* https://perma.cc/RDA2-ETPU ("The materiality concept ensures that the information disclosed to investors is customized to the unique characteristics of each public company and does not elicit 'overinclusive or underinclusive' information as would occur under a generic standard."); *see also* Acting Chief Accountant Paul Munter, *Statement on Assessing Materiality: Focusing on the Reasonable Investor When Evaluating Errors*, U.S. Sec. & Exch. Comm'n (Mar. 9, 2022), https://www.sec.gov/news/statement/munter-statement-assessing-materiality-030922 [https://perma.cc/WG98-BLSV] ("The determination of whether an error is material is an objective assessment focused on whether there is a substantial likelihood it is important to the reasonable investor.").
169. Morrisey et al., *supra* note 126, at 15.

quality of their disclosures.[170] At the same time, the risk of litigation for fraudulent statements also incentivizes disclosing entities to claim misstatements or mistakes are not material, particularly when assessing past statements where there is no longer a risk of litigation.[171] Taken together, these findings indicate that, in the absence of a "bright-line rule for what constitutes a *material* misstatement," a materiality standard only produces more accurate disclosures when "the risk of litigation and reputational damage" incentivizes accurate disclosure.[172]

However, the SEC's proposed rule limits fraud claims for Scope 3 disclosures to those cases where a registrant issues a statement "without a reasonable basis or . . . other than in good faith,"[173] effectively limiting liability to cases where the defendant can prove that an inaccurate disclosure was made with a culpable state of mind. Furthermore, the SEC has itself admitted the difficulty of calculating Scope 3 emissions and has added a phase-in period for Scope 3 disclosure[174] precisely because it recognizes the possibility of inaccuracy or omissions in reported emissions data.[175] This means that the risk of litigation for an inaccurate Scope 3 disclosure is very low, as a plaintiff would have to pin-point one or several inaccuracies out of many and prove a culpable state of mind. Accordingly, because there is little risk of litigation and reputational damage, the SEC's proposed materiality standard is unlikely to incentivize accurate disclosures of Scope 3 emissions data.

D. *Possibility of Constitutional Challenge to Current Scope 3 Rule Language*

The principal constitutional danger facing the SEC's GHG disclosure rule is a challenge based on the major questions doctrine. As stated above, the major questions rule is likely to apply when regulatory action would "bring about an enormous and transformative expansion in [an agency's] regulatory authority,"[176] but the Supreme Court has not provided any other guidance about when the rule applies.[177] The most effective way to preview a potential major questions challenge to the rule is thus to examine the stated reasons for challenging the rule by its most likely challenger, the Republican Attorneys General Association.

First, the undersigned attorneys general allege that the SEC has an overly expansive understanding of its own power in violation of the major questions doctrine.[178] They base this allegation on two factors: the lack of explicit authorization for greenhouse gas regulation in the text of the Securities or Securities Exchange Acts, and the proposed rule's potential to exert "extravagant statutory power over the national economy."[179] Second, the attorneys general argue that the SEC does not have statutory authority or expertise necessary to regulate climate change.[180] Third, they invoke general controversies over climate change itself to claim that a delegated agency must have subject matter expertise to regulate climate change.[181] Fourth, they point to the regulatory burden imposed by the rule to underline that greenhouse gas regulation is an expansive regulatory scheme.[182] Finally, the attorneys general invoke the principles of federalism, such as "the balance between federal and state power in the corporate sphere," again claiming a lack of explicit congressional authorization.[183]

If a future litigant chose to focus on the Scope 3 provision, any of the above-listed arguments could potentially apply, even though the attorneys general do not specify the greenhouse gas "scope" system as a reason for invoking the major questions doctrine. Furthermore, because the SEC has itself acknowledged several difficulties with the Scope 3 provision, such as acknowledging that Scope 3 disclosure presents a "burden" on registrants and requires an additional phase-in period,[184] an argument that the Scope 3 provision constitutes an expansive regulatory scheme lacking congressional authorization would arguably be stronger than the argument that the overall proposed rule constitutes such a scheme.

The SEC has several likely counterarguments to these challenges. First, the SEC might argue that Section 7A of the Securities Act of 1933 grants it the power to amend the requirements of a registration statement to contain any "such other information . . . as the Commission may by rules or regulations requires as being necessary or appropriate in the public interest or for the protection of investors."[185] This provision grants the SEC broad powers to expand the requirements of a registration statement, and is the basis of much of the present-day requirements in registration statements as compared to what was required when the Securities Act was originally passed. The SEC points to this provision as a justification for the rule in the introduction section to the proposal.[186]

Second, the SEC has regulated environmental disclosures through Form S-K for decades wherever a company had to expend money to comply with already existing environmental laws.[187] For example, if existing statutory environmental regulations would force a company to spend money cleaning up a hazardous waste disposal site, they

170. Ramgopal Venkataraman et al., *Litigation Risk, Audit Quality, and Audit Fees: Evidence From Initial Public Offerings*, 83 Acct. Rev. 1315 (2008); Ho Young Lee & Vivek Mande, *The Effect of the Private Securities Litigation Reform Act of 1995 on Accounting Discretion of Client Managers of Big 6 and Non-Big 6 Auditors*, 22 Auditing: J. Prac. & Theory 93 (2003).
171. *See* Brant Christensen et al., *Do Auditors' Incentives Affect Materiality Assessments of Prior-Period Misstatements?*, 101 Acct., Org. & Soc'y 101332 (2022).
172. *Id.* (emphasis added).
173. The Enhancement and Standardization, 87 Fed. Reg. at 21390 (2022).
174. *Id.* at 21346.
175. *Id.* at 21391 (discussing a phase-in for Scope 3 and accommodations for information that will be difficult to gather or calculate).
176. Util. Air Regul. Grp. v. Env't Prot. Agency, 573 U.S. 302, 324 (2014).
177. *See generally* Bowers, *supra* note 116.
178. *See* Morrisey et al., *supra* note 126, at 18.
179. *Id.*
180. *Id.* at 18–19.
181. *Id.* at 19.
182. *Id.* at 20.
183. *Id.*
184. The Enhancement and Standardization, 87 Fed. Reg. at 21337 (2022).
185. Securities Act § 7(A)(1), as amended, 15 U.S.C. § 77g.
186. The Enhancement and Standardization, 87 Fed. Reg. at 21335 (to be codified at 17 C.F.R. pts. 210, 229, 232, 239, 249).
187. *Illustrative SEC Comments to Registrants Regarding Environmental Matters*, Attachment I, *in* Committee on Environmental Controls, *Disclosure of Environmental Issues in SEC Filings*, A.B.A. Sec. Bus. L. (Spring 1995).

would have to disclose the cost of the cleanup, any penalties they paid under the law, the cost of limiting the output of hazardous waste in the future, and provide an explanation for why the company is now in compliance with the statute.[188] Moreover, the SEC could argue it released guidance clarifying how the Commission's existing securities rules applied to disclosures of climate change risk as early as 2010.[189] Nevertheless, the loose nature of the "transformative expansion" standard leaves the SEC's proposal vulnerable to a major questions challenge simply because it might have wide-ranging regulatory effects, even if those effects otherwise fall within the bounds of an agency's authority.[190] While the SEC's proposal might be a "transformative expansion" of the executive branch's regulatory power, the nature of that transformation might be constrained by revising the boundaries of the Scope 3 emissions rule. It is thus beneficial to examine how to effectively redraft the Scope 3 provision, keeping the possibility of a major questions challenge in mind.

IV. A Framework for Redrafting the Scope 3 Provision

A. A Proposal for Redrafting the Scope 3 Disclosure Rules

As discussed above, the SEC's proposed rule for Scope 3 emissions presents a series of issues with respect to gathering, calculating, and reporting emissions data, leaving the ultimate Scope 3 standard ambiguous and unresolved.[191] Even if the final rule is implemented, there will likely be inaccuracies with the final reported Scope 3 emissions data because the rule is unlikely to lead to a significant increase in securities class action lawsuits, which in turn means that disclosers will have little to no incentive to ensure that their reported data are accurate.[192] Nonetheless, even if both these problems are resolved, the rule is in danger of being challenged and invalidated based on the major questions doctrine.[193] The puzzle is thus how to incentivize the most accurate disclosures without threatening the entire piece of regulation at litigation. Considering these problems, it is necessary to consider how to redraft the SEC's proposed standard for Scope 3 emissions.

In summary, this proposal seeks to resolve this tension by simultaneously accomplishing three things. First, it eliminates the materiality standard for Scope 3 emissions disclosures and makes Scope 3 disclosures mandatory. Second, it expands the reach of the safe harbor provision from a limited one extending only to "statements made or affirmed without a reasonable basis" to a broader one extending to all registration information with "meaningful cautionary statements." This effectively shifts the proposed safe harbor from one that provides an affirmative defense to actions under SEC Rule 10b-5,[194] which requires proving a culpable state of mind and detrimental reliance on the misrepresentation,[195] to an "ironclad" defense against securities fraud actions.[196] Third, it extends a private right-of-action for securities fraud wherever such meaningful cautionary statements are not employed. In accordance with the general provisions of Section 11 of the Securities Act, this private right-of-action does not require any proof of reliance on the misrepresentation or demonstration of fraudulent intent.[197]

The current proposed rule requires disclosure of Scope 3 emissions data "if material, or if the registrant has set a GHG emissions reduction target or goal that includes its Scope 3 emissions."[198] The proposed rule includes a safe harbor holding that misstatements of Scope 3 emissions data "would be deemed not to be a fraudulent statement unless it is shown that such statement was made or affirmed without a reasonable basis or was disclosed in other than good faith."[199] This Note proposes that the most effective way to redraft the Scope 3 emissions proposal is to change the Scope 3 disclosure rule to state: "A registrant is required to provide an estimate of Scope 3 GHG emissions metrics, both by disaggregated constituent greenhouse gases and in the aggregate, and in absolute and intensity terms." This is almost identical to the proposed rule's language for Scope 1 and 2 emissions, with the only major difference being that this proposal adds the word "estimate" that does not appear in the Scope 1 and 2 GHG standards.[200]

To give meaning to the word "estimate," this Note proposes a safe harbor provision reading:

> In any private action arising under this subchapter that is based on an untrue statement of fact or omission of a fact necessary to make the statement not misleading, a person referred to in this subsection shall not be liable with respect to any forward-looking statement, whether written or oral, if and to the extent that the forward-looking statement is identified as a forward-looking statement, and is accompanied by meaningful cautionary statements identifying important factors that could cause actual results to differ from those in the forward-looking statement.

188. *Id.*
189. *See* U.S. Sec. & Exch. Comm'n, 17 C.F.R. § 211, 231, & 241, Commission Guidance Regarding Disclosures Related to Climate Change (Feb. 8, 2010), https://www.sec.gov/rules/interp/2010/33-9106.pdf [https://perma.cc/RC9U-GN2V].
190. West Virginia v. Env't Prot. Agency, 142 S. Ct. 2587 at 2608, 2609 (2022): [In certain] extraordinary cases involving grants of regulatory authority, in which the history and the breadth of the authority that the agency has asserted and the economic and political significance of that assertion provide a reason to hesitate before concluding that Congress meant to confer such an authority . . . make [the Supreme Court] reluctant to read into ambiguous statutory text the delegation claimed to be lurking there.
191. *See supra* Part III(B).
192. *See supra* Part III(C).
193. *See supra* Part III(D).
194. Coffee, *supra* note 97.
195. Matrixx Initiatives, Inc. v. Siracusano, 563 U.S. 27, 37–38 (2011) (quoting Stoneridge Investment Partners, LLC v. Scientific-Atlanta, Inc., 552 U.S. 148, 157 (2008)).
196. *Id.*
197. Soderquist & Gabaldon, *supra* note 102, at 122.
198. The Enhancement and Standardization, 87 Fed. Reg. at 21345.
199. *Id.* at 21390–91.
200. *Id.* at 21345.

This language is almost identical to the general safe harbor provision for forward-looking statements codified by Section 27(A) of the Securities Act and Section 21(E) of the Securities Exchange Act.[201] Finally, wherever meaningful cautionary statements are not deployed, the rule should be redrafted to read:

> Wherever a registration statement contained an untrue statement of fact or omitted to state a fact required to be stated therein or necessary to make the statements therein not misleading, any person acquiring such security (unless it is proved that at the time of such acquisition he knew of such untruth or omission) may, either in law or in equity, sue:
>
> 1. Every person who signed the registration statement;
>
> 2. Every person who was a director of or partner in the issuer at the time of the filing of the part of the registration statement with respect to which his liability is asserted;
>
> 3. Every person who with his consent is named in the registration statement as being or about to become a director, person performing similar functions, or partner;
>
> 4. Every underwriter with respect to such security.

This language is almost identical to the private cause of action for securities fraud provided by Section 11 of the Securities Act of 1933.[202]

The intended overall effect of these changes is to maximize the amount of Scope 3 emissions data that are released by requiring disclosure, and incentivizing compliance with this requirement by exposing false, erroneous, and misleading disclosures to a high risk of litigation. At the same time, the expanded safe harbor provision provides a registrant with a means of evading securities fraud litigation wherever they can identify and qualify gaps, errors, or estimations in their disclosures. The intended principle is to recognize the ambiguities and logistical difficulties of calculating and gathering Scope 3 emissions data by allowing firms to make reasonable estimations, but to balance this permissiveness with a higher litigation risk wherever these estimations are not reported or qualified properly. In doing so, this proposal aims to raise the incentive to report Scope 3 emissions while avoiding a "major questions" doctrine challenge at the Supreme Court.

B. Advantages of Redrafting the Scope 3 Disclosure

This proposal has several advantages. First, it mitigates the difficulty of gathering and calculating Scope 3 emissions information by allowing firms to make reasonable estimates wherever they may run into difficulties in forming their data. For example, if a registered firm discovers that a small third-party supplier it contracts with does not calculate its own emissions data, it may be left to try and guess that supplier's emissions based on partial or incomplete information. Under the proposed standard, the registered firm first must decide for itself if this data is material enough to be worth reporting, then accurately calculate the third-party's emissions data with no quantitative or qualitative guidelines based on incomplete information. The final reported information may then be inaccurate, and it may be unclear whether that inaccuracy is indicative of fraud or simply a good-faith mistake. Under this proposal, the registered firm knows it must report the third-party's emissions data, which ensures that reported emissions data between different firms in similar situations are significantly more consistent. The registered firm can publicly qualify what data it reports by pointing to the gaps in the available information and wherever it is making assumptions, making the data more transparent and accurate. Finally, if data do not appear in the registration statement, or the reported data contain errors, it is significantly easier to determine if this was fraud or merely a good-faith mistake.

Second, while the proposal makes it easier to avoid liability if such meaningful cautionary statements are employed, it simultaneously makes it more likely that a penalty will be imposed if they are not. If a disclosure of a third-party's emissions data appears to contain an inaccuracy and it does not contain a meaningful cautionary statement warning of why that data are potentially inaccurate, a plaintiff can simply presume the disclosure is fraudulent and initiate litigation. Instead of a securities fraud action under Rule 10b-5, which forces the plaintiff to go through the difficulty of proving a culpable state of mind indicating fraudulent intent and detrimental reliance on the misrepresentation,[203] the plaintiff only needs to demonstrate the misleading statement and the lack of qualification.[204] The defendant registered entity, in turn, must prove that they had no reasonable ground to believe that the statement contained a misstatement or omission,[205] and will be held strictly liable if they cannot.[206] This accords with empirical research suggesting Section 11 actions are an increasingly common type of securities litigation,[207] which in turn successfully implements the risk of litigation necessary to ensure that disclosures are maximally accurate.[208]

Third, to the extent that a major questions issue can be preempted, this proposal would likely undercut an argument that the SEC has engaged in an impermissibly "transformative expansion"[209] of its own regulatory author-

201. Securities Act § 27A(c)(1)(A) and Securities Exchange Act § 21E(c)(1)(A), as amended, 15 U.S.C. § 77z-2(c)(1)(A).
202. 17 U.S.C. § 77k.
203. Coffee, *supra* note 97.
204. 17 U.S.C. § 77k.
205. Soderquist & Gabaldon, *supra* note 102.
206. *Id.*
207. Bulan et al., *supra* note 100; *see also* Laurie Smilan & Nicki Locker, *Courts Cut Shareholders Slack on Section 11 Claims*, HLS Forum Corp. Governance (May 17, 2022), https://corpgov.law.harvard.edu/2020/05/17/courts-cut-shareholders-slack-on-section-11-claims/ [https://perma.cc/FHV9-LPMZ].
208. Morrisey et al., *supra* note 126, at 20–21.
209. Util. Air Regul. Grp. v. Env't Prot. Agency, 573 U.S. 302, 324 (2014).

ity. Among the stated reasons for challenging the SEC's proposal as currently written includes "the scale of the burdens the proposal would set,"[210] including the burden imposed by asking companies to gather information from their value chain and calculate emissions disclosures.[211] While the information would still have to be gathered and calculated, companies would no longer be expected to make threshold determinations of whether or not certain information is material or be forced to gather additional information third parties do not have access to themselves. Furthermore, a company that complies with the regulation by "showing its work" could more easily defend itself against claims of fraud. This undercuts several arguments made by the Republican attorneys general about implementation challenges raised by the proposal, such as that private companies will be unable to make such calculations[212] or that the "regulatory scheme" imposes a financial burden.[213] In addition, it would likely eliminate the argument that the SEC has failed to consider its own statutory mandate to simplify disclosures.[214] This in turn helps generally to diffuse claims that the SEC has expanded its own regulatory powers.[215]

Furthermore, the Supreme Court's opinion in *National Federation of Independent Businesses v. OSHA* reversed OSHA's vaccine mandate for employers on the claim that it improperly sought to resolve a "question of vast national significance."[216] The letter outlining a proposed challenge to the rule claims that the SEC similarly engages in a question of vast national significance in its attempt to regulate climate change.[217] Redrafting the Scope 3 rule would help mitigate this by shifting the purpose of the proposed rule to accurate disclosure instead of generally accounting for climate change risk. The SEC would have an avenue to argue that instead of burdening individual businesses with a unique and generalized obligation to calculate greenhouse gas emissions, it is instead simply creating a thoroughness standard for disclosures with meaningful cautionary statements, similar to other types of disclosures that fall under its purview.

C. *Summary of and Response to Potential Objections With Redrafted Scope 3 Proposal*

There are two likely objections to this proposal. The first objection is that it does not mitigate issues calculating or gathering Scope 3 emissions data. This objection would hold that the logistical issues with gathering information from third parties, some of whom may not keep accurate records, are not addressed by this proposal. The second objection is that this plan will not actually ensure that accurate emissions information is disclosed, but rather that registered companies will simply find it easier to evade liability by doing the bare minimum to gather emissions information and qualifying that information with cautionary statements. Both hypothetical objections misconstrue the benefits of this proposal.

