

Building the World We Want in an Era of Climate Anxiety

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“[W]e’re playing Russian roulette with the climate. Every increase in temperature . . . makes the risks of bad impacts that much higher.”¹

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INTRODUCTION

It is “unequivocal” that human activity is driving climate change.² For clarity, unequivocal means “leaving no doubt: clear, unambiguous[.]”³ The mean global temperature is already more

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¹ Shannon Osaka, *Why Climate ‘Doomers’ Are Replacing Climate ‘Denier,’* WASHINGTON POST (Mar. 24, 2023, 10:00 AM), <https://www.washingtonpost.com/climate-environment/2023/03/24/climate-doomers-ipcc-un-report> [https://www.perma.cc/4QTA-SBFE] (quoting climate researcher Zeke Hausfather).

² *Synthesis Report of the IPCC Sixth Assessment Report (AR6): Summary for Policymakers*, Intergovernmental Panel on Climate Change, at 4 (2023) [hereinafter IPCC, AR6 Synthesis Report].

³ *Unequivocal*, MERRIAM-WEBSTER, <https://www.merriam-webster.com/dictionary/unequivocal> [https://www.perma.cc/FYZ3-QE3T] (last visited Oct. 29, 2023).

than 1.1°C above pre-industrial levels.⁴ And the trajectory is heading in the wrong direction. Keeping temperature increases below 1.5°C, the level generally agreed on as essential for preventing the worst climate catastrophes,⁵ seems increasingly out of reach.⁶ Moreover, even at current levels of warming, the global climate appears to have gone completely off the rails. Widespread, rapid changes ranging from extreme temperatures,⁷ violent storms,⁸ accelerating ice melt,⁹ and expanding wildfire zones¹⁰ have become commonplace.

⁴ *World of Change: Global Temperatures*, NASA EARTH OBSERVATORY, <https://earthobservatory.nasa.gov/world-of-change/global-temperatures> [<https://www.perma.cc/4PVG-BJSD>] (last visited Oct. 29, 2023).

⁵ See *Global Warming of 1.5°C*, Intergovernmental Panel on Climate Change (2018).

⁶ See J.B. Ruhl and Robin Craig, *4°C*, 106 MINN. L. REV. 191, 198–201 (2021) (claiming that the Paris Accord goal of keeping warming well below 2°C is unreachable and arguing for transformational adaptation measures as radical as the pace and intensity of the changes we face).

⁷ See, e.g., Andrew Freedman, *Earth Saw Hottest Day yet Thursday, the Fourth Straight Global Record*, AXIOS (July 7, 2023), <https://www.axios.com/2023/07/07/earth-four-hottest-days-thursday> [<https://perma.cc/FJ7B-XATX>]; Brad Plumer and Elena Shao, *Heat Records Are Broken Around the Globe as Earth Warms, Fast*, N.Y. TIMES (July 16, 2023), <https://www.nytimes.com/2023/07/06/climate/climate-change-record-heat.html> [<https://perma.cc/8FKS-3GUF>]; @extremetemps, TWITTER (July 16, 2023, 6:51 AM), <https://twitter.com/extremetemps/status/1680576009513435136?s=20> [<https://perma.cc/6XVA-F3RR>] (describing reports circulating on Twitter that Sanbao, China had reached a new global record of 52.2°C).

⁸ See, e.g., Rebecca Falconer, *In Photos: Damage from Catastrophic Flooding in Vermont and New York*, AXIOS (July 10, 2023), <https://www.axios.com/2023/07/11/photos-flood-damage-new-york-vermont> [<https://perma.cc/XCC3-ZPTF>]; *South Korea Flood Death Toll Hits 40, Prompting President to Vow Climate Change Prep “Overhaul”*, CBSNEWS (July 17, 2023, 6:40 AM), <https://cbsnews.com/news/south-korea-flood-deaths-tunnel-trapped-climate-change-overhaul-yoon> [<https://perma.cc/HHT3-MB6L>]; Paulina Smolinski, *Pakistan, Still Recovering from Last Year’s Floods, Braces for More Flooding This Year*, CBSNEWS (May 5, 2023, 12:14 PM), <https://www.cbsnews.com/news/pakistan-more-floods-expected-2023> [<https://perma.cc/FD79-YTX8>].

⁹ See *Antarctic Ice Levels Undergo ‘Massive Decrease,’ Data Shows*, REUTERS (Jul. 10, 2023, 9:38 AM), <https://www.reuters.com/world/antarctic-ice-levels-undergo-massive-decrease-data-shows-2023-07-10/> [<https://perma.cc/5JWF-L249>]; *The Sun Sets on the Arctic Melt Season*, NAT’L SNOW & ICE DATA CTR. (Oct. 4, 2023), <https://inside.org/arcticseaicenews/> [<https://perma.cc/J5FM-ZEEE>] (reporting short-term and long-term ice decreases); Michalea D. King et al., *Dynamic Ice Loss from the Greenland Ice Sheet Driven by Sustained Glacier Retreat*, 1 COMM’NS EARTH & ENV’T 1, 1 (2020).

¹⁰ See *Spreading like Wildfire: The Rising Threat of Extraordinary Landscape Fires*, U.N. ENV’T PROGRAMME (Feb. 23, 2022), <https://www.unep.org/resources/report/spreading-wildfire-rising-threat-extraordinary-landscape-fires> [<https://perma.cc/GA8G-37ED>].

For much of the United States, the summer of 2023 was calamitous. With Maui in ruins,¹¹ Vermont flooded,¹² Phoenix topping 110° F for a month,¹³ and Southern California facing its first tropical storm in nearly a century,¹⁴ the belief that we have crossed planetary boundaries or irreversible climate tipping points gains plausibility by the day.¹⁵ Climate scientist James Hanson has long cautioned that without urgent action, we face an apocalyptic future,¹⁶ and each successive Intergovernmental Panel on Climate Change (“IPCC”) report offers ever more detailed support for his bleak assessment. This past summer, UN Secretary-General António Guterres put it bluntly, “The era of global warming has ended and ‘the era of global boiling has arrived.’”¹⁷ These are chilling words (no pun intended). The message from all sides seems like “we’re f[*]cked. The only questions are only how soon and how badly?”¹⁸

While awareness of the climate crisis is essential, overdoing the negativity can be problematic. Michael Mann draws attention to what he calls “climate inactivism”—a cynical ploy by the fossil fuel industry to use frightening climate messages to blunt rather

¹¹ See Chris Cameron, *Hawaii Wildfires: Maui Death Toll Climbs to 93*, N.Y. TIMES (Aug. 21, 2023), <https://www.nytimes.com/live/2023/08/13/us/maui-wildfires-hawaii-news> [<https://perma.cc/3QHQ-TEF9>].

¹² See Peter Banacos, *The Great Vermont Flood of 10-11 July 2023: Preliminary Meteorological Summary*, NAT’L WEATHER SERV. (Aug. 5, 2023, 8