In response to the first objection, it must be conceded that this proposal cannot solve the logistical difficulties of gathering some Scope 3 emissions data or remedy current gaps in emissions records. However, no legal proposal can go back in time and make the affected actors retroactively compliant, nor can it solve the logistical difficulties of having information scattered among diffuse actors in a complex economy. The SEC's stated purpose for creating this rule is precisely to rectify the current situation, where such information is necessary to protect investors but not yet reliably available.[218] Furthermore, because many firms have voluntarily begun such disclosures anyway,[219] formalizing them into an agency rule would provide consistency to a norm that already exists in practice. The SEC Chair emphasized both these points when the proposal was unveiled, commenting the commission's rule intends to provide "consistent, comparable, and decision-useful information" to present and future decisionmaking based on investor norms that are already affecting the market.[220]

Next, this proposal ensures that emissions data are accurate in two ways. First, the requirement that any incomplete or potentially inaccurate information must be qualified to avoid being labeled as fraudulent ensures that even if the information disclosed is incomplete, it is clearly labeled as such, promoting greater transparency even when there are gaps in what information is reported. Under the proposed standard, emissions data are only subject to disclosure "if material," providing a built-in defense for incomplete disclosures.[221] This Note's proposal, in contrast, provides fewer means by which a company can potentially obfuscate or hide incomplete information, and increases the risk of liability for doing so.

Second, the goal of standardizing these disclosures is not merely consistency for consistency's sake, but to aid investors in making decisions about how to invest their own money. If the proposal succeeds in incentivizing firms disclose more emissions information, then a firm that chooses to disclose less information may be seen as less trustworthy and be viewed with skepticism by investors. A recent survey found 49% of investors were willing to divest from companies that were not taking sufficient action on ESG issues, and 79% said the way a company manages ESG risk was an important factor in their investment decisionmaking.[222] If that is true under the current voluntary paradigm for

210. *See* Morrisey et al., *supra* note 126, at 20.
211. *See id.* at 31.
212. *See id.* at 40 ("Public companies do not have subpoena powers.").
213. *See id.* at 20.
214. *Id.* at 40.
215. *See id.* at 19.
216. Nat'l Fed'n of Indep. Bus. v. Dep't of Labor, 595 U.S. 109, 122 (2022) (Gorsuch, J., concurring).
217. *See* Morrisey et al., *supra* note 126, at 19.
218. The Enhancement and Standardization, 87 Fed. Reg. at 21335 (2022).
219. Verney, *supra* note 129.
220. Press Release, *supra* note 10.
221. 87 Fed. Reg. at 21345 (2022).
222. Ronaldas Kubilius & Rasa Vaitkė, *Companies Failing to Act on ESG Issues Risk Losing Investors, Finds PwC Survey*, PwC, https://www.pwc.com/lt/en/about/press-room/pwc-global-investor-esg-survey.html [https://perma.cc/WK4V-ESKD].

ESG, there is reason to suspect such considerations would only become more salient if firms were seen as careless with legally mandated securities filings.

D. Other Potential Means of Redrafting the Scope 3 Rule

One possibility for redrafting the Scope 3 rule that is not included in this Note's framework is to require a quantitative threshold for Scope 3 emissions data or provide clearer guidelines for how such data can be calculated. This solution might ameliorate the fears of businesses[223] who believe they will not be able to report the emissions data of other business in their supply chains, and it might also solve some of the calculation problems. However, this solution is not included because a quantitative threshold would primarily be a threshold for materiality, and this proposed solution excises the proposed rule's materiality requirement for Scope 3 emissions. If the SEC's proposed rule was redrafted with respect to its safe harbor provision and cause of action, but Scope 3 disclosures were not made mandatory, a quantitative materiality threshold might be considered to solve the reporting issues otherwise solved by making Scope 3 disclosures mandatory.

V. Conclusion

The SEC has made a valuable step toward standardizing disclosure of greenhouse gas emissions information. The Scope 3 problem is sufficiently complex that the SEC's attempt to solve it through a material standard ultimately falls short of ensuring reliable reporting of greenhouse gas emissions. The Note submits that simultaneously expanding the safe harbor provision for forward-looking statements while making Scope 3 disclosure's mandatory will provide a framework to ensure a finalized version of the rule can simultaneously ensure accurate reports of greenhouse gas emissions information, regulatory guidance, and assistance with the net-zero transition.

223. *See supra* notes 142–45.

TILLING THE SOIL, PRESERVING THE BAY: ADDRESSING NONPOINT SOURCE POLLUTION IN PENNSYLVANIA WHILE RESPECTING AMISH RELIGIOUS BELIEFS

David McCullough*

ABSTRACT

Pollution is threatening the health and safety of the Chesapeake Bay watershed's ecosystem. Fertilizer and manure that run off farms into the Bay's tributaries are major contributors to this pollution. To combat this, EPA established strict limits on the amount of pollution that each jurisdiction within the watershed must meet by 2025. Most jurisdictions are not on track to meet these limits, and Pennsylvania is particularly far behind. One reason for Pennsylvania's lagging cleanup efforts stems from the state's large Old Order Anabaptist population, and those communities' religious and cultural objections to many modern farming best practices. Pennsylvania cannot mandate that Old Order Anabaptist farmers adopt modern technology without potentially infringing on their religious freedom. Voluntary programs where Pennsylvania established funds to subsidize farmers' efforts to mitigate pollution from their farms have also not been widely adopted by Anabaptist farmers, largely due to a cultural aversion to accepting government funding.

To have even a remote chance at meeting their 2025 goals, Pennsylvania should mandate that farms bordering rivers and streams must create forested buffer zones between the water and the farmland. These riparian forest buffers do not face the same religious liberty concerns that other best practices would, because forested zones can be created without using any religiously prohibited technology. Furthermore, land use regulation in the form of a riparian forest buffer mandate is not a regulatory taking because the mandate does not eliminate all economic use of the land, and because the mandate would be preventing the public nuisance caused by pollution. Because a riparian buffer mandate is neither a taking nor an infringement on religious liberty, Pennsylvania can implement the mandate to help clean the Bay while respecting people's constitutional rights.

I. Introduction

Between 2021 and 2022, the population of adult female blue crabs in the Chesapeake Bay declined by 30%.[1] This precipitous drop, which brought the crab population down to a 33-year low, corresponded with a massive increase in the cost of crabs per bushel.[2] In an attempt to mitigate the problem, Maryland was forced to implement new restrictions limiting the amount of crabs that watermen[3] are allowed to catch.[4] Beyond the implications of this for your dinner table, these crabs and other aquatic life are vital links in the local food chain and a necessary part of the

* *The author would like to thank his family for their unwavering support throughout law school and the Note-writing process. Special thanks to Andrew Satten for his invaluable advice as journal adjunct and to Marco Guzman for his mentorship and suggestions. Thank you to Jon Mueller at the Chesapeake Bay Foundation for his valued feedback. Lastly, Denis A. Gray, for the inspiring conversation that sparked the curiosity that led to this Note. Thank you all for your contributions and support.*

1. U.S. Env't Prot. Agency, Bay Barometer: An Annual Report on the State of the Program and the Health of the Chesapeake Bay (2022).

2. Sue Gleiter, *Blue Crab Prices Hover Around $400 a Bushel as Crab Population Hits 33-Year Low*, Penn Live (May 27, 2022), https://www.pennlive.com/life/2022/05/blue-crab-prices-hover-around-400-a-bushel-as-crab-population-hits-33-year-low.html [https://perma.cc/ES8K-57V4].

3. As used here, "watermen" refers to a regional term of independent fishers who fish from the Chesapeake Bay. *See* Maryland Sea Grant, *Watermen*, Univ. Md. Ctr. Env't Sci., https://www.mdsg.umd.edu/topics/watermen/watermen [https://perma.cc/RG89-248X].

4. Scott Dance, *Maryland to Restrict Crabbing in Response to "Worrisome" Population Decline*, Phys Org (Jan. 29, 2023), https://phys.org/news/2022-06-maryland-restrict-crabbing-response-worrisome.html [https://perma.cc/FW2Q-G9PB].

ecosystem.[5] Unfortunately, Maryland's new restrictions will only serve as a bandage for the problem because overfishing is not the reason for the decline.[6]

About 50 miles upriver from the Bay in Lancaster, Pennsylvania, a tight-knit community of Anabaptist farmers tend to their idyllic fields in the same way that their ancestors have for hundreds of years.[7] These Old Order Anabaptists, which includes the Amish, eschew many of the conveniences that contemporary American society enjoys.[8] Their religious mandate against partaking in modernity also extends to their farming practices. Many do not take advantage of technological advances such as utilizing modern manure storage methods that reduce runoff.[9] Without these best practices, manure from Old Order Anabaptist farms runs into nearby rivers and streams.[10] When the polluted water eventually flows into the Chesapeake Bay, the changes in water chemistry contribute significantly to the destruction of the Bay's ecosystem.[11] A seemingly simple solution would be for Pennsylvania to implement rules requiring the use of modern technology to reduce pollution. However, it is not so simple to implement this policy without potentially infringing on the religious liberty of Old Order Anabaptists.[12]

In the interest of preserving the health and economic viability of its waterways, and to meet Chesapeake watershed cleanup goals while respecting the religious practices of the local Anabaptist population, the Pennsylvania Legislature should pass a law mandating that all farms that abut a stream or riverway create forest buffer zones between the water and the farmland. Forested buffer zone, or riparian buffer, refers to land next to a waterway that is filled with trees and other plants to separate the waterway from the land that is being used.[13] Riparian buffers do not require the use of modern technology to create, so such a mandate would not be subject to the same strict scrutiny that may arise if Old Order Anabaptists were mandated to adopt other best management practices ("BMPs").[14]

Part II of this Note discusses the nature of nonpoint source pollution in the Chesapeake Bay as well as its effects on the local ecosystem. Additionally, Part II highlights why Pennsylvania is a particularly large contributor to the pollution and discusses current cleanup efforts and shortcomings in meeting its cleanup goals. Part III gives an overview of Old Order Anabaptists and discusses the intersection of Anabaptist religious and cultural beliefs with both modern technology and their views on government programs. Part IV provides an overview of the law with respect to three major categories: the Clean Water Act ("CWA") and the U.S. Environmental Protection Agency's ("EPA's") authority to regulate states; legislation related to the Free Exercise of Religion; and finally, land use and regulatory takings. Part V argues that Pennsylvania's efforts to clean its waterways have not been sufficient, particularly concerning Anabaptist communities and their reluctance to take advantage of Pennsylvania's subsidy programs. Part VI argues that a riparian buffer mandate would not infringe upon the religious practices of Old Order Anabaptists while still helping to clean Pennsylvania's waterways. Part VII analyzes the riparian buffer mandate under the lens of regulatory takings and argues that the mandate does not rise to the level of a regulatory taking. Finally, Part VIII covers potential criticisms or hurdles that a buffer mandate may face and discusses potential solutions to those criticisms.

II. The Chesapeake Bay

The Chesapeake Bay is an estuary located on the East Coast of the United States.[15] It is the largest estuary in the country, with a watershed that spans across six states and the District of Columbia.[16] The coast of the Bay and its tributaries spans 11,684 miles.[17] The Bay is home to about 3,600 species of plants and animals, including hundreds of species of fish and thousands of species of plants.[18] The combination of fresh and salt water in the Bay helps to promote this diversity.[19] The Bay is crucial to the regional economy, with fishers extracting 500 million pounds of seafood per year.[20] Archeological studies have found that humans have populated the Bay area for over 15,000 years.[21] Today, more than 17 million people rely on the

5. *Blue Crabs*, Chesapeake Bay Program, https://www.chesapeakebay.net/issues/whats-at-risk/blue-crabs [https://perma.cc/8XQX-2JF5?type=image].
6. U.S. Env't Prot. Agency, *supra* note 1.
7. Amish and Mennonite settlers first arrived in Pennsylvania in the early 18th century. *Amish History and Beliefs*, Discover Lancaster, https://www.discoverlancaster.com/amish/history-beliefs/ [https://perma.cc/DRN2-3MXB].
8. Old Order Anabaptists often refer to outsiders as "English" because for many, their native language is a German dialect. The Amish primarily learn English to communicate with outsiders. C.D. Zook, *What Languages Do the Amish Speak?*, Gents of Lancaster (Jan. 27, 2001), https://gentsoflancaster.com/2021/01/27/what-languages-do-the-amish-speak/ [https://perma.cc/8XUG-EJ8M].
9. Agric. Rsch. Serv., ARS-163, Best Management Practices to Minimize Agricultural Phosphorus Impacts on Water Quality (2006); Jessica D. Ulrich-Schad et al., *A Comparison of Awareness, Attitudes, and Usage of Water Quality Conservation Practices Between Amish and Non-Amish Farmers*, 30 Soc'y & Nat. Res. 1476 (2017).
10. Rona Kobell, *The Amish: Makers of Jam, Fine Cabinetry, and Polluted Rivers*, Grist (Nov. 20, 2022), https://grist.org/food/the-amish-makers-of-jam-fine-cabinetry-and-polluted-rivers/ [https://perma.cc/XY4T-62N4].
11. *Animal Manure: A Concern for Pennsylvania Waters and the Chesapeake Bay*, Chesapeake Bay Found., https://www.cbf.org/document-library/cbf-guides-fact-sheets/Manure-Impacts-on-Chesapeake-Bay-Jan-20153981.pdf [https://perma.cc/3ST7-F8XM].
12. *See* U.S. Const. amend. I. The U.S. Supreme Court has previously held that Fillmore County, Minnesota, could not enforce an ordinance requiring modern septic systems on Amish communities because it would infringe on their religious liberty. Mast v. Fillmore Cnty., 141 S. Ct. 2430, 2432 (2021).
13. *Riparian Forest Buffers*, U.S. Dep't Agric., https://www.fs.usda.gov/nac/practices/riparian-forest-buffers.php [https://perma.cc/8HYZ-QL6A].
14. Fulton v. City of Philadelphia, 141 S. Ct. 1868 (2021).
15. *Chesapeake Bay*, Encyc. Britannica, https://www.britannica.com/place/Chesapeake-Bay [https://perma.cc/LV8W-TFNT].
16. *Maryland at a Glance: Chesapeake Bay*, Md. Manual On-Line, https://msa.maryland.gov/msa/mdmanual/01glance/html/ches.html [https://perma.cc/3CJK-PWUD].
17. *The Chesapeake Bay and Its Watershed*, Chesapeake Bay Comm'n (June 6, 2020), https://www.chesbay.us/library/public/documents/Fact-Sheets/Bay-Factoids-FINAL.pdf [https://perma.cc/NM55-J5E9].
18. *Id.*
19. *The Estuary*, Chesapeake Bay Comm'n (Oct. 4, 2023), https://www.chesapeakebay.net/discover/ecosystem/the-estuary.
20. *Chesapeake Bay*, NOAA Fisheries, https://www.fisheries.noaa.gov/topic/chesapeake-bay [https://perma.cc/836Y-4FXE].
21. *Deep History & Archeological Periods*, Nat'l Park Serv. (Feb. 14, 2022), https://www.nps.gov/articles/000/deep-history.htm [https://perma.cc/5VPC-5KJL].

watershed for recreation, their livelihood, and even drinking water.[22] Additionally, some of the largest ports on the East Coast are located within the Bay's waters.[23]

A. *Pollution and Its Consequences*

This critical source of life for humans and other species is now under threat by pollution. A leading cause of this pollution is the introduction of fertilizer and manure into the water, which releases excess nitrogen and phosphorus.[24] While those minerals are also present in healthy waters, excess amounts of nitrogen and phosphorous create serious problems. Algae feed on these minerals and when there is too much in the water, the algae population can rapidly expand.[25]

Algae that reproduces too quickly can become an "algal bloom," a phenomenon where the algae is so numerous that they create visible discoloration in the water.[26] Animals that typically eat the algae cannot keep up with the algae's rate of reproduction, which means that dead algae remains in the water instead of being consumed.[27] As the algae decays, it removes oxygen from the water around it and creates "Dead Zones."[28] Dead Zones are areas in the water where oxygen levels are so low that wildlife either suffocates or leaves.[29] This is particularly dangerous for sessile benthic organisms that are not able to move to less hypoxic water.[30] Because these blooms often float near the surface of the water, they also prevent aquatic plants from receiving sunlight.[31] Without adequate sunlight, these plants die and can disrupt the local ecosystem.[32] In the Chesapeake Bay, this phenomenon has resulted in an alarming loss of aquatic life.[33]

Many tributaries to the Chesapeake Bay watershed also exceed acceptable amounts of E. Coli in the water.[34] Waterways with high levels of E. Coli increase the risk of causing illness in people who swim in or otherwise interact with the water.[35] This risk of illness extends not only to humans, but also other animals.[36] Some of the E. Coli in the Bay is anti-microbial-resistant, increasing the potential risks associated with exposure.[37]

E. Coli contamination is often caused by nonpoint source pollution, which is also a major contributor to both excess nitrogen and phosphorus in the Bay.[38] Nonpoint source pollution refers to pollution that comes from many different sources as opposed to one single polluter.[39] Fertilizer and manure runoff from farms along the watershed is a particularly large portion of nonpoint source pollution.[40] When the soil is disturbed through farming practices, it becomes more prone to washing into the watershed during rainfall.[41] In 2000, states across the country reported that nonpoint source pollution from agriculture was the largest nonpoint source of waterway pollution.[42] In 2016, 42% of the nitrogen pollution and 58% of the phosphorous pollution in the Chesapeake Bay was attributed to agricultural runoff.[43] Similar percentages have been found when the water was tested in other years.[44]

22. *Chesapeake Bay*, Nat'l Wildlife Fed'n, https://www.nwf.org/Educational-Resources/Wildlife-Guide/Wild-Places/Chesapeake-Bay [https://perma.cc/5YEZ-9SZF].
23. *Id.*
24. *Urban Fertilizers & the Chesapeake Bay: An Opportunity for Major Pollution Reduction*, Env't Md. Rsch. & Pol'y Ctr. (Jan. 7, 2012), https://environmentamerica.org/maryland/center/resources/urban-fertilizers-the-chesapeake-bay/ [https://perma.cc/4CKK-GYPV].
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27. Alicia Pimental, *How Algae Blooms Impact the Bay*, Chesapeake Bay Program (Sept. 1, 2007), https://www.chesapeakebay.net/news/blog/the-abcs-of-habs-how-harmful-algal-blooms-impact-the-bay [https://perma.cc/7824-WQWE].
28. Beth Miller, *New Study Shows How Changing Climate Fuels Harmful Algae Blooms*, UDaily (Oct. 27, 2021), https://www.udel.edu/udaily/2021/october/algae-blooms-coyne-climate-change/ [https://perma.cc/95E4-GW8D].
29. *Id.* When dissolved oxygen levels in water are lower than they should be, the phenomenon is known as hypoxia. *Hypoxia*, Nat'l Oceanic and Atmospheric Admin. (Aug. 3, 2022), https://oceanservice.noaa.gov/hazards/hypoxia/ [https://perma.cc/9LYV-4XLS].
30. Sessile benthic organisms are organisms, such as oysters, that attach to objects and are not able to propel themselves through water. *Life at the Bottom*, Chesapeake Bay Program, https://www.chesapeakebay.net/discover/ecosystem/life-at-the-bottom [https://perma.cc/N3XM-XNVN]; Hilary Costa et al., *Dead Zone*, Nat'l Geographic (Sept. 19, 2022), [https://perma.cc/J7YM-9SZG].
31. *Understanding Algal Blooms*, St. Johns River Water Mgmt. Dist., https://www.sjrwmd.com/education/algae/#what-is-an-algal-bloom [https://perma.cc/CNQ7-8PK5].
32. *Id.*
33. Timothy B. Wheeler, *Fish Kills Grow in Algae-Tainted Waters*, Balt. Sun (May 23, 2012), https://www.baltimoresun.com/news/environment/bs-gr-algae-fish-kill-20120523-story.html [https://perma.cc/9DN2-V87Z]; *see also* U.S. Env't Prot. Agency, *supra* note 1.
34. Env't Integrity Project, Water Pollution From Livestock in the Shenandoah Valley 4 (2017).
35. *Bacteria and Our Beaches*, Clean Lakes Alliance, https://www.cleanlakesalliance.org/e-coli/ [https://perma.cc/62K2-369E].
36. Lorie Huston, *E. Coli (Escherichia Coli) in Dogs: Infection and Prevention*, The Spruce Pets (May 9, 2022), https://www.thesprucepets.com/about-e-coli-in-pets-3385714 [https://perma.cc/84U7-TCPF].
37. *Bacterial and Pharmaceutical Pollution From Agricultural Lands in the Chesapeake Bay*, Nat'l Ctrs. Coastal Ocean Sci. (2012), https://coastalscience.noaa.gov/project/bacterial-pharmaceutical-pollution-agricultural-lands-chesapeake-bay/ [https://perma.cc/UJ8A-9F9H].
38. Heather K. Amato et al., *Effects of Concentrated Poultry Operations and Cropland Manure Application on Antibiotic Resistant Escherichia Coli and Nutrient Pollution in Chesapeake Bay Watersheds*, 735 Sci. Total Env't 1, 3-4 (Sept. 15, 2020).
39. *Basic Information About Nonpoint Source (NPS) Pollution*, U.S. Env't Prot. Agency (Dec. 22, 2022), https://www.epa.gov/nps/basic-information-about-nonpoint-source-nps-pollution [https://perma.cc/J77T-MK69].
40. Robert D. Sabo et al., *Major Point and Nonpoint Sources of Nutrient Pollution to Surface Water Have Declined Throughout the Chesapeake Bay Watershed*, 4 Env't Rsch. Commc'ns 1, 5 (2022).
41. Earth Observatory, *How Farms Affect the Chesapeake Bay's Water*, Nat'l Aeronautics & Space Admin. (Aug. 20, 2016), https://earthobservatory.nasa.gov/images/88523/how-farms-affect-the-chesapeake-bays-water [https://perma.cc/75B8-6K5X].
42. *Protecting Water Quality From Agricultural Runoff*, U.S. Env't Prot. Agency (Mar. 2005), https://www.epa.gov/sites/default/files/2015-09/documents/ag_runoff_fact_sheet.pdf [https://perma.cc/8YNX-SQRM].
43. *How Farms Affect the Chesapeake Bay's Water*, NASA Earth Observatory (Aug. 20, 2016), https://earthobservatory.nasa.gov/images/88523/how-farms-affect-the-chesapeake-bays-water [https://perma.cc/YA3C-QEEN].
44. *Nitrogen & Phosphorus*, Chesapeake Bay Found., https://www.cbf.org/issues/agriculture/nitrogen-phosphorus.html [https://perma.cc/AT6V-J73Y]; *2025 Watershed Implementation Plans*, Chesapeake Progress, https://www.chesapeakeprogress.com/clean-water/watershed-implementation-plans [https://perma.cc/4AYT-P8PU].

B. The Pennsylvania Problem

While all jurisdictions within the Chesapeake Bay watershed contribute to pollution, the largest contributor of agricultural nonpoint source pollution is Pennsylvania.[45] This state alone is the source of 44% of the excess nitrogen in the Bay.[46] Pennsylvania's waters constitute 35% of the Chesapeake Bay watershed.[47] A 2022 report from the Pennsylvania Department of Environmental Protection ("DEP") indicated that 27,866 miles of Pennsylvania waterways exceed acceptable levels of pollution.[48] In total, the DEP found 33% of the state's rivers and streams were considered impaired"[49] under section 303(d) of the CWA.[50] The Susquehanna River is of particular concern because it is the Bay's largest tributary and supplies roughly half of the Bay's freshwater.[51] The Susquehanna River is in turn fed by the Conestoga River, which flows through Lancaster County, Pennsylvania.[52] This is significant because Lancaster County contributes to nonpoint source agricultural pollution more than any other county in the state.[53] In fact, Lancaster contains more miles of polluted streams and rivers than any other county.[54] The county is responsible for 21% of the state's total pollution.[55]

C. Current Cleanup Efforts and Their Success

The Chesapeake Bay Program is a partnership between EPA, six states in the Chesapeake Bay watershed, and the District of Columbia.[56] In 2010, EPA along with the rest of the Chesapeake Bay Program formed an agreement to create plans with the goal of cleaning up the Bay.[57] This agreement culminated in the Bay jurisdictions and EPA developing metrics for the maximum tolerable amount of pollutants in the water.[58] With EPA's approval, each state designed their own Watershed Improvement Plan ("WIP").[59] The WIPs were designed in three different phases with the ultimate hope of achieving water quality restoration goals by the year 2025.[60] The Chesapeake Bay Foundation estimated that the plan, if successfully implemented, would add $655 million to the region's economy annually.[61]

The Chesapeake Bay Program is responsible for verifying and identifying BMPs that farmers can use to minimize the amount of nutrient runoff from their farmland.[62] One BMP in particular, riparian buffers, involves using a strip of land between the farmland and the river to plant bushes, shrubs, or trees rather than using the land for additional agriculture.[63] The plants within the buffer zone help to reduce pollution in the water by absorbing nutrients and filtering sediment before it enters into the waterways.[64] Forested buffers, where the buffer includes trees rather than merely bushes and shrubs, also protect wildlife in the water by providing shade, which helps to keep the water at a more consistent temperature.[65] Additionally, the roots of the trees reinforce the banks of the waterways and reduce erosion.[66]

Unfortunately, as of 2022, the Chesapeake Bay Program was significantly behind its expected timeline.[67] The Chesapeake Bay Foundation found that none of the states are on track to meet all of their goals.[68] Agriculture remains one of the largest obstacles to success, with most of the remaining pollution still coming from nonpoint sources.[69] In October of 2022, leaders from the various states within the Chesa-

45. *2022 State of the Blueprint*, Chesapeake Bay Found. (Oct. 5, 2022), https://www.cbf.org/how-we-save-the-bay/chesapeake-clean-water-blueprint/state-of-the-blueprint/ [https://perma.cc/HKW3-684S].
46. Pa. Water Sci. Ctr., *Pennsylvania and the Chesapeake Bay Watershed*, U.S. Geological Surv. (Aug. 4, 2023), https://www.usgs.gov/centers/pennsylvania-water-science-center/science/pennsylvania-and-chesapeake-bay-watershed [https://perma.cc/H9HE-HZNF].
47. Pa. Dep't Env't Prot., Pennsylvania Phase 3 Chesapeake Bay Watershed Implementation Plan 18 (July 2022), https://files.dep.state.pa.us/Water/ChesapeakeBayOffice/WIPIII/FinalPlan/PA_Phase_3_WIP_Final.pdf [https://perma.cc/WM2K-JEVT].
48. Press Statement, Chesapeake Bay Found., CBF Calls for Greater Investments to Reduce Pollution as Number of Impaired Waters Increases (Jan. 18, 2022), https://www.cbf.org/news-media/newsroom/2022/pennsylvania/cbf-calls-for-greater-investments-to-reduce-pollution-as-number-of-impaired-waters-increases.html [https://perma.cc/Y3P4-9G77].
49. "Impaired" refers to waters that do not meet one or more water quality standards set up by Pennsylvania pursuant to section 303(d) of the CWA, *2022 Pennsylvania Integrated Water Quality Report*, Pa. Dep't Env't Prot. (2022), https://arcg.is/0SO9r0 [https://perma.cc/J748-VMZD]. For discussion on Water Quality Standards, see *infra* notes 103–05.
50. *See* Pa. Dep't Env't Prot., *supra* note 49; 33 U.S.C. § 1313 (1972).
51. *See* Pa. Water Sci. Ctr., *supra* note 46.
52. *Conestoga River Water Trail*, Susquehanna Riverlands, https://susquehannariverlands.com/the-great-outdoors/on-the-water/water-trails/conestoga-river-water-trail/ [https://perma.cc/LX9L-YC5D].
53. *Closing Pennsylvania's Pollution-Reduction Gap*, Chesapeake Bay Found. (2017), https://www.cbf.org/document-library/cbf-reports/closing-pennsylvanias-pollution-reduction-gap.pdf [https://perma.cc/V6AD-TFH2].
54. *The State of the Bay: How Is Lancaster Doing With Our Clean Water Goals?*, Hourglass (Mar. 1, 2022), https://hourglasslancaster.org/resources/blog/the-state-of-the-bay-how-is-lancaster-doing-with-our-clean-water-goals/ [https://perma.cc/6R2V-RGEW]; Pa. Dep't Env't Prot., *supra* note 49.
55. Hourglass, *supra* note 54.
56. The six states in the Chesapeake Bay Program are Pennsylvania, Maryland, Virginia, New York, Delaware, and West Virginia. *About the Chesapeake Bay Program Office*, U.S. Env't Prot. Agency (Nov. 22, 2022), https://www.epa.gov/aboutepa/about-chesapeake-bay-program-office [https://perma.cc/V9B8-27MR].
57. *What Is the Chesapeake Clean Water Blueprint?*, Chesapeake Bay Found. (Nov. 2, 2022), https://www.cbf.org/how-we-save-the-bay/chesapeake-clean-water-blueprint/what-is-the-chesapeake-clean-water-blueprint.html. [https://perma.cc/F6EC-WZAT].
58. *Id.*
59. *Chesapeake Bay Watershed Implementation Plans*, Env't Prot. Agency (Sept. 10, 2020), https://www.epa.gov/chesapeake-bay-tmdl/chesapeake-bay-watershed-implementation-plans-wips [https://perma.cc/5LST-792W].
60. *Id.*
61. *Agricultural Conservation Practices: Clean Water and Climate-Smart Investments*, Chesapeake Bay Found. (July 2022), https://www.cbf.org/document-library/cbf-reports/agricultural-conservation-practices-clean-water-and-climate-smart-investments.pdf [https://perma.cc/SVU3-E54S].
62. *BMP Verification*, Chesapeake Bay Program, https://www.chesapeakebay.net/what/programs/bmp-verification [https://perma.cc/E685-L64H].
63. U.S. Dep't Agric., *supra* note 13.
64. Nat'l Agroforestry Ctr., *What Is a Riparian Forest Buffer?*, U.S. Dep't Agric. (2012), https://www.fs.usda.gov/nac/assets/documents/workingtrees/infosheets/rb_info_050712v3.pdf [https://perma.cc/GTX7-CGDF].
65. *The Science Behind the Need for Riparian Buffer Protection*, WeConservePA, https://conservationtools.org/guides/131-the-science-behind-the-need-for-riparian-buffer-protection [https://perma.cc/S5UD-X6S3].
66. *Id.*
67. Meghan McIntyre, *States Not on Track to Meet 2025 Chesapeake Bay Goals, Report Says*, Md. Matters (Oct. 5, 2022), https://www.marylandmatters.org/2022/10/05/states-not-on-track-to-meet-2025-chesapeake-bay-goals-report-says/ [https://perma.cc/Y2H8-7YEF].
68. *2022 State of the Blueprint*, Chesapeake Bay Found. (Oct. 5, 2022), https://www.cbf.org/how-we-save-the-bay/chesapeake-clean-water-blueprint/state-of-the-blueprint/ [https://perma.cc/U8JM-A6TV].
69. *Id.*

peake watershed met in Washington, D.C., and recommitted themselves to cleaning the Bay, though they also admitted that the 2025 goals will probably not be met.[70] When it comes to remaining pollution reductions, roughly 90% of reductions need to come from agriculture.[71]

Pennsylvania is further away from reaching its cleanup goals than any other state participating in the program.[72] The vast majority of the remaining pollution that Pennsylvania needs to reduce is within its agricultural sector.[73] With respect to agriculture, the Pennsylvania government has primarily relied on voluntary programs wherein farmers who adopt BMPs receive some reimbursement.[74] Specifically, the state has implemented a program called the Resource Enhancement and Protection Program, which provides tax credits to farmers who implement approved BMPs.[75] Additionally, the state worked with the federal government to encourage farmers to participate in the completely voluntary Conservation Reserve Enhancement Program ("CREP").[76] Under CREP, farmers who agree to avoid development on land that is easily erodible receive a subsidy from the government on a per-acre basis.[77] More recently, Pennsylvania has created a cost-sharing program called the Agricultural Conservation Assistance Program, where money is allocated to county conservation districts who then use the funds to help farmers implement BMPs.[78]

Despite these voluntary programs, Pennsylvania is still further from reaching its' goals than any other state.[79] Pennsylvania has only planted 13% of its goal for riparian forest buffers, a practice designed to shield waterways from agricultural runoff.[80] This is about half as much progress as the average riparian buffer planting rate for Chesapeake Bay watershed jurisdictions.[81] In 2021, the state managed to plant 98.5 miles of buffers.[82] In order to reach the 2025 Chesapeake Bay Blueprint goals, Pennsylvania would need to plant 1,759 miles of buffer zones per year.[83]

III. The Old Order Anabaptists

Lancaster County is the county responsible for the most nonpoint source pollution. It is not only in that position because it is a largely agricultural county, but also because of the people who live there. Approximately 33,000 people who live in Lancaster County identify as Amish.[84] Amish, and Anabaptists more broadly, were formed as a radical reformation movement in the 16th century.[85] There are several distinct features that separate Anabaptists from other Christian groups.[86] Most notably, Anabaptist sects known as "Old Order" Anabaptists believe in "nonconformity" with the world.[87] As part of this nonconformity, these sects, which include many Amish, eschew modern technology.[88] Not all Anabaptists share the same beliefs about use of technology.[89] Even among the Old Order sects, there is a large amount of diversity with respect to what technology is allowed, though broadly speaking they reject modern conveniences like motorized vehicles such as cars and tractors.[90] In some cases, this includes rejecting modern methods of manure disposal.[91] The Lancaster Amish are an Old Order sect and there are many such restrictions on technology in their communities.[92]

The Old Order doctrine of nonconformity to the world does not only extend to technology. Amish communities generally view governments with extreme wariness and are reluctant to engage with government officials.[93] This is attributed to their history as a persecuted religious minority dating back to their foundation.[94] Aside from the Bible, one of the most important religious texts for the Amish community is the Martyr's Mirror, a text document-

70. Whitney Pipkin, *Chesapeake Leaders Pledge to Step Up Progress Toward 2025 Goals but Admit They Won't Meet Them*, Bay J. (Oct. 13, 2022), https://www.bayjournal.com/news/policy/chesapeake-leaders-pledge-to-step-up-progress-toward-2025-goals-but-admit-they-won-t/article_e2c0b134-4b23-11ed-b489-078054143990.html [https://perma.cc/8EFM-EV48].
71. Lisa Caruso, *CBF Cheers New Climate Law, Urges USDA to Invest Ag Conservation Funds in Bay Farmers*, Chesapeake Bay Found. (Aug. 16, 2022), https://www.cbf.org/news-media/newsroom/2022/federal/cbf-cheers-new-climate-law.html [https://perma.cc/CNT3-8Z58].
72. *2022 State of the Blueprint*, Chesapeake Bay Found. (Oct. 5, 2022), https://www.cbf.org/how-we-save-the-bay/chesapeake-clean-water-blueprint/state-of-the-blueprint/ [https://perma.cc/SX45-2X6R].
73. *Pennsylvania's Blueprint for Clean Water*, Chesapeake Bay Found., https://www.cbf.org/how-we-save-the-bay/chesapeake-clean-water-blueprint/state-of-the-blueprint/pennsylvanias-2022-blueprint-for-clean-water.html [https://perma.cc/S9E3-AQR3].
74. Stephanie Smith, *Many Pennsylvania Farmers Taking Voluntary Action to Improve Water Quality, Survey Finds*, Chesapeake Bay Program (Dec. 20, 2016), https://www.chesapeakebay.net/news/blog/many-pennsylvania-farmers-taking-voluntary-action-to-improve-water-quality [https://perma.cc/9HXM-HVA2].
75. *Resource Enhancement & Protection (REAP)*, Pa. Dep't Agric. (2022), https://www.agriculture.pa.gov/Plants_Land_Water/StateConservationCommission/REAP/Pages/default.aspx [https://perma.cc/Q8TD-2J4S].
76. Pa. Conservation Reserve Enhancement Program, *About CREP*, U.S. Dep't Agric. Farm Servs. Agency (2022), https://creppa.org/about-crep/ [https://perma.cc/Q6GP-J5LB].
77. *Id.*
78. *Agricultural Cost Share in Pennsylvania*, Chesapeake Bay Found., https://www.cbf.org/about-cbf/locations/pennsylvania/issues/agricultural-cost-share-in-pennsylvania.html [https://perma.cc/LCM8-ZRL6].
79. *Pennsylvania's Blueprint for Clean Water*, Chesapeake Bay Found., https://www.cbf.org/how-we-save-the-bay/chesapeake-clean-water-blueprint/state-of-the-blueprint/pennsylvanias-2022-blueprint-for-clean-water.html [https://perma.cc/25HK-4DER].
80. *Id.*
81. On average, Chesapeake Bay watershed jurisdictions have planted 25.6% of their riparian forest buffer goals. *Forest Buffers*, Chesapeake Progress (2021), https://www.chesapeakeprogress.com/abundant-life/forest-buffers [https://perma.cc/M8YB-2Y3R].
82. *Id.*
83. *Id.* (Attached spreadsheet "Data_2021_Forest-Buffers_01.06.2023.xlsx" at tab "2021Progress-WIP3", cell I16).
84. Staff, *Amish Population in Lancaster County, by the Numbers: What Are the Trends?*, LancasterOnline (Apr. 27, 2019), https://lancasteronline.com/news/local/amish-population-in-lancaster-county-by-the-numbers-what-are-the-trends-q-a/article_616da2c8-683b-11e9-b425-f78a40cef5c1.html [https://perma.cc/Z7T8-XJPH].
85. Cory Anderson, *Who Are the Plain Anabaptists? What Are the Plain Anabaptists?*, 1 J. Amish & Plain Anabaptist Stud. 26, 27 (2013).
86. *Id.*
87. *Beliefs*, Amish Studies: Young Ctr., https://groups.etown.edu/amishstudies/religion/beliefs/?doing_wp_cron=1669100159.04782295227050781 25000 [https://perma.cc/PVP7-3YDY]. This is derived from Anabaptist's interpretation of Bible verses, such as Romans 12:2. *Id.*
88. *Amish Technology*, Ohio's Amish Country, https://ohioamishcountry.com/articles/amish-technology [https://perma.cc/5P3Y-PZ4B].
89. David L. McConnell & Marilyn D. Loveless, Nature & Env't Amish Life 11 (2018).
90. *Id.*
91. Rona Kobell, *supra* note 10.
92. *Id.*
93. McConnell & Loveless, *supra* note 89, at 186.
94. *Id.*

ing many examples of atrocities committed against their ancestors.[95] This skepticism of the government and government programs even extends to programs that provide funds.[96] For example, Amish communities do not pay into or receive money from Social Security because they see the program as a form of public insurance that conflicts with their religious and cultural beliefs.[97] Because of their skepticism of the government, Old Order Anabaptist farmers, who make up a large part of the community, are generally more reluctant to accept subsidies or other aid designed to help pay for agricultural BMPs.[98] In fact, adoption rates of BMPs are significantly lower among the Amish communities compared to non-Amish farmers in the same area.[99]

However, skepticism is not the only issue. Amish farmers are also generally less aware of and concerned with conservation issues and mitigation efforts than their non-Amish contemporaries.[100] This gap in awareness unfortunately has real consequences. When the EPA inspected a series of Amish farms in 2009, they found that 85% of the farms they inspected did not properly manage manure, resulting in contaminated drinking water.[101]

IV. Legal Background

A. The CWA

In 1972, the U.S. Congress passed the CWA.[102] The purpose of the CWA is "to restore and maintain the chemical, physical, and biological integrity of the nation's waters."[103] Under CWA § 303(a), states must develop and submit Water Quality Standards ("WQS") to the Administrator of EPA for approval.[104] Once the WQS are approved, states are required to determine which waterways within their borders do not meet the standards and submit a list of the impaired waters to EPA.[105] After creating these lists, the states must identify the maximum allowable amount of those pollutants that can be released into the water so the water may reach the WQS.[106] Pollutant levels are called Total Maximum Daily Loads ("TMDLs").[107] Similar to the WQS, the states must also submit the proposed TMDLs that they develop for approval by the EPA Administrator.[108] If the Administrator does not approve of the state's plan, they must identify the deficiencies in the plan and recommend their own TMDLs.[109] EPA established rules and procedures related to the submission process under 40 C.F.R. § 130.7.[110] Also under the CWA, states must submit reports describing "the water quality of all navigable waters in such State" along with an analysis that determines how much pollution needs to be eliminated to preserve the waterways' ecosystems.[111] These reports described in § 305(b) must include an analysis of both the environmental impact as well as an economic analysis related to cleanup efforts.[112]

In January of 2009, the Chesapeake Bay Foundation sued EPA for failing in its duty to ensure that the Chesapeake Bay watershed is sufficiently repaired.[113] This lawsuit, in conjunction with other pressure, led President Barack Obama to issue an executive order establishing a committee of several federal agencies to develop a strategy for cleaning the Bay, led by EPA.[114] The Chesapeake Bay Foundation and EPA ultimately settled the lawsuit, and EPA agreed to establish strict TMDL standards for the Bay and its tributaries.[115]

To satisfy the requirements laid out in the Chesapeake TMDL, the states within the watershed were instructed to create WIPs that give precise steps to meet EPA's goals by 2025.[116] The American Farm Bureau and several other agricultural lobbying groups sued EPA over the Chesapeake TMDL in 2011, alleging that the Chesapeake TMDL exceeded EPA's statutory authority. However, the U.S. Court of Appeals for the Third Circuit held that EPA was acting within its authority.[117]

B. Free Exercise of Religion

Because of the large Anabaptist population in Pennsylvania, and the large portion of the Amish who make their living through farming, regulating environmental best practices in agriculture necessarily intersects with religious liberty issues.[118] The U.S. Constitution guarantees that federal and state governments cannot infringe on the free exercise of religion.[119] Similarly, the Pennsylvania Consti-

95. *See generally* Thieleman J. van Braght, Martyrs Mirror (Joseph F. Sohm trans. 1886), https://www.ccel.org/ccel/v/vanbraght/mirror/cache/mirror.pdf [https://perma.cc/TM88-D7QA].
96. Donald B. Kraybill, Karen Johnson-Weiner & Steven M. Nolt, The Amish 356 (2013).
97. *Id.*
98. Philip Gruber, *Plain Initiative Hits Goal; More Work Needed*, Lancaster Farming (Dec. 7, 2022), https://www.lancasterfarming.com/farming-news/plain-initiative-hits-goal-more-work-needed/article_1bf04148-e32a-594a-a516-83cbe6758e72.html [https://perma.cc/B8C2-F4UF].
99. Ulrich-Schad, *supra* note 9, at 1483.
100. *Id.* at 1485.
101. Amanda Peterka, *Amish Farmers in Chesapeake Bay Watershed Find Themselves in EPA's Sights*, N.Y. Times (Oct. 10, 2011), https://archive.nytimes.com/www.nytimes.com/gwire/2011/10/10/10greenwire-amish-farmers-in-chesapeake-bay-watershed-find-94229.html?pagewanted=all [https://perma.cc/M6DA-3WU5].
102. 33 U.S.C. §§ 1251–1387 (1972).
103. *Id.* § 1251(a).
104. *Id.* § 1313(a)(2)–(3).
105. *Id.* § 1313(d).
106. *Id.* § 1313(d)(1)(C).
107. *Id.*
108. *Id.* § 1313(d)(2).
109. *Id.*
110. Total Maximum Daily Loads and Individual Water Quality-Based Effluent Limitations, 40 C.F.R. § 130.7 (2015).
111. 33 U.S.C. § 1315(b)(1).
112. *Id.* § 1315(b)(1)(D).
113. Fowler v. United States EPA, No. 09-005 (CKK), 2009 U.S. Dist. LEXIS 132084 (D.D.C. Sept. 29, 2009).
114. Exec. Order No. 13508, 74 Fed. Reg. 23099 (May 12, 2009).
115. *See* Press Release, U.S. Env't Prot. Agency, EPA Reaches Settlement in Chesapeake Bay Lawsuit (May 11, 2010), https://www.epa.gov/archive/epapages/newsroom_archive/newsreleases/ac46af32562521d48525772000591133.html [https://perma.cc/4QBH-HPRE].
116. Chesapeake Bay Program, *Our History*, https://www.chesapeakebay.net/who/bay-program-history [https://perma.cc/32UV-P5QF].
117. Am. Farm Bureau Fed'n v. Env't Prot. Agency, 792 F.3d 281 (3d Cir. 2015).
118. *See* Part III, *supra* notes 88–92.
119. U.S. Const. amend. I; U.S. Const. amend. XIV.

tution also guarantees that the government cannot restrict a person's religious liberty.[120]

However, historically, there have always been some limitations on this guarantee.[121] The exact boundaries of these limitations have shifted somewhat throughout American history. In *Sherbert v. Verner*, the U.S. Supreme Court established a strict scrutiny framework requiring any government infringement of the Free Exercise Clause of the First Amendment to both serve a compelling government interest and to be as narrowly tailored as possible to achieve that interest.[122] This strict scrutiny test proved to be a particularly high bar to clear when the Court held that Wisconsin's interest in requiring school attendance did not supersede an Amish family's religious belief that their children should only receive an elementary education.[123] But decades later, in *Employment Division v. Smith*, the Court seemingly abandoned the *Sherbert* framework by holding that "neutral laws of general applicability" do not violate the Free Exercise Clause even if the law restricts a person's religious practices.[124]

The Supreme Court's decision in *Smith* was considered controversial at the time.[125] In response to the decision, Congress passed the Religious Freedom Restoration Act ("RFRA") which was designed to restore the strict scrutiny analysis from *Sherbert*.[126] RFRA was originally intended to apply to both the federal government and the states, however the Supreme Court ruled that applying RFRA to the states was unconstitutional.[127] After RFRA's scope was limited, Congress enacted a more limited version of the law called the Religious Land Use and Institutionalized Persons Act ("RLUIPA"), which re-established the strict scrutiny analysis from *Sherbert* specifically in cases of land use and cases where the rights of prisoners are infringed.[128] The law applies to both the federal government and the states.[129] The Supreme Court heard a case related to RLUIPA in 2005, and held that the law was sufficiently within Congress's authority and therefore constitutional.[130] A particularly relevant case involving RLUIPA's effect on waste management regulation is *Mast v. Fillmore County*.[131] In *Mast*, a county in Minnesota required Amish people to use modern septic tank filtration equipment despite their religious objections.[132] In his concurrence, Justice Neil Gorsuch stated that the county's interest in preventing soil contamination was not sufficiently compelling and that the regulation was not tailored in a sufficiently narrow way.[133]

Recently, the Supreme Court has also taken a more skeptical look at the *Smith* decision. In *Tandon v. Newsom*, the Court limited the scope of *Smith* by holding that regulations are not neutral and generally applicable when a religious exemption is disallowed while comparable secular exemptions exist.[134] Similarly, in *Fulton v. City of Philadelphia*, the Court determined that Philadelphia refusing to contract with a foster care organization that discriminates against LGBT people was a violation of the Free Exercise Clause because the relevant ordinance allowed for the Commissioner to make exceptions to it at his or her discretion, and therefore it was not a law of general applicability.[135]

C. *Takings*

When regulations related to the use of land are considered, regulations that interfere with the use of land too significantly may trigger the Constitution's Takings Clause.[136] While regulating land use can be a valid use of a state's police power, neither the federal nor any state government can take a person's land for public use without providing compensation.[137] The Pennsylvania Constitution contains a similar provision requiring just compensation when the government takes land.[138] The line between a valid use of a state's police power and a taking can become blurred, and the Supreme Court has held that while the use of property may be regulated, regulation that severely reduces the value of the land without a valid public interest goal could trigger concerns under the Takings Clause.[139] Regulations that are this severe are known as regulatory takings.[140] Navigating this line is crucial when implementing any large-scale land use regulation.

In *Penn Central Transportation Co. v. New York City*, the Supreme Court listed several factors to consider when determining whether a government regulation rises to the level of a regulatory taking.[141] To determine if an action is a taking, the court weighs the economic impact of the regulation on the people being regulated, whether the government action "can be characterized as a physical invasion by the government, and what public benefits the action may have."[142] Later, in *Lucas v. South Carolina Coastal Council*,

120. Pa. Const. art. I, § 3.
121. Reynolds v. United States, 98 U.S. 145,167 (1879) (holding that members of the Church of Jesus Christ of Latter-Day Saints were not exempt from laws banning polygamy).
122. *See* Sherbert v. Verner, 374 U.S. 398, 402–03 (1963), *abrogated by* Employment Div. v. Smith, 494 U.S. 872 (1990). For a discussion of the strict scrutiny framework and religious liberty, see generally James M. Oleske Jr., *Lukumi at Twenty: A Legacy of Uncertainty for Religious Liberty and Animal Welfare Laws*, 19 Animal L. 295 (2013).
123. *See* Wisconsin v. Yoder, 406 U.S. 205, 235–36 (1972).
124. *See Smith*, 494 U.S. at 879.
125. *See generally* Jake Greenblum & Ryan Hubbard, *Should* Employment Division v. Smith *Be Overturned?*, 23 AMA J. Ethics 864 (2021) (discussing the political controversies surrounding the *Smith* decision).
126. 42 U.S.C. § 2000bb-1. The citation does substantiate the claim, but it presupposes that the reader knows what "Strict Scrutiny" is since that term is not utilized in the statute.
127. City of Boerne v. Flores, 521 U.S. 507, 511–19 (1997).
128. *See generally* 42 U.S.C. §§ 2000cc to 2000cc-5.
129. *Id.*
130. Cutter v. Wilkinson, 544 U.S. 709 (2005).
131. *See generally* Mast v. Fillmore Cnty., 141 S. Ct. 2430 (2021).
132. *Id.*
133. *Id.* at 2432.
134. Tandon v. Newsom, 141 S. Ct. 1294, 1297 (2021) (holding that California cannot restrict religious gatherings in homes during the COVID-19 pandemic because it allowed people to gather in hair salons, retail stores, and other commercial establishments).
135. *See* Fulton v. City of Philadelphia, 141 S. Ct. 1868, 1877 (2021).
136. Pa. Coal Co. v. Mahon, 260 U.S. 393 (1922).
137. U.S. Const. amends. V, XIV, § 1.
138. Pa. Const. art. I, § 10.
139. *Pa. Coal Co.*, 260 U.S. at 415 ("The general rule at least is, that while property may be regulated to a certain extent, if regulation goes too far it will be recognized as a taking.").
140. *Id.* at 415.
141. Penn Central Transp. Co. v. New York City, 438 U.S. 104, 124 (1978).
142. *Id.* (internal citations omitted).

the Court held that a regulation amounts to a taking when it destroys all of the economic value that the land previously had.[143] The decision in *Lucas* also noted that a state may proscribe use of property that amounts to a public nuisance under the state's public nuisance law.[144]

In 1971, the Pennsylvania Constitution was amended to declare that clean air, water, and land are rights shared by all people in the state, and all future generations.[145] The Pennsylvania Supreme Court affirmed this in 2002 when it ruled that regulations preventing a mining company from polluting nearby waters rose to the level of nuisance and was not a regulatory taking.[146] The court simultaneously held that the regulation which banned mining on a portion of the company's land did not destroy all of the land's value, and therefore the *Lucas* analysis did not apply.[147]

V. The Voluntary Agriculture Programs That Pennsylvania Has Implemented So Far Have Proven to Be Inadequate

As discussed in Part II, the states participating in the Chesapeake Bay Program have not been meeting their TMDL goals for 2025.[148] In particular, Pennsylvania is more behind in their goals than any other state in the Program.[149] Agriculture continues to be one of the most significant sources of pollution for these waterways.[150] Having reached only 13% of the riparian buffer goal after 12 years, it is unlikely that it will achieve the remaining 87% in time for the 2025 Chesapeake Bay Blueprint deadline.[151]

Pennsylvania's programs thus far have been primarily voluntary.[152] While some studies have suggested that implementing voluntary BMP programs can be more efficient than mandates, there are complicating cultural factors here.[153] Old Order Anabaptist communities are particularly reluctant to join state voluntary programs.[154] BMP adoption rates are lower among Amish and other Old Order groups than they are among the general population, suggesting that current programs have not properly accounted for cultural concerns.[155] The lower adoption rate stems in part from a general wariness Anabaptists have about government programs.[156] This wariness also extends to government subsidies, making subsidy-based programs less viable in many Anabaptist communities than they otherwise would be.[157]

To combat this skepticism, Pennsylvania and various organizations have attempted to reach out to Amish communities, with the hopes of explaining the importance of BMPs and their relation to cleaning the Chesapeake Bay.[158] Despite this, they have been met with suspicion. Amish religious texts include heavy themes of government persecution, causing them to view government agents and programs with distrust, even when the agents are acting in a non-enforcement and purely outreach capacity.[159] When EPA inspectors came into Lancaster in 2011, the Amish communities that were affected expressed clear distrust of EPA and its goals.[160]

Skepticism about government programs is not the sole issue that needs to be addressed when it comes to Old Order Anabaptist farming practices. Many BMPs aren't even considered by Old Order Anabaptists due to their religious convictions regarding technology.[161] For example, some Amish refuse to adopt proper manure storage practices because the technology is not sanctioned by their local Ordnung.[162] This creates two separate problems. First, it shows that some Anabaptist communities will never voluntarily adopt certain BMPs due to their religious convictions. Further, the holding and Justice Gorsuch's concurrence in *Mast* suggest that mandates regarding such BMPs will not pass the heightened strict scrutiny analysis that the Court applied.[163]

143. Lucas v. S.C. Coastal Couns. 505 U.S. 1003, 1019 (1992).
144. *Id.* at 1030.
145. Pa. Const. art. I, § 27.
146. Machipongo Land & Coal Co. v. Com., 799 A.2d 751, 775 (Pa. 2002).
147. *Id.* at 769–70.
148. *See* Part II.C, *supra* notes 67–71.
149. *See* Part II.C, *supra* notes 72–73.
150. Pa. Dep't Env't Prot., 2022 Pennsylvania Integrated Water Quality Report (2022), https://storymaps.arcgis.com/stories/b9746eec807f48d99decd3a583eede12 [https://perma.cc/X9MP-UAF3].
151. *Forest Buffers*, Chesapeake Progress, https://www.chesapeakeprogress.com/abundant-life/forest-buffers [https://perma.cc/WG96-JNBC] (2023).
152. *Watershed Conservation: Agricultural Best Management Practices*, W. Pa. Conservancy, https://waterlandlife.org/watershed-conservation/agricultural-best-management-practices (2023).
153. *See* Dietrich H. Earnhart & Robert L. Glicksman, *Coercive vs. Cooperative Enforcement: Effect of Enforcement Approach on Environmental Management*, 42 Int'l Rev. L. & Econ. 135, 136 (2015).
154. *See* Philip Gruber, *Plain Initiative Hits Goal; More Work Needed*, Lancaster Farming (Oct. 19, 2013), https://www.lancasterfarming.com/farming-news/plain-initiative-hits-goal-more-work-needed/article_1bf04148-e32a-594a-a516-83cbe6758e72.html [https://perma.cc/3GJZ-6U9J].
155. In one study, 29% of Amish farmers in Indiana adopted grass or forest buffers on their property compared to 65% of non-Amish farmers. *See* Ulrich-Schad, *supra* note 9, at 1483.
156. *Id.*
157. Donna Morelli, *Harvest of Goodwill*, Times Trib. (Mar. 19, 2018), https://www.thetimes-tribune.com/opinion/columnists/harvest-of-goodwill/article_bc93b3f2-8bc8-5941-91ff-fda8c328dc3e.html [https://perma.cc/8AQB-62ER].
158. John Luciew, *The Amish and the Chesapeake: Pennsylvania Farms Threaten the Fragile Bay*, Penn Live (Jan. 2, 2013), https://www.pennlive.com/midstate/2013/01/the_amish_and_the_chesapeake_p.html [https://perma.cc/H426-32QW].
159. Thieleman J. van Braght, *supra* note 95; Sindya N. Bhanoo, *Amish Farming Draws Rare Government Scrutiny*, N.Y. Times (June 8, 2010), https://www.nytimes.com/2010/06/09/science/earth/09amish.html [https://perma.cc/F5DS-XZ6E].
160. Amanda Peterka, *Amish Farmers in Chesapeake Bay Watershed Find Themselves in EPA's Sights*, N.Y. Times (Oct. 10, 2011). https://archive.nytimes.com/www.nytimes.com/gwire/2011/10/10/10greenwire-amish-farmers-in-chesapeake-bay-watershed-find-94229.html [https://perma.cc/UCA5-Q2NB].
161. McConnell & Loveless, *supra* note 89, at 11.
162. Sindya N. Bhanoo, *supra* note 159; Rona Kobell, *supra* note 10. "Ordnung" refers to unwritten rules by which each Amish community abides. *Amish Religious Traditions*, Discover Lancaster (last visited Sept. 20, 2023), https://www.discoverlancaster.com/amish/religious-traditions/ [https://perma.cc/Y8DE-6KQC].
163. *See generally* Mast v. Fillmore Cnty., 141 S. Ct. 2430 (2021).

VI. A Law Mandating the Construction of Riparian Buffers Is Ideal Because It Does Not Run Into the Same Religious Liberty Issues That Other BMPs Might

For a mandate from the Pennsylvania government to avoid strict scrutiny from the judicial system, a law that potentially infringes on a group's religious practices needs to be a "neutral law of general applicability."[164] However, a law is not a neutral law of general applicability if there are secular exceptions to the mandate.[165] Additionally, RLUIPA specifically subjects any land use regulations that implicate religious practices to a strict scrutiny analysis.[166] The state of Pennsylvania's Religious Freedom Protection Act similarly increased the level of scrutiny that courts must adhere to when a statute may infringe on the free exercise of religion.[167]

If a BMP requires the use of modern technology, a law mandating that farmers install that BMP would likely implicate religious free exercise concerns and face strict scrutiny by the courts, unless there were no secular exceptions.[168] Recent decisions by the Supreme Court suggest that the courts may use even minor exceptions to invoke strict scrutiny.[169] In his concurrence in *Mast*, Justice Gorsuch determined that the county's ordinance requiring that homes install modern septic systems for gray water storage was not a neutral law of general applicability because the ordinance included an exception that allowed campers to dispose of their gray water directly onto the land.[170] Like in *Mast*, where the Supreme Court found that imposition of modern septic systems was not a neutral law of general applicability, here a similar imposition for technology-based BMPs could potentially be overturned on similar grounds.[171]

If a law is subject to strict scrutiny under a Free Exercise analysis, the law may only remain if there is both a compelling state interest and if the burden on worshippers is only narrowly tailored such that it is the least restrictive means for the government to satisfy its interest.[172] While there could be an argument that Pennsylvania does in fact have a compelling interest in the quality of its waters, legislation requiring any BMP on all farms in the state would probably not be considered incidental. One way to avoid strict scrutiny altogether would be to limit the legislation to BMPs that take Old Order Anabaptist religious sensitivities into account.

Unlike BMPs such as modern manure storage methods, riparian forest buffers as BMPs do not require the use of modern technology to construct.[173] Riparian forest buffers can be comprised entirely of vegetation along waterways, and farmers can plant the vegetation with either modern or traditional methods at their discretion.[174] As long as the law relates to the creation of these buffer zones themselves and not the method of implementation, a religious objection is not as likely. By not placing a burden on Anabaptist religious practice, a riparian forest buffer BMP would be a neutral law subject to a rational basis review.[175] Therefore, it would not face the same strict scrutiny narrow tailoring analysis that other BMPs could face by implicating religious practices.[176] Old Order Anabaptist objections to riparian buffers tend to be based on concerns over land ownership and land utilization rather than religious concerns about the trees themselves.[177]

A riparian buffer mandate has already been implemented successfully in areas where Amish communities reside, showing that the question about potential religious objections has already been answered. In 2015, the Minnesota Legislature passed its own version of a riparian buffer law.[178] Minnesota is also home to over a dozen Amish communities throughout the state.[179] In the years since Minnesota's law passed, farmers have almost universally abided by the mandate, and there have been no religious objections about the law from the Amish communities.[180] While it is true that Old Order Anabaptist communities do not all share the same rules as discussed in Part III of this Note, the lack of a religious objection from *any* of the communities in Minnesota suggests that the communities in Pennsylvania may react similarly.[181]

VII. A Riparian Buffer Mandate Should Not Rise to the Level of a Taking

To avoid potentially significant costs, any land use mandate should be done in such a way that it does not rise to the level of a taking. If land is taken from property owners, the landowner must be properly compensated.[182] There are potentially thousands of miles of waterways that must be buffered, so the state actually taking the land would make

164. Employment Div. v. Smith, 494 U.S. 872, 879 (1990).
165. Tandon v. Newsom, 141 S. Ct. 1294, 1297 (2021).
166. 42 U.S.C. § 2000cc(a)(1).
167. 2002 Pa. Laws 1701.
168. *See generally Tandon*, 141 S. Ct. at 1294–98.
169. Mast v. Fillmore Cnty., 141 S. Ct. 2430, 2432 (2021); Kennedy v. Bremerton Sch. Dist., 142 S. Ct. 2407, 2422 (2022).
170. "Gray water" refers to water that has been used in a home for purposes such as bathing and washing clothes. *See Mast*, 141 S. Ct. at 2431.
171. *Id.*
172. *See* Sherbert v. Verner, 374 U.S. 398, 403 (1963).
173. Danielle Rhea, *Roadside Guide to Clean Water: Riparian Buffers*, PennState Extension (July 26, 2022), https://extension.psu.edu/roadside-guide-to-clean-water-riparian-buffers [https://perma.cc/PNL5-WEE2].
174. *Id.*
175. *See* Fulton v. City of Philadelphia, 141 S. Ct. 1868, 1877 (2021) ("Government fails to act neutrally [and therefore is subject to strict scrutiny] when it proceeds in a manner intolerant of religious beliefs or restricts practices because of their religious nature.").
176. *See Sherbert*, 374 U.S. at 403 (explaining that the government is more limited in what it can regulate when religious beliefs are implicated).
177. McConnell & Loveless, *supra* note 89, at 14.
178. Similar to the proposed law in this Note, the Minnesota law requires riparian buffers along its public waters. Minn. Stat. § 103F.48 (2022).
179. Erik Wesner, *Minnesota Amish*, Amish America (2010), https://amishamerica.com/minnesota-amish/ [https://perma.cc/RP4D-4QM9].
180. "As of July 2019, approximately 98 percent of parcels adjacent to Minnesota waters are compliant with the Buffer Law." *Minnesota Buffer Law*, Minn. Bd. Water & Soil Res. (2019), https://bwsr.state.mn.us/minnesota-buffer-law. [https://perma.cc/PQ4W-FL9N].
181. See discussion Part III *supra* note 89.
182. U.S. Const. amend. V.

the program prohibitively expensive. due to the requirement for the state to justly compensate the landowners.[183] While land that the government takes must be paid for, land use regulations do not necessarily amount to an infringement on the land that qualifies as a taking.[184] However, a regulation that is particularly cumbersome may still be considered a "regulatory taking."[185] In this case, legislation mandating the construction of riparian forest buffers should not be considered a regulatory taking and therefore avoid the need to compensate landowners.

Under the *Penn Central* framework, a regulation is not necessarily a regulatory taking even if it does decrease the value of the land.[186] If the regulation decreases the value, other factors must be considered.[187] Here, it is true that a riparian forest buffer mandate may decrease the land's value insofar as the land could no longer be used for traditional farming in the way that it was. However, the Court in *Penn Central* also noted that a regulatory taking is less likely to be found when the regulation in question is done for the purposes of some public benefit.[188] Here, the purpose of a riparian buffer mandate is to ensure that public waterways are no longer polluted. The Pennsylvania Constitution has established that clean waterways are a right for the general public.[189] So long as the mandate is a rational provision that could reasonably serve the purpose, it should survive the *Penn Central* test.[190] Further, the investment-backed expectations that Anabaptist farmers have with the land is not likely to lead courts to call the mandate a regulatory taking due to the fact the land may still confer economic benefits.[191]

In *Lucas*, the Supreme Court determined that a regulatory action amounts to a taking when the regulation eliminates all economic benefit that the landowner could obtain from the land.[192] Riparian buffers may destroy some economic value for the land that they take up because they cannot be used for traditional agriculture.[193] However, if the trees planted in the forest buffer zones can, for example, bear fruit which can then be used to maintain some economic value for the land, the buffer regulation cannot be said to destroy *all* of the land's value.[194] These buffers are known as "Multifunctional Riparian Forest Buffers."[195] Planting trees that bear fruit on the buffer zones can yield some economic benefit from the land and a regulation only fails the *Lucas* test if all economic value of the land is destroyed.[196] Additionally, the economic value analysis is based on the entire parcel of land, not merely whether the regulation destroys economic value of a part of the parcel.[197] Because the riparian forest buffers only impact the part of the parcel that abuts waterways, the mandates should not be considered a taking under *Lucas*.

Even if a court were to determine that *Lucas* does apply and that the riparian forest buffer mandate does destroy all the land's value, the regulation should still not qualify as a taking. The Court in *Lucas* also established that a state can use public nuisance law to justify a regulatory action that would otherwise constitute a regulatory taking.[198] As discussed above, the Pennsylvania Constitution states that clean waterways are considered a public right.[199] Further, the Pennsylvania Supreme Court has previously held that waterway pollution can rise to the level of nuisance.[200] The nonpoint source pollution from agricultural runoff both affects the public's ability to use the affected waterways and could be potentially harmful to the public's health, both of which are factors that determine if pollution amounts to a public nuisance.[201] This means that so long as Pennsylvania is attempting to eliminate the public nuisance caused by polluted waterways, if the regulation destroys all economic value, that does not mean that the regulation is a taking and therefore the state should not be responsible for providing compensation.

VIII. Potential Criticisms

Any land use regulation that potentially deals with thousands of miles of land will be met with some resistance. First and foremost, interested parties will raise questions related to the cost of the program, both to the farmers themselves and to the state. With respect to costs that farmers may face, the state of Pennsylvania should adapt the voluntary subsidy programs that are already in place.[202] Rather than eliminating the programs in lieu of a mandate, incorporating the funding for the programs into the mandate would allow Pennsylvania to subsidize the construction of riparian buffers while ensuring that the farmers do not bear the financial burden. However, this means that

183. Julie Grant, *State Report Finds a Third of Pennsylvania Streams Are Impaired*, Allegheny Front (Jan. 21, 2022), https://www.alleghenyfront.org/state-report-finds-a-third-of-pennsylvania-streams-are-impaired/ [https://perma.cc/48RY-8995].
184. Pa. Coal Co. v. Mahon, 260 U.S. 393, 415 (1922).
185. *Id.*
186. *See* Penn Central Transp. Co. v. New York City, 438 U.S. 104, 131 (1978) (holding that diminution of property value alone is not a taking); First Eng. Evangelical Lutheran Church of Glendale v. Los Angeles Cnty., Cal., 482 U.S. 304, 322 (1987) (discussing the "diminution of value inquiry" as it relates to regulatory takings).
187. Other factors "that have particular significance" include the regulation's economic impact on the landowner, the extent to which the regulation has interfered with the landowner's investment-backed expectations, and the character of the government action. *See Penn Central*, 438 U.S. at 124.
188. *Id.* at 123.
189. Pa. Const. art. I, § 27.
190. *See Penn Central*, 438 U.S. at 125.
191. U.S. Forest Serv., *Working Trees: Why Add Edible and Floral Plants to Riparian Forest Buffers?*, U.S. Dep't of Agric. (2015), https://www.fs.usda.gov/nac/assets/documents/workingtrees/infosheets/WTInfoSheet-MultiFunctionalBuffer.pdf [https://perma.cc/7KNY-22SM].
192. *See* Lucas v. S.C. Coastal Couns., 505 U.S. 1003, 1019 (1992).
193. *Riparian Forest Buffers*, Nat'l Agroforestry Ctr., https://www.fs.usda.gov/nac/practices/riparian-forest-buffers.php [https://perma.cc/ZNC6-WFSF].
194. U.S. Forest Serv., *supra* note 191 (describing various ways in which multifunctional riparian forest buffers can be used to yield some economic benefit and listing several example crops with their estimated sale prices).
195. *Id.*
196. *See Lucas*, 505 U.S. at 1003, 1019.
197. Palazzolo v. Rhode Island, 533 U.S. 606, 630–32 (2001).
198. *See Lucas*, 505 U.S. at 1022–23.
199. Pa. Const. art. I, § 27.
200. Machipongo Land & Coal Co. v. Com., 799 A.2d 751, 774 (Pa. 2002).
201. "[C]orruption of water which affects the public use of a stream or menaces the public health becomes a public nuisance which the Commonwealth may seek to abate." Commonwealth v. Barnes & Tucker Co., 319 A.2d 871, 882–83 (Pa. 1974).
202. 2022 Pa. Laws 540.

the Commonwealth of Pennsylvania will incur these costs, raising a similar concern. Upfront costs of riparian buffer implementation should be seen as an initial investment rather than simply a cost.[203] While there will be significant initial costs to implement the program, the Chesapeake Bay Foundation has estimated that cleanup efforts will result in net economic growth over time due to economic activity created by cleaner waterways.[204]

In some cases, voluntary programs have higher rates of adoption than mandatory programs.[205] This could suggest that a mandate may actually be less effective than the existing voluntary programs if implemented. While this may be true in some instances, Anabaptist communities are generally less willing to adopt or join voluntary government programs due to their cultural and religious beliefs.[206]

The enforceability of a mandate is also a factor in determining whether widespread adoption of a program is viable. If other jurisdictions have been able to adopt the same or a similar program successfully, it suggests at the very least that the program is viable elsewhere. On that note, the similar riparian buffer mandate in Minnesota reached a 98% adoption rate within a few years after the law passed, indicating program viability.[207] Since the voluntary programs have already proven to be inadequate for religious reasons, and because another state has shown that mandatory programs can be effective, a mandatory program should be achievable here.

In terms of efficacy, some critics may point out that riparian forest buffers alone will most likely not allow Pennsylvania to reach their 2025 TMDL goals.[208] Pennsylvania is also off track in their mitigation efforts with urban and suburban pollution as well as agricultural runoff, so additional programs that address urban and suburban pollution are needed as well.[209] However, these issues go beyond the scope of this Note. Riparian forest buffers may not be the only BMP needed to clean up the Chesapeake Bay adequately. However, they are a BMP that specifically avoids the potential First Amendment issues raised by technology-based BMPs.[210]

Due to differing geography and soil content in different parts of the state, there is no "one-size-fits-all" formula for an exact way that riparian buffers must be created.[211] A 50-foot buffer may be adequate on one stretch of land while it proves to be inadequate on another.[212] Taking note from Minnesota, the riparian buffer mandate should require only a minimum size.[213] Beyond that minimum size, the Pennsylvania Department of Environmental Protection should be tasked with using their expertise to tailor buffer requirements to specific geographic factors or even to specific plots of land. Doing so will ensure that all buffers at least meet some minimum standard while also accounting for natural variability in the landscape.

IX. Conclusion

Most states in the Chesapeake Bay watershed are not on track to meet their 2025 cleanup goals. Among those states, Pennsylvania is the furthest behind. Within the realm of pollution from agricultural runoff, Pennsylvania's Old Order Anabaptist communities are particularly reluctant to adopt BMPs that curb pollution due to religious and cultural concerns. This continues to have a negative impact on the livelihood of those who depend on the Bay. Excess nutrients that enter the Bay through its tributaries feed algal blooms that remove oxygen from the nearby water, displacing and even killing wildlife.

A solution that works toward saving the Chesapeake Bay while respecting the religious beliefs of the Anabaptist communities is a delicate balance. The solution should take their religious practices into consideration not only as a matter of courtesy, but also because any regulation that infringes on their beliefs could be rendered unconstitutional. A law mandating that farmers must construct riparian forest buffers on land that adjoins rivers or streams would strike that balance. A riparian forest buffer mandate would allow the farmers to keep their land while using a portion of it to protect waterways from their farms' pollution. Riparian buffers would also avoid the religious liberty concerns that other BMPs may risk because they would not require modern technology to construct. Finally, this would not amount to a regulatory taking because the economic value of the land is not completely destroyed and the purpose of the regulation is to reduce the public nuisance of polluted waterways.

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203. Carolyn Alkire & Spencer Phillips, *Agricultural Conservation Practices: Clean Water and Climate-Smart Investments*, Chesapeake Bay Found. (July 2022), https://www.cbf.org/document-library/cbf-reports/agricultural-conservation-practices-clean-water-and-climate-smart-investments.pdf [https://perma.cc/H4G7-C33Q].
204. *Id.*
205. Dietrich H. Earnhart & Robert L. Glicksman, *Coercive vs. Cooperative Enforcement: Effect of Enforcement Approach on Environmental Management*, 42 Int'l Rev. L. & Econ. 135, 145 (2015).
206. McConnell & Loveless., *supra* note 89, at 11–12.
207. Minn. Stat. § 103F.48, *supra* note 178; Minn. Bd. Water & Soil Res., *supra* note 180.
208. Chesapeake Bay Found., *supra* note 45.
209. *Id.*
210. *See* Part VI, *supra* notes 174–78.
211. Marc Stutter et al., *Current Insights Into the Effectiveness of Riparian Management, Attainment of Multiple Benefits, and Potential Technical Enhancement*, 48 J. Env't Quality 236, 236 (2019).
212. *Id.*
213. Minn. Stat. § 103F.48, *supra* note 178.

REDRESSING THE *CHORNOZEM*: THE CASE FOR A HYBRID TRIBUNAL FOR ENVIRONMENTAL HARM IN UKRAINE

Sonia Geib Schmidt*

ABSTRACT

There has been extensive discussion on how to prosecute Russia for its aggression and human rights violations in Ukraine. However, there has been significantly less discussion of legal remedies for environmental harms caused by the war. Ukraine's environment has taken a significant toll in this war as a direct result of Russia's incursion. The damage is severe—from burned forests to poisoned soil and water to pillaged grain. But international courts rarely take up environmental law and have never done so in a criminal tribunal outside of property crimes. But the groundwork for prosecution of environmental crime already exists in the text of the Geneva Conventions and its Additional Protocol. The situation in Ukraine is ideal for testing its application. Circumventing Russia's Security Council veto—which otherwise blocks the United Nations' actions—can be done through a Uniting for Peace Resolution, already used once in response to the Russian invasion. This resolution could establish a hybrid tribunal in Ukraine that relies on both international and domestic law to prosecute crimes. This would allow for both domestic fact-finding ability to be paired with the legitimacy and logistical ability of an international tribunal.

I. Introduction

When dimly lit videos of the first blasts in Kyiv aired on February 24, 2022, the world had no idea the scale of violence that would ensue from Russia's invasion of Ukraine's northern, eastern, and southern borders.[1] Russian tanks surrounded the country from three sides, poised to charge across the border that Ukrainians had cherished and fought for within the memory of living generations. Russia attempted to take Ukraine's capital city of Kyiv with particular force. Invading Ukraine's north from Belarus, Russian troops savaged Ukrainian civilians in their path.[2] The names of small towns and cities are now known around the world for their suffering; Bucha conjures images of the worst kinds of wartime violence for anyone following the conflict.[3] The United Nations ("U.N.") Human Rights Council's investigation found evidence of war crimes in Bucha, including executions of civilians, torture, and sexual violence.[4] As the world comes to grips once again with the violence of which humans are capable, another victim of the war has yet to be the forefront of international discussion: the environment in Ukraine.

Russia has been systematically bombing agricultural and energy plants, which then leak toxic chemicals into groundwater.[5] In addition, several Ukrainian power plants are nuclear, and there are continued concerns that the plants will leak radiation.[6] Water treatment plants and other industrial facilities have been the target of bombardment.[7] Even when the facilities are not directly bombed, their systems stop functioning when nearby power plants are.

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1. *Ukraine Overview*, U.N. News (Oct. 21, 2022), https://news.un.org/en/focus/ukraine [https://perma.cc/ELU6-W4YW].
2. *War Crimes Have Been Committed in Ukraine Conflict, Top U.N. Human Rights Inquiry Reveals*, U.N. News (Sept. 23, 2022), https://news.un.org/en/story/2022/09/1127691 [https://perma.cc/CD6F-MA9P].
3. Youshur Al-Hlou et al., *New Evidence Shows How Russian Soldier Executed Men in Bucha*, N.Y. Times (May 19, 2022), https://www.nytimes.com/2022/05/19/world/europe/russia-bucha-ukraine-executions.html [https://perma.cc/SP5A-ADDX].
4. U.N. News, *supra* note 2.
5. Associated Press, *Residents Near a Ukrainian Plant Are Preparing in Case of Radiation Exposure*, NPR (Aug. 27, 2022), https://www.npr.org/2022/08/27/1119804036/ukraine-russia-zaporizhzhia [https://perma.cc/C8D3-HUF7]; Alejandro de la Garza, *Ukraine Wants Russia to Pay for the War's Environmental Impact*, Time (Oct. 19, 2022), https://time.com/6222865/ukraine-environmental-damage-russia/ [https://perma.cc/7UNJ-QDMP].
6. Associated Press, *supra* note 5.
7. Press Release, U.N. Env't Programme, U.N. Warns of Toxic Environmental Legacy for Ukraine, Region (July 4, 2022), https://www.unep.org/news-and-stories/press-release/un-warns-toxic-environmental-legacy-ukraine-region [https://perma.cc/GAS4-4CJB].

Unclean water then leaks into the clean water within the treatment system, and into the surrounding area.[8] Munitions casings that litter fields, towns, and homes also bear the risk of leaking of toxic chemicals into soil and waterways, which Ukrainians rely on for food production—a substantial source of income—and drinking water.[9] The Director of the United Nations Environment Program ("UNEP") stated "the mapping and initial screening of environmental hazards only serves to confirm that war is quite literally toxic."[10] Military waste that remains in the ground, in people's homes, and in the water is in itself a significant pollutant.[11]

Russia has bombed or burned 30% of Ukraine's protected environmental areas, where much of the biodiversity of the country will be lost, potentially forever.[12] The Ukraine Nature Conservancy Group ("UNCG"), a coalition of the country's scientists and environmental activists, fears that around 20 species native to the steppes may disappear completely due to the war.[13] An estimated 100,000 acres of forest and grassland have been burned.[14] Agricultural facilities[15] and farms[16] have been destroyed, leaving workers without livelihoods and entire populations without food. The animal carcass decomposition on these farms also poses a health risk.[17] Recent calculations put the total cost of the environmental damage to the country at around €37.8 billion EUR ($39 billion USD).[18] The destruction is intense, and there has not yet been any clear indication of how Ukraine will attain redress for these harms.

While past prosecution of war crimes and crimes against humanity related to human rights violations has clear precedent in the U.N. Security Council's ("Security Council") established international tribunals and the International Criminal Court ("ICC"), the environment has yet to have been represented in international criminal court.[19] Even Ukraine's deputy minister for energy and environment has indicated that Ukraine will have to seek new legal frameworks for the prosecution of environmental crimes as a result of the war.[20] A hybrid tribunal, which is another type of tribunal created in an agreement between the U.N. and a hosting country, may be a better fit for the situation in Ukraine because it offers the opportunity to prosecute environmental crimes.[21]

The U.N. and Ukraine should create a hybrid tribunal for the prosecution of environmental crimes after the Russian invasion of Ukraine through a U.N. General Assembly ("General Assembly") resolution. Part II of this Note provides factual background about various types of environmental damage that resulted from Russia's invasion of Ukraine. Part III explains the background for the prosecution of international crimes and the development of international environmental law. Part IV argues that a hybrid tribunal is best suited to prosecute international environmental crimes in Ukraine. Part V concludes that a hybrid tribunal is the most feasible way to seek redress for environmental crimes in the case of the Russian invasion of Ukraine because of its ability to circumvent Russia's veto power.

II. Russia's Damage to Ukraine's Water, Soil, Energy, and Agriculture

Russian bombing of Ukrainian waterways, soil, and energy and agricultural facilities has caused significant damage.[22] Attacks on food warehouses prevent citizens from eating the food stored there and contaminate nearby drinking water.[23] The damage wreaked on energy facilities has caused millions of Ukrainians to live without power throughout the cold of winter.[24] The indiscriminate shelling of farmland has cost Ukraine billions of dollars and many citizens their livelihood and food sources.[25] As the war continues

8. Ecodozor: Environmental Consequences and Risks of the Fighting in Ukraine (Feb. 2022), https://ecodozor.org/index.php?lang=en# [https://perma.cc/TGK4-58D8].
9. *Policy Responses on the Impact of the War in Ukraine: Environmental Impacts of the War in Ukraine and Prospects for a Green Reconstruction*, Org. for Econ. Coop. & Dev. ("OECD") (July 1, 2022), https://www.oecd.org/ukraine-hub/policy-responses/environmental-impacts-of-the-war-in-ukraine-and-prospects-for-a-green-reconstruction-9e86d691/ [https://perma.cc/85DE-ZHKE].
10. U.N. Env't Programme, *supra* note 7.
11. *Id.*
12. Fred Pearce, *Collateral Damage: The Environmental Cost of the Ukraine War*, Yale Env't 360 (Aug. 29, 2022), https://e360.yale.edu/features/ukraine-russia-war-environmental-impact [https://perma.cc/5VST-LQW2].
13. *Id.*; *20 Plants That May Disappear Due to Russia's War in Ukraine*, Ukrainian Nature Conservation Grp. ("UNCG") (July 5, 2022), https://uncg.org.ua/en/20-plants-that-may-disappear-due-to-russias-war-in-ukraine/ [https://perma.cc/J8G9-RH7].
14. *4 Months of War: 100,00 HA of Ukraine Burnt Up*, UNCG (June 30, 2022), https://uncg.org.ua/en/4-months-of-war-100000-ha-of-ukraine-burnt-up/ [https://perma.cc/W24B-Q58M].
15. Caitlin Welsh et al., *Spotlight on Damage to Ukraine's Agricultural Infrastructure Since Russia's Invasion*, Ctr. for Strategic & Int'l Stud. ("CSIS") (June 15, 2022), https://www.csis.org/analysis/spotlight-damage-ukraines-agricultural-infrastructure-russias-invasion [https://perma.cc/DMC8-25ZZ].
16. Emma Bubola et al., *"Everything Was Destroyed": War Hits Ukraine's Farms*, N.Y. Times (Apr. 10, 2022), https://www.nytimes.com/2022/04/10/world/europe/ukraine-farmers-food.html [https://perma.cc/6EKG-78P6].
17. The decaying animal carcasses pose a risk for spreading disease. *See* U.N. Env't Programme, *supra* note 7; Daryna Krasnolutska, *Ukraine Warns of Toxic Black Sea "Garbage Dump" From Dam Debris*, Time (June 10, 2023), https://time.com/6286291/ukraine-warns-toxic-dam-debris/ [https://perma.cc/9DQL-4YB4].
18. Nicole Lin Chang, *Ukraine Wants the "Whole World" to Hold Russia Responsible for Environmental Damages of War*, Euronews.green (Nov. 15, 2022), https://www.euronews.com/green/2022/11/15/ukraine-wants-the-whole-world-to-hold-russia-responsible-for-environmental-damages-of-war [https://perma.cc/3T2Z-NMMZ].
19. David Matas, *From Nuremberg to Rome: Tracing the Legacy of the Nuremberg Trials*, 10 Gonz. J. Int'l L. 1, 17 (2006-2007).
20. Isabelle Gerretsen, *Ukraine Builds Legal Case Against Russia for Environmental Damage*, Climate Home News (May 16, 2022), https://www.climatechangenews.com/2022/05/16/ukraine-builds-legal-case-to-prosecute-russia-for-environmental-crimes/ [https://perma.cc/LZ9G-6Z87].
21. Matas, *supra* note 19.
22. Gerretsen, *supra* note 20.
23. de la Garza, *supra* note 5.
24. *Ukraine: Russian Attacks on Energy Grid Threaten Civilians*, Human Rts. Watch (Dec. 6, 2022), https://www.hrw.org/news/2022/12/06/ukraine-russian-attacks-energy-grid-threaten-civilians [https://perma.cc/399B-BXEM].
25. Katerina Belousova, *The War Caused 449 Billion Hryvnias of Damage to the Soil of Ukraine*, EcoPolitic (Dec. 6, 2022), https://ecopolitic.com.ua/en/news/vijna-zavdala-gruntam-ukraini-shkodi-na-449-milyardiv-griven-2/ [https://perma.cc/PK4Q-6XG9].

onward, the cost of the damages to the citizens of Ukraine will undoubtedly rise.[26]

First, Russia caused severe damage to waterways and soil by directly attacking food warehouses and water treatment facilities. Russian bombing of food-production facilities polluted local groundwater northeast of Kyiv.[27] Locals reported offensive smells and dirty water, and government officials found that the shelling of a frozen food warehouse caused mass spoilage of meat, vegetables, and dairy.[28] An official at a regional environmental organization tested the water and found that the rotten food leached nitrates and ammonia into the wells, spoiling them as well.[29]

Water was also polluted elsewhere in the country. In the southwestern city of Ternopil, the Ukrainian army shot down a Russian missile that then leaked chemicals into the soil and water in the area.[30] Residents could not drink the water and found dead fish in the river.[31] In some places, Russia directly attacked the water pipelines, leaving thousands of Ukrainians without access to clean drinking water.[32] Water filtration stations in Luhansk were also damaged, leaving nearly one million people without water.[33] Further, attacks on wastewater treatment infrastructure led to a dispersal of wastewater into the Dnipro River, the longest river in Ukraine, whose pollution was visible from space.[34]

Beyond attacking Ukraine's water supply, Russia also damaged its energy facilities. Russia began bombing power plants early in its onslaught in Ukraine, but really focused its efforts in October and November of 2022.[35] The attacks had the immediate impact of killing energy workers and cutting civilians off from access to heat and water, particularly in places where water systems relied on pumps powered by electricity.[36] The multitude of nuclear power plants in Ukraine also poses the threat of potential radioactive and chemical leaks into the groundwater.[37] A fertilizer plant in northern Ukraine was bombed in March of 2022, causing an ammonia leak.[38] The surrounding 2.5 kilometers were considered hazardous and residents were told to stay in basements for days.[39] Ukraine's air and water were significantly damaged from the Russian attacks on energy and chemical fertilizer plants.

Russia has also poisoned the ground itself in Ukraine with its munitions waste. Ukraine, which is often lauded as the "breadbasket" of Europe for its fertile farmland called *chornozem*, may have damage to its soil for decades.[40] Reports suggest the war waste contaminates the soil amounting to around 449 billion hryvnias ($12 billion USD) worth of damage.[41] This type of munitions debris pollutes the soil, making the area effectively destroyed for agricultural purposes.[42] This act of degrading soil through bombardment is called bombturbation, and the longevity of the harm is evidenced in areas like France's Verdun battlefield, which was brutally shelled in World War I, and remains affected today.[43] The battlefield in France is still being cleaned, with experts estimating that the land will need another 300 to 700 years to be useable again for agricultural and other human purposes.[44]

Finally, the toll in Ukraine not only impacts human life, but also its animal populations. Despite only encompassing 6% of the territory of Europe, Ukraine contains 35% of its biodiversity.[45] Several different locations in Ukraine are home to rare and endangered species that have been affected by shelling and oil pollution, and account for

26. Sam Mednick, *Ukraine War's Environmental Toll to Take Years to Clean Up*, Associated Press (Nov. 11, 2022), https://apnews.com/article/russia-ukraine-kyiv-pollution-europe-business-d2282edd65a0caad45472f2524e5a9be [https://perma.cc/L8KS-CMAB].
27. de la Garza, *supra* note 5.
28. *Id.*
29. *Id.*
30. Ivana Kottasová, *Ukraine's Natural Environment Is Another Casualty of War. The Damage Could Be Felt for Decades*, CNN (May 22, 2022), https://www.cnn.com/2022/05/22/europe/ukraine-russia-war-environment-intl-cmd/index.html [https://perma.cc/49ZW-NU35].
31. The state ecological agency found ammonium levels 163 times higher than what was considered safe. *Id.*
32. These pipelines could not feasibly be repaired because they stretched across territory that was occupied by Russian forces. *See* Jason Beaubien, *A Ukrainian City Struggles After Russian Forces Blew Up Its Water Supply*, NPR (Oct. 8, 2022), https://www.npr.org/2022/10/08/1127303154/ukraine-mykolaiv-water-supply [https://perma.cc/X3G5-GHEG].
33. Conflict & Env't Observatory ("CEOBS") & Zoï Env't Network, *Ukraine Conflict Environmental Briefing: 2. Water* (Nov. 2022), https://ceobs.org/ukraine-conflict-environmental-briefing-water [https://perma.cc/BX8Y-UU6Whttps://perma.cc/VLM3-X5VN].
34. *Id.*
35. *Ukraine: Russian Attacks on Energy Grid Threaten Civilians*, Hum. Rts. Watch (Dec. 6, 2022), https://www.hrw.org/news/2022/12/06/ukraine-russian-attacks-energy-grid-threaten-civilians [https://perma.cc/BJR8-5BQ4].
36. *Id.*
37. Battle is still raging in the partially occupied Zaporizhzhia, which houses Europe's largest nuclear power plant. *See* David Brennan, *Russia Can't Take Key Ukrainian Region "Quickly" Occupation Leader Admits*, Newsweek (Jan. 16, 2023), https://www.newsweek.com/russia-ukrainian-region-quickly-occupation-leader-zaporizhzhia-yevgeny-balitsky-1774002 [https://perma.cc/PM6D-ZBKK]; Paul Kirby, *Ukraine Nuclear Plant: How Risky Is Stand-Off Over Zaporizhzhia?*, BBC News (Nov. 21, 2022), https://www.bbc.com/news/world-europe-62602367 [https://perma.cc/G9LS-7X4R].
38. Guardian Staff & Agence France-Presse, *Ukrainian Town Told to Shelter After Shelling Causes Ammonia Leak at Chemical Factory*, The Guardian (Mar. 21, 2022), https://www.theguardian.com/world/2022/mar/21/ukrainian-town-told-to-shelter-after-shelling-causes-ammonia-leak-at-chemical-factory [https://perma.cc/JHR4-DYVC].
39. *Id.*
40. Mark Waghorn, *Ukraine "Could Lose Crops for at Least 100 Years Due to Metal Pollution Caused by Russian Invasion,"* The Independent (Aug. 12, 2022), https://www.independent.co.uk/news/world/europe/ukraine-russia-war-metal-pollution-crop-failure-b2146606.html [https://perma.cc/9E92-PMZA].
41. In one square kilometer area of Kharkiv alone, reporters found "480 craters made by 82 mm shells, 547 craters made by 120 mm shells, and 1025 crates made by 152 mm shells, leaving around 500 metric tons of iron, 1 ton of sulfur compounds, and 2.35 tons of copper." *See* Oleksii Vasyliuk & Valeriia Kolodezhna, *Future of Munitions-Damaged Ukrainian Lands*, Ukraine War Env't Consequences Working Grp. (June 27, 2022), https://uwecworkgroup.info/future-of-munitions-damaged-ukrainian-lands/ [https://perma.cc/KVM8-8XA5]; Belousova, *supra* note 25.
42. Belousova, *supra* note 25.
43. Some five million acres of forests have also been destroyed by shelling, as President Volodymyr Zelenskiy relayed at COP27 in November. *See* Fiona Harvey et al., *Cop27: Ending War in Ukraine Necessary to Tackle Climate Crisis, Zelenskiy Says*, The Guardian (Nov. 8, 2022); *see also* Rebecca Dzombak, *Russia's Invasion Could Cause Long-Term Harm to Ukraine's Prized Soil: Physical and Chemical Damage to Farmland Could Linger for Years*, ScienceNews (June 21, 2022), https://www.sciencenews.org/article/ukraine-russia-war-soil-agriculture-crops [https://perma.cc/6MXH-RBQ4].
44. Frank Jacobs, *In France's Red Zones, World War I Never Ended*, Big Think, https://bigthink.com/strange-maps/zones-rouges/ [https://perma.cc/4LGJ-YKEC].
45. *Ukraine—Main Details*, Convention on Biological Diversity, https://www.cbd.int/countries/profile/?country=ua [https://perma.cc/6R72-JXEB].

around 30% of all protected areas in Ukraine.[46] Marine species have also been affected by the war. A marine biologist estimated that at least 50,000 Black Sea dolphins were killed because of mines, underwater explosions, and sonars from submarines that have no clear military goal in the Black Sea.[47] The loss of this biodiversity can lead to disruptions in ecosystems that affect human health, by either changing or restricting food supplies through food chain disruption or destroying the potential for creating life-saving drugs.[48]

Russian shelling seems to have intentionally targeted agricultural facilities, likely in an attempt to cripple the Ukrainian economy, as 20% of the country's gross domestic product comes from agriculture.[49] Russian troops target farms through multiple methods, sometimes occupying them physically and leaving them in ruins, other times subjecting them to overhead shelling, leaving behind pockmarked earth and animal carcasses.[50] Satellite imagery captured in April suggested that there was a deliberate attack on a dairy farm near Kharkiv.[51] Russia also targeted and destroyed one of the largest food storage facilities in Europe east of Kyiv in Brovary.[52] There is further evidence of Russian troops pillaging grain stores and exporting them to Crimea and then Russia.[53] Together, these incidents suggest that there was intentional damage inflicted to agricultural facilities in Ukraine, harming both the economy and, more directly, the ability of Ukrainians to feed themselves.

III. Means of International Criminal Sanction

Given the extent of this environmental damage to Ukraine's water, air, farmland, and agricultural and energy facilities, Ukraine is seeking compensation and criminal sanctions against Russia.[54] There are three ways in which international criminal sanctions are brought against individuals for their role in wars: prosecution in the ICC; prosecution in international tribunals, either ad hoc or hybrid; or prosecution in domestic tribunals that recognize international law.[55] Establishing a hybrid tribunal is the most effective way to prosecute environmental crimes because environmental crimes are not readily prosecuted under the Rome Statute, the governing document of the ICC.[56] Another consideration is that domestic courts in Ukraine are likely not capable of handling this type of international prosecution.[57] Therefore, a hybrid tribunal is favorable over an ad hoc tribunal because it circumvents Russia's veto power.[58]

International criminal sanctions can be pursued through many means. Historically, the first international tribunal was the Nuremberg Trials.[59] Afterwards, the U.N. established ad hoc tribunals to prosecute genocides, such as the International Criminal Tribunal for the Former Yugoslavia ("ICTY") to prosecute the perpetrators of the Bosnian genocide.[60] In situations where internationally significant crimes occurred but countries wanted to house the courts themselves, the U.N. assisted in the creation of hybrid tribunals, like the Extraordinary Chambers in the Courts of Cambodia ("ECCC").[61] Finally, the ICC now exists, which enforces crimes outlined in the Rome Statute. The ICC can enforce these laws against countries who are party to the statute or who can be brought under its jurisdiction.[62]

The first instances of international criminal enforcement for crimes against humanity was the Nuremberg Trials.[63] The Nuremberg Trials took place after Germany lost World War II and the world aimed to hold Nazis accountable for the Holocaust.[64] Trials of this scale, designed to prosecute the most heinous of crimes, had never been done before.[65] The Charter of the International Military Tribunal defined the international crimes that the trials would

46. Andreas Beckmann & Bohdan Vykhor, *Assessing the Environmental Impacts of the War in Ukraine*, WWF-Ukraine, https://wwfcee.org/our-offices/ukraine/assessing-the-environmental-impacts-of-the-war-in-ukraine [https://perma.cc/3E86-KMNV]; UNCG, *supra* note 13.
47. Stuart Greer, *Tens of Thousands of Dead Dolphins Among Environmental Casualties of Ukraine War*, Radio Free Eur./Radio Liberty (Dec. 3, 2022), https://www.rferl.org/a/ukraine-dolphins-war-black-sea-russia/32159530.html [https://perma.cc/75XE-9WFU].
48. *See Biodiversity and Health*, World Health Org. (June 3, 2015), https://www.who.int/news-room/fact-sheets/detail/biodiversity-and-health [https://perma.cc/7Q8G-CLBB] (discussing how loss of biodiversity can affect food sources up the food chain and on which humans rely).
49. *Photos: Bombs Disrupt Ukraine's Critical Farming Industry*, Aljazeera (Sept. 23, 2022), https://www.aljazeera.com/gallery/2022/9/23/photosfront-line-farming-bombs-disrupt-critical-ukraine-industry [https://perma.cc/62LM-GVQK].
50. *Putin's Destruction of Ukrainian Farms*, Share Ams. (June 23, 2022), https://share.america.gov/putins-destruction-of-ukrainian-farms/ [https://perma.cc/7QHC-2W8K].
51. *Id.*
52. Welsh et al., *supra* note 15.
53. Nick Beake et al., *Tracking Where Russia Is Taking Ukraine's Stolen Grain*, BBC News (June 27, 2022), https://www.bbc.com/news/61790625 [https://perma.cc/L7QN-HPCY].
54. de la Garza, *supra* note 5.
55. *See* Matas, *supra* note 19.
56. *See* Rome Statute of the International Criminal Court, July 17, 1998, 2187 U.N.T.S. 90; Maryna Venneri, *War Crimes in Ukraine: Failure to Prosecute Russia Will Damage International Security for Years to Come*, Middle East Inst. (Nov. 22, 2022), https://www.mei.edu/publications/war-crimes-ukraine-failure-prosecute-russia-will-damage-international-security-years [https://perma.cc/YU5A-8S3E].
57. In short, Ukraine's domestic courts would likely struggle with issues involving heads of state and functional immunity for any individuals prosecuted beyond foot soldiers. *See* Oona A. Hathaway, *Russia's Crime and Punishment: How to Prosecute an Illegal War in Ukraine*, Foreign Affs. (Jan. 17, 2023), https://www.foreignaffairs.com/ukraine/russia-crime-and-punishment-illegal-war-in-ukraine [https://perma.cc/QS4B-2DWK].
58. *Russia Vetoes Security Council Resolution Condemning Attempted Annexation of Ukraine Regions*, U.N. News (Sept. 30, 2022), https://news.un.org/en/story/2022/09/1129102 [https://perma.cc/PBC4-B7KD].
59. Franz B. Schick, *The Nuremberg Trial and the International Law of the Future*, 41 Am. J. Int'l L. 770, 770 (1947).
60. U.N. Updated Statute of the International Criminal Tribunal for the Former Yugoslavia (Sept. 2009), https://www.icty.org/x/file/Legal%20Library/Statute/statute_sept09_en.pdf [https://perma.cc/KZ8Y-QP52] [hereinafter U.N. Updated Statute].
61. *Introduction to the ECCC*, Extraordinary Chambers Cts. Cambodia ("ECCC"), https://www.eccc.gov.kh/en/introduction-eccc [https://perma.cc/LJ7M-BEZ4].
62. The States Party to the Rome Statute, ICC, https://asp.icc-cpi.int/states-parties [https://perma.cc/9FCS-DSKY]; Rome Statute of the International Criminal Court, *supra* note 56.
63. Holocaust Encyclopedia, *The Nuremberg Trials*, U.S. Holocaust Mem'l Museum, https://encyclopedia.ushmm.org/content/en/article/the-nuremberg-trials [https://perma.cc/N8QS-LK5N].
64. *Id.*
65. Justice Robert H. Jackson, *Opening Statement Before the International Military Tribunal*, Robert H. Jackson Ctr. (Nov. 21, 1945), https://www.roberthjackson.org/nuremberg-event/justice-robert-h-jacksons-opening-statement/ [https://perma.cc/YV3K-6A5V].

then use to prosecute the former Nazi leaders.[66] Per Article 6 in the Charter, the perpetrators could be tried with crimes against peace, war crimes, and crimes against humanity.[67]

Though the drafters claimed that the crimes were simply codifications of preexisting international law norms, there was nonetheless some dissent.[68] Some countries doubted whether the trials would actually serve as precedent for future international criminal proceedings because of their novelty.[69] But, the crimes written into the charter do have some relation to the previous Kellogg-Briand Pact written after World War I, where the authors outlined that its breach would lead to criminal sanction.[70] However, there was discord after the trials took place. Some scholars questioned the legitimacy of the tribunal as a form of "victors' justice," since the tribunal was established through agreements among allied powers, without the consent of the parties being prosecuted.[71] Ultimately, however, the Nuremberg trials have served as a building block for the creation of future international criminal tribunals. The trials ended in 1948, with the Genocide Convention approved in the General Assembly of the U.N.[72]

After Nuremberg, the next time the international community created an international tribunal was with the establishment of the ICTY, the first of two ad hoc tribunals.[73] The ICTY was established in response to alleged genocide in the former Yugoslavia, what is now Bosnia and Herzegovina and Croatia.[74] Unlike the Nuremberg trials, the ICTY was established by the Security Council.[75] The Security Council used its power under Chapter VII of the U.N. Charter to establish the tribunal as a subsidiary organ of the Security Council and drafted its charter by unanimously passing Resolution 827 in 1993.[76] The Resolution indicated that the ICTY was necessary to maintain or restore international peace and security, per the Security Council's duty under Article 39 and Article 41 of Chapter VII of the U.N. Charter.[77] As of 2023, the ICTY indicted 161 individuals, with 91 sentenced, some Croats, Bosnian Muslims, and Kosovo Albanians all among the indicted.[78]

Until its closure in 2017, the tribunal prosecuted individuals for four categories of crimes per the statute: (1) breaches of the 1949 Geneva Conventions, which included acts like willful killing, torture, and unlawful deportation or confinement of civilians; (2) violations of the laws or customs of war, such as use of poisonous weapons or the wanton destruction of cities; (3) genocide; and (4) crimes against humanity.[79] Since the ICTY, the Security Council has also worked to form the International Criminal Tribunal for Rwanda, the second ad hoc tribunal to prosecute genocide in Rwanda, which officially closed in 2015.[80]

Where countries do not have the capability to effectively prosecute internationally significant crimes, the country can make an agreement with the U.N. to establish a hybrid tribunal. Hybrid tribunals, like the ECCC,[81] are established through an agreement between the country and the U.N., either the Security Council or the General Assembly, hosted in the country seeking the agreement.[82] In the case of the ECCC, Cambodia requested the assistance of the General Assembly in establishing a system to prosecute crimes committed during the Khmer Rouge regime in the 1970s.[83] Together, they established the ECCC in 2006 to bring the leaders of the regime to justice for their crimes.[84] Hybrid tribunals bring the international legitimacy of ad hoc tribunals to the domestic court space, and they are cheaper, and they allow for wider prosecution of crimes.

The lawyers and judges in the ECCC, who were both domestically and internationally trained, applied both Cambodian and international law to prosecute Cambodian citizens who committed these crimes.[85] The charter of the court specified that the suspects may be tried under the 1956 Penal Code in Cambodia.[86] The could be tried not only for domestic crimes such as homicide, torture, and religious persecution, but also for international crimes such as genocide, crimes against humanity, and crimes under both the Geneva Conventions and the 1954 Hague Convention for Protection of Cultural Property.[87]

66. Agreement for the Prosecution and Punishment of the Major War Criminals of the European Axis, Aug. 8, 1945, 50 Stat. 1544, 82 U.N.T.S. 279.
67. *Id.*
68. Schick, *supra* note 59.
69. Hans Kelsen, *Will the Judgement in the Nuremberg Trial Constitute a Precedent in International Law?*, 1 Int'l L.Q. 153 (1947).
70. *Id.*
71. *See, e.g.*, Michael Biddis, *Victor's Justice? The Nuremberg Tribunal*, 45 Hist. Today 40 (1995).
72. Matas, *supra* note 19.
73. International Residual Mechanism for Criminal Tribunals, *About the ICTY*, U.N., https://www.icty.org/en/about [https://perma.cc/X9SC-TY33].
74. In the early 1990s, Bosnian-Serb troops systematically murdered and imprisoned around 100,000 Bosnian and Croatian Muslims. *See* Stephen Engelberg et al., *Massacre in Bosnia; Srebrenica: The Days of Slaughter*, N.Y. Times (Oct. 29, 1995), https://www.nytimes.com/1995/10/29/world/massacre-in-bosnia-srebrenica-the-days-of-slaughter.html [https://perma.cc/BM3Y-6LS4]; International Residual Mechanism for Criminal Tribunals, *supra* note 73.
75. *Id.*
76. *See generally* Theodor Meron, *Procedural Evolution in the ICTY*, 2 J. Int'l Crim. Just. 520 (2004); S.C. Res. 827 (May 25, 1993); U.N. Charter, ch. VII (Action with Respect to Threats to the Peace, Breaches of the Peace, and Acts of Aggression).
77. *See generally* S.C. Res. 827, *supra* note 76; U.N. Charter, *supra* note 76, at arts. 39, 41. *See also* Ivan Simonovic, *The Role of the ICTY in the Development of International Criminal Adjudication*, 23 Fordham Int'l L.J. 440, 443 (1999).
78. International Residual Mechanism for Criminal Tribunals, *Key Figures of the Cases*, U.N., https://www.icty.org/en/cases/key-figures-cases [https://perma.cc/9JK8-TXE2].
79. U.N. Updated Statute, *supra* note 60; International Residual Mechanism for Criminal Tribunals, *supra* note 73.
80. International Residual Mechanism for Criminal Tribunals, *About*, U.N., https://www.irmct.org/en/about [https://perma.cc/35A7-XAKV].
81. There are many other notable hybrid tribunals, but for the sake of simplicity, the ECCC is focused on here as a case study.
82. ECCC, *Establishment of ECCC*, https://www.eccc.gov.kh/en/about-eccc/chronologies?page=2 [https://perma.cc/WHW4-TJ3D]; U.N. GAOR, 57th Sess., U.N. Doc. A/RES/57/22 (2003); U.N. GAOR, 10th Sess., U.N. Doc. A/RES/ES-10/14 (2003); There have been other notable hybrid tribunals, such as the Special Court for Sierra Leone. *See* U.N., *International and Hybrid Criminal Courts and Tribunals*, https://www.un.org/ruleoflaw/thematic-areas/international-law-courts-tribunals/international-hybrid-criminal-courts-tribunals/ [https://perma.cc/6WJ4-6X78].
83. ECCC, *supra* note 61.
84. The Khmer Rouge killed an estimated 1.7 million Cambodians through execution, exhaustion, and starvation during their reign. *Id.*
85. ECCC, *supra* note 82.
86. Law on the Establishment of Extraordinary Chambers in the Courts of Cambodia for the Prosecution of Crimes Committed During the Period of Democratic Kampuchea, NS/RKM/1004/006 (Oct. 27, 2004).
87. *Id.*

The most recent addition to methods of prosecuting international crimes is the ICC.[88] This court is the first permanent international criminal court, designed to intervene when states are unable or unwilling to prosecute individuals for serious crimes.[89] The founding document of the court—the Rome Statute—was signed in 1998 by over 100 countries, and specifies the four categories of crimes: genocide, crimes against humanity, war crimes, and the crime of aggression.[90] Cases are referred to the ICC by the Security Council or by its prosecutions against individuals who are citizens of a state party to the Rome Statute, or who commit crimes within the jurisdiction of states' party.[91] The court cannot bring cases against individuals whose country of citizenship has not ratified the statute, except in very limited scenarios when the Security Council refers the situation to the court and/or the country agrees that the citizen can be brought before the court.[92] This principle is evidenced in the eventual arrest of previous president of Sudan, Omar al-Bashir, whose country is not party to the Rome Statute.[93] Al-Bashir has yet to be extradited to the Hague to face prosecution and is instead serving time in Sudan after a national trial there.[94] However, should Sudanese authorities agree to extradite al-Bashir, as they have alluded to in the past, there is the possibility of obtaining jurisdiction over individuals whose country of citizenship is not party to the statute.[95]

A. *The Interplay of International Environmental and International Criminal Law*

Binding international environmental law is primarily governed by treaties.[96] Thus far, there have been few criminal sanctions for international environmental crimes beyond domestic prosecution.[97] But, there is hope in cobbling together non-binding principles on the protection of the environment in times of armed conflict, with precedent in the international civil environmental law space and humanitarian law, to form a basis for international criminal environmental law.

For example, the International Law Commission, a group established by the General Assembly to research and develop international law as a reference point for adjudicating bodies, adopted 27 principles on the Protection of the Environment in Relation to Armed Conflicts ("PERAC").[98] The General Assembly noted the principles and brought them to the attention of states at the request of the Commission.[99] Several principles could reasonably apply to the situation in Ukraine, particularly Principles 12, 13, 16.[100] While these principles do not bind states in any way, they represent trends in international environmental law and serve as guidance for any future adjudications at a tribunal or in treaty-making post-conflict.[101]

Non-criminal environmental sanctions are also potential remedies for damages caused by states in wartime. The *Trail Smelter* Arbitration is one of the principal cases setting the standards of environmental law.[102] In this case, Canadian industrial facilities were causing pollution that entered U.S. territory. The arbitration articulated the *sic utere* principle: property of one country must not be used in such a way to damage the property of another.[103] One of the most significant instances of non-criminal reparations sought for environmental damage as a result of a war is the United Nations Compensation Commission (hereinafter called "the commission"), which was established after the Iraqi invasion of Kuwait in the 1990s.[104] The commis-

88. *Understanding the International Criminal Court*, ICC 6 (2020), https://www.icc-cpi.int/sites/default/files/Publications/understanding-the-icc.pdf [https://perma.cc/8ZP8-WMAJ].
89. *Id.*
90. Rome Statute, *supra* note 56.
91. ICC, *supra* note 88.
92. S.C. Res. 1593, U.N. Doc. S/RES/1593 (Mar. 31, 2005).
93. *Al-Bashir Case*, ICC, https://www.icc-cpi.int/darfur/albashir [https://perma.cc/5RNX-8D26].
94. Abdi Latif Dahir, *Sudan's Ousted Leader Is Sentenced to Two Years for Corruption*, N.Y. Times (Aug. 12, 2021), https://www.nytimes.com/2019/12/13/world/africa/sudan-bashir-trial-verdict.html [https://perma.cc/N6TK-88XM].
95. *Omar al-Bashir: Sudan Agrees Ex-President Must Face ICC*, BBC News (Feb. 11, 2020), https://www.bbc.com/news/world-africa-51462613 [https://perma.cc/TT9H-DWCM]; Ondrêj Svaček, *Al-Bashir and the ICC—Tag, Hide-and-Seek . . . or Rather Blind Man's Bluff?*, *in* The Rome Statute of the ICC at Its Twentieth Anniversary: Achievements and Perspectives 185 (Pavel Šturma ed., 2019).
96. *See, e.g.*, *Multilateral Treaties Deposited With the Secretary General*, U.N., https://treaties.un.org/pages/Treaties.aspx?id=27&subid=A&clang=_en [https://perma.cc/X9BY-UJ9V] (repository of international environmental treaties).
97. *See* Lily Grisafi, *Prosecuting International Environmental Crime Committed Against Indigenous Peoples in Brazil*, 5 Colum. Human Rts. L. Rev. 26 (2020).
98. Stavros Pantazopoulos, *The ILC Draft Principles on Protection of the Environment in Armed Conflict*, Articles of War Lieber Inst. W. Point (Aug. 4, 2022), https://lieber.westpoint.edu/ilc-protection-environment-armed-conflict/ [https://perma.cc/BRJ3-JMJA].
99. *See generally* G.A. Res. 77/104 (Dec. 19, 2022).
100. These principles establish that the protection of the environment in times of war is governed by the rules of customary law. They also more clearly specify what kinds of damage would be outside of the bounds of reasonable force in times of war. In the context of Ukraine, this allows for guiding principles for the creation of a body of criminal environmental law in a hybrid tribunal. For example, Principle 12 states, "[i]n cases not covered by international agreements, the environment remains under the protection and authority of the principles of international law derived from established custom, from the principles of humanity and from the dictates of public conscience"; Principle 13 states:
    > [t]he environment shall be respected and protected in accordance with applicable international law and, in particular, the law of armed conflict[;] . . . [s]ubject to applicable international law[,] care shall be taken to protect the environment against widespread, long term and severe damage [and] the use of methods and means of warfare that are intended, or may be expected, to cause widespread, long-term and severe damage to the environment is prohibited[; and n]o part of the environment may be attacked, unless it has become a military objective.

    Int'l Law Comm'n, Rep. on the Work of Its Seventy-Third Session, U.N. Doc. A/77/10, at 94 (2022). Principle 16 also prohibits "[p]illage of natural resources . . . ." *Id.*
101. Int'l Law Comm'n, *Methods of Work*, U.N. (2023), https://legal.un.org/ilc/methods.shtml [https://perma.cc/23HB-KSBY] (noting that the Commission's work may take the form of draft principles intended to "contribute to the progressive development of international law and provide appropriate guidance to States").
102. Trail Smelter Arbitral Tribunal Decision, 35 Am. J. Int'l L. 684 (1941).
103. Leslie-Anne Duvic-Paoli & Mario Gervasi, *Harm to the Global Commons on Trial: The Role of the Prevention Principle in International Climate Adjudication*, 32 Rev. Eur., Compar. & Int'l Env't L. 226, 227 (2023).
104. Cymie R. Payne, *Developments in the Law of Environmental Reparations: A Case Study of the U.N. Compensation Commission*, *in* Environmental Protection and Transitions From Conflict to Peace: Clarifying

sion provided awards for over $5 billion in environmental remediation and restoration for damage to water and soil from oil spillage.[105] These cases show how states can be held responsible for the international harms done as a result of their citizens, even if it does not affect them criminally. In criminal tribunals, the focus is on individual, rather than state, responsibility, whereas in these non-criminal sanctions, states may be held liable for damages.[106]

There are other international criminal laws that apply to environmental contexts, such as The Hague Relations. The Hague Regulations resulted from the First and Second Hague Peace Conferences of 1899 and 1907.[107] These regulations laid the groundwork for later more detailed conventions like the Geneva Conventions, but reflect some important customary international law, such as prohibitions against destroying the enemy's property unless the destruction is a military necessity.[108] Also relevant is Article 28 on the prohibition of pillaging.[109]

The Geneva Conventions are integral to the foundation of international criminal law. They are four binding treaties that codified laws of war that govern international armed conflict.[110] The Additional Protocols add more binding protections for victims of armed conflicts.[111] Both Russia and Ukraine are parties to the Geneva Conventions and Additional Protocol 1.[112] Most relevant to the protection of the environment is Convention IV and Additional Protocol I, which focuses on the protection of civilians during times of war.[113] While Article 55 of the Additional Protocol is the only one that explicitly seeks to protect the environment, other provisions within Convention IV and the Additional Protocol may be useful for the prosecution of environmental crimes.[114] Article 55 of Convention IV,[115] Article 54 of the Additional Protocol,[116] and Article 55 of the Additional Protocol,[117] which disallow destruction of food stores during times of war and prohibit certain methods or means of warfare that are intended or may be expected to cause such damage to the natural environment thereby prejudicing the health or survival of the population, ought to be considered.[118]

Additionally, there have been discussions among academics about adding ecocide as a crime under the Rome Statute of the ICC, and to specifically prosecute Russia for environmental crimes that occurred during the war.[119] The Rome Statute already articulates that "intentionally launching an attack in the knowledge that such attack will cause . . . widespread, long-term and severe damage to the natural environment which would be clearly excessive in relation to the concrete and direct overall military advantage anticipated" is prohibited as a war crime under Article 8(b)(iv).[120] The addition of ecocide to the Rome Statute has yet to occur, but if added, it would outlaw "unlawful or wanton acts committed with knowledge that there is a substantial likelihood of severe and either widespread or long-term damage to the environment being caused by those acts."[121] Determining whether long-term damage occurred in Ukraine would require longitudinal studies and delay justice. Therefore, using the Rome Statute to prosecute environmental crimes is not a likely solution to the need for prosecution of environmental crimes in Ukraine. In addition, gaining physical jurisdiction over individuals in Russia in order to prosecute them is unlikely given that Russia is unlikely to resubmit to the jurisdiction

Norms, Principles, and Practices 329–66 (Carsten Stahn et al. eds., 2017).

105. *Id.*

106. *Office of the Prosecutor*, ICC, https://www.icc-cpi.int/about/otp [https://perma.cc/7BLT-DBJ9]; Int'l Law Comm'n, *supra* note 100, at 169–71.

107. *See generally* The Hague Convention (IV) Respecting the Laws and Customs of War on Land and Its Annex: Regulations Concerning the Laws and Customs of War on Land, Oct. 18, 1907, 36 Stat. 2277 [hereinafter Hague Convention (IV)].

108. *Id.* at art. 23(g) ("it is especially forbidden . . . [t]o destroy or seize the enemy's property, unless such destruction or seizure be imperatively demanded by the necessities of war . . . .").

109. Given the evidence demonstrating pillaging of Ukrainian grain stores, the provision on pillaging may be relevant in the environmental crimes context. Hague Convention (IV), *supra* note 107, at art. 28 ("The pillage of a town or place, even when taken by assault, is prohibited.").

110. *Summary of the Geneva Conventions of 1949 and Their Additional Protocols*, Am. Red Cross (Apr. 2011), https://www.redcross.org/content/dam/redcross/atg/PDF_s/International_Services/International_Humanitarian_Law/IHL_SummaryGenevaConv.pdf [https://perma.cc/E4QQ-4XUF].

111. It should be noted that these protocols have fewer signatories than the original conventions but are still extremely relevant for the contemporary understanding on humanitarian law. *The Geneva Conventions of 1949 and Their Additional Protocols*, Int'l Comm. Red Cross (Jan. 1, 2014), https://www.icrc.org/en/document/geneva-conventions-%DB%B1%DB%B9%DB%B4%DB%B9-additional-protocols [https://perma.cc/5N8G-UAEP].

112. *See* Geneva Convention (I) for the Amelioration of the Condition of the Wounded and Sick in Armed Forces in the Field, Geneva, Aug. 12, 1949, 75 U.N.T.S. 31 [hereinafter Geneva Convention (I)]; Geneva Convention (II) for the Amelioration of the Condition of Wounded, Sick and Shipwrecked Members of Armed Forces at Sea, Geneva, Aug. 12,1949, 75 U.N.T.S. 85 [hereinafter Genevan Convention (II)]; Geneva Convention (III) Relative to the Treatment of Prisoners of War, Geneva, Aug. 12, 1949, 75 U.N.T.S. 135 [hereinafter Geneva Convention (III)]; Geneva Convention (IV) Relative to the Protection of Civilian Persons in Time of War, Geneva, Aug. 12, 1949, 75 U.N.T.S. 287 [hereinafter Geneva Convention (IV)]; Protocol Additional (I) to the Geneva Conventions of 12 August 1949, and Relating to the Protection of Victims of International Armed Conflicts, June 8, 1977, 1125 U.N.T.S. 3 [hereinafter Additional Protocol (I)].

113. Geneva Convention (IV), *supra* note 112; Additional Protocol (I), *supra* note 112.

114. *Id.*

115. Geneva Convention (IV), *supra* note 112, at art. 55.

116. Geneva Convention (IV), *supra* note 112, at art. 54; *Treaties and State Parties*, Int'l Comm. Red Cross, https://ihl-databases.icrc.org/en/ihl-treaties/api-1977/state-parties?activeTab=undefined [https://perma.cc/DFP5-7JWA] (listing signatories to Additional Protocol (I)).

117.

> Care shall be taken in warfare to protect the natural environment against widespread, long-term and severe damage. This protection includes a prohibition of the use of methods or means of warfare which are intended or may be expected to cause such damage to the natural environment and thereby to prejudice the health or survival of the population.

Additional Protocol (I), *supra* note 112, at art. 55.

118. *Id.*

119. Josie Fischels, *How 165 Words Could Make Mass Environmental Destruction an International Crime*, NPR (June 27, 2021), https://www.npr.org/2021/06/27/1010402568/ecocide-environment-destruction-international-crime-criminal-court [https://perma.cc/E5Q3-X585]; Joanna Hosa, *The Dam Has Burst: How Russia's War on Ukraine Could Make Ecocide an International Crime*, Eur. Council Foreign Rels. (June 14, 2023), https://ecfr.eu/article/the-dam-has-burst-how-russias-war-on-ukraine-could-make-ecocide-an-international-crime/ [https://perma.cc/P5KD-WQ9G].

120. Rome Statute, *supra* note 56.

121. Fischels, *supra* note 119; *see also* Isabella Kaminski, *Growing Number of Country Consider Making Ecocide a Crime*, The Guardian, https://www.theguardian.com/environment/2023/aug/26/growing-number-of-countries-consider-making-ecocide-crime.

of ICC or voluntarily offer its senior governmental officials for prosecution.[122]

IV. Prosecution of International Environmental Crimes in a Hybrid Tribunal

After World War II and the creation of the U.N. and its Security Council, the General Assembly noted that giving permanent status to some countries, and the concurring veto power, could lead to significant potential strife if one of the permanent countries abused that power or otherwise misused its veto and potentiated a deadlock.[123] This led to the adoption of a resolution that allowed for circumvention of the Security Council veto called a "Uniting for Peace" Resolution.[124] The Resolution, which had to be drafted by one of the permanent members of the Security Council, allowed the General Assembly to make recommendations over the potential or actual abusive veto of one of the permanent members of the Security Council on matters of peace or security.[125] The resolution must have nine affirmative votes from within the Security Council and then it can be referred to the General Assembly, or a vote by the General Assembly.[126] The recommendations can even include use of force, which shows the significant potential power of these resolutions.[127]

The General Assembly is the most likely body to have both the power and the ability to establish an international tribunal capable of holding Russia accountable for its crimes in Ukraine. The Security Council is almost certainly unable to pass any resolutions on Ukraine, with Russia holding permanent member status and therefore veto power.[128] Russia has already exercised its veto power in the past year after its invasion of Ukraine and would undoubtedly do it again to avoid the establishment of a tribunal.[129] Once the General Assembly has established its tribunal, then it must ensure that the tribunal's founding charter includes provisions that protect the environment. The General Assembly's power to circumvent Russia's veto ought to be used by enacting a "Uniting for Peace" Resolution to establish a hybrid tribunal.[130]

The "Uniting for Peace" Resolutions have been used 13 times since their creation in 1950.[131] The most recent "Uniting for Peace" resolution was passed when the emergency special session was conducted on the invasion of Ukraine a few days after it began on March 1, 2022.[132] In that Emergency Special Session, the General Assembly adopted resolution ES-11/1, which condemned the Russian invasion and noted that any annexation of territory that Russia attempted would not be seen as legal. It also condemned the aggression by Russia as against the U.N. Charter and demanded that Russia cease its military activity.[133] "Uniting for Peace" has been invoked by both the Security Council and the General Assembly.[134] Therefore, the best avenue for establishing an international criminal tribunal in this case would involve using the "Uniting for Peace" power to harness the General Assembly's votes and establish a hybrid tribunal.[135]

In order to hold Russia accountable for its environmental crimes in Ukraine, the U.N. must partner with Ukraine to establish a hybrid tribunal. An ad hoc tribunal cannot be established because of Russia's veto power, and the ICC does not yet have the capacity or expressed desire to prosecute environmental crimes.[136] The hybrid tribunal could likely be established through a "Uniting for Peace" Resolution enacted by the General Assembly.[137]

The hybrid tribunal is the best option to try war crimes, particularly environmental war crimes, in Ukraine. With a hybrid tribunal, Ukraine could rely on the power of local law and attorneys and the expertise of international judges, attorneys, and law.[138] If there are environmental harms that are great but do not reach the threshold of international environmental crimes, and hybrid tribunals can prosecute both international and domestic crimes, domestic Ukrainian law could function as a means to seek redress for these

122. Mark Trevelyan, *Russia Defies Putin Arrest Warrant by Opening Its Own Case Against the ICC*, Reuters (Mar. 20, 2023), https://www.reuters.com/world/europe/russia-opens-criminal-case-against-icc-judges-prosecutor-over-putin-arrest-2023-03-20/ [https://perma.cc/CU3E-LETU].
123. G.A. Res. 377(V), ¶ 1 (Nov. 3, 1950).
124. *See generally* Carswell, *infra* note 137.
125. *Id.*
126. *Id.*
127. Yasmine Nahlawi, *Overcoming Russian and Chinese Vetoes on Syria Through Uniting for Peace*, 24 J. Conflict & Sec. L. 111, 113-14 (2019).
128. *Current Members*, U.N. Sec. Council, https://www.un.org/securitycouncil/content/current-members [https://perma.cc/SRX4-SBW3]; *Voting System*, U.N.S.C., https://www.un.org/securitycouncil/content/voting-system [https://perma.cc/9FNL-CLYP].
129. U.N. News, *infra* note 136.
130. Nahlawi, *supra* note 127.
131. *Security Council Deadlocks and Uniting for Peace: An Abridged History*, Sec. Council Rep. (Oct. 2013), https://www.securitycouncilreport.org/atf/cf/%7B65BFCF9B-6D27-4E9C-8CD3-CF6E4FF96FF9%7D/Security_Council_Deadlocks_and_Uniting_for_Peace.pdf [https://perma.cc/NEB9-D3TF]; *UN Documents for Ukraine*, Sec. Council Rep. (2023), https://www.securitycouncilreport.org/un-documents/ukraine/ [https://perma.cc/YYP9-9WRR].
132. UNSC, Albania and United States of America: Draft Resolution, U.N. Doc. S/2022/160 (Feb. 27, 2022; U.N. SCOR, 77th Sess., 8980d mtg., U.N. Doc. S/PV.8980 (Feb. 27, 2022).
133. G.A. Res. ES-11/1 (Mar. 2, 2022).
134. Sec. Council Rep., *supra* note 131.
135. Kevin Jon Heller, *The Best Option: An Extraordinary Ukrainian Chamber for Aggression*, OpinioJuris (Mar. 16, 2022), https://opiniojuris.org/2022/03/16/the-best-option-an-extraordinary-ukrainian-chamber-for-aggression/ [https://perma.cc/KA2W-TJPK].
136. *Russia Vetoes Security Council Resolution Condemning Attempted Annexation of Ukraine Regions*, U.N. News (Sept. 30, 2022), https://news.un.org/en/story/2022/09/1129102 [https://perma.cc/2KN7-Y89N]; Rome Statute, *supra* note 56.
137. From a practical standpoint, Ukraine likely could not handle these prosecutions in its internal system alone. It lacks both the judges and financial resources and could struggle with internal consistency in application of the law due to widespread anger over the war. In the interests of justice, Ukraine should be assisted in adjudication of these matters. *See Ukraine: The Justice System Should Be Strengthened During and Following the War*, Int'l Comm. Jurists (Nov. 18, 2022), https://www.icj.org/ukraine-the-judiciary-should-be-strengthened-and-supported-during-and-following-the-war/ [https://perma.cc/R8YB-YDXK]; Andrew J. Carswell, *Unblocking the U.N. Security Council: The Uniting for Peace Resolution*, 18 J. Conflict & Sec. L. 453, 455 (2013).
138. Juan-Pablo Pérez-Léon-Acevedo, *UN-Backed Hybrid Criminal Tribunals (HCTs): Viable Options in International Criminal Justice*, 22 Int'l Crim. L. Rev. 641 (2022).

harms.[139] Though hybrid tribunals have historically been used in primarily intranational conflicts like civil wars, there is no clear reason why Ukraine could not enter into an agreement with the General Assembly to establish the hybrid tribunal, using both international and Ukrainian law, similar to the functionality of the ECCC.[140]

An ad hoc tribunal would not be appropriate for use in Ukraine as they have only ever been established by the Security Council.[141] Therefore creating an ad hoc tribunal like the ICTY is not feasible, because of its reliance on establishment by the Security Council, where Russia has permanent veto power.[142] Also, these types of tribunals distance the victims of the crime from the trials,[143] are extremely slow-moving, and expensive, so this type of tribunal would not be an ideal format, regardless of its feasibility.[144] A hybrid tribunal is more sustainable, and has the potential of building more accountability into the domestic legal space of another country, rather than simply working to try crimes for a finite period of time, like an ad hoc tribunal would.[145]

Also, a hybrid tribunal is the best option because the ICC cannot bring Russia into its jurisdiction. Firstly, even though Ukraine voluntarily submitted to the ICC's jurisdiction indefinitely in 2015, Russia has not been and is still not a party to the statute.[146] In order for the ICC to extradite Russian citizens, Russia would have to voluntarily submit itself to the ICC's jurisdiction.[147] Bringing Russia and its citizens into the purview of the court would require either a Security Council recommendation, or Russian acquiescence, both of which are unlikely.[148] Also, non-criminal sanctions suffer a similar fate to the ad hoc tribunals, as the compensation commissions were also established by the Security Council.[149]

The extensiveness of the harms caused by Russia's indiscriminate shelling and intentional destruction of food stores and water sources constitute an international crime for the purposes of international prosecution. If a hybrid tribunal were established with the agreement of Ukraine and the General Assembly, it would need to have a founding charter that lists the crimes it has the ability to prosecute.[150] The charter could include any provision of Ukrainian law relevant to the invasion, and also, similar to the charter establishing the ECCC, it could include relevant provisions of international law, such as the *sic utere* principle borrowed from international civil environmental law.[151] The charter could also cite the various war crimes definitions as written in the Geneva Conventions and Additional Protocol 1, as both the ICTY and the ECCC cited.[152] These would allow for the prosecution of environmental crimes that cause widespread, long-term, and severe damage to the environment under Article 54 of the Additional Protocol, and for the prosecution of pillaging of grain and intentional destruction of food and water sources for civilians under Article 54 and Article 55 of the Geneva Conventions.[153]

While there would likely have to be more studies to understand the long-term impacts of the shelling in Ukraine on the quality of fields and waterways—as long-term damage is a requirement under the Convention—there likely could be immediate redress sought for the pillaging of grain and intentional destruction of farms, as outlawed by the Convention and the Additional Protocol under Articles 54 and 55.[154] There is some indication that the intense shelling could lead to long-term degradation of the soil, but this analysis requires a longitudinal study that obviously has yet to be conducted.[155] However, should predictions be true, Ukraine can likely seek redress for these harms, as well.[156]

V. Conclusion

The establishment of a hybrid tribunal in the case of the Russian invasion of Ukraine is the most feasible way to seek redress for environmental crimes committed by Russia as a result of the war because of its ability to circumvent Russia's veto power and reliance on both domestic and international law.[157] Relying solely on the ICC or the creation of a different ad hoc tribunal would likely fail due to Russia's permanent veto power, and could neglect to prosecute some kinds of environmental harm that do not quite meet the threshold for international crimes.[158]

139. *What Crimes Can Be Tried? Do the Trials Use Cambodian Law or International Law?*, ECCC, https://www.eccc.gov.kh/en/faq/what-crimes-can-be-tried-do-trials-use-cambodian-law-or-international-law [https://perma.cc/JH4G-DQGG].
140. *Are There Any Other Courts in the World Like the ECCC?*, ECCC, https://www.eccc.gov.kh/en/faq/are-there-any-other-courts-world-eccc [https://perma.cc/G3LH-C3UR].
141. U.N., *supra* note 76; U.N., *supra* note 81.
142. U.N., *supra* note 76.
143. Heller, *supra* note 135.
144. *Beyond the Hauge: The Challenges of International Justice*, Hum. Rts. Watch (Jan. 26, 2004), https://www.hrw.org/news/2004/01/26/beyond-hague-challenges-international-justice [https://perma.cc/U48W-KQER].
145. Juan-Pablo Pérez-Léon-Acevedo, *supra* note 138.
146. The States Party to the Rome Statute, *supra* note 62.
147. *Ukraine Accepts ICC Jurisdiction Over Alleged Crimes Committed Since 20 February 2014*, ICC (Sept. 8, 2015), https://www.icc-cpi.int/news/ukraine-accepts-icc-jurisdiction-over-alleged-crimes-committed-20-february-2014 [https://perma.cc/6Q2P-XZL5].
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149. Payne, *supra* note 104, at 335.
150. ECCC, *supra* note 61.
151. *Id;* Lecture by Ralph Steinhardt, International Law, October 12, 2022; Jutta Brunnée, *Sic utere tuo ut alienum non laeda*, Oxford Public International Law https://opil.ouplaw.com/display/10.1093/law:epil/9780199231690/law-9780199231690-e1607#:~:text=1%20In%20the%20context%20of,injury%20to%2C%20or%20within%2C%20another [https://perma.cc/9JCB-NXYN].
152. Additional Protocol (I), *supra* note 112; Geneva Convention (IV), *supra* note 112; Law on the Establishment of the ECCC *supra* note 85, at Article 6; U.N. Updated Statute, *supra* note 63, at Article 3.
153. *Id.*
154. Share Ams., *supra* note 50; Welsh et al., *supra* note 15; Beake et al., *supra* note 53; Additional Protocol (I), *supra* note 112; Geneva Convention (IV), *supra* note 112; Aljazeera *supra* note 49.
155. Dzombak, *supra* note 43.
156. Additional Protocol (I), *supra* note 112, at arts. 54–55.
157. ECCC, *supra* note 61.
158. The States Party to the Rome Statute, *supra* note 62.

George Washington Journal of Energy & Environmental Law
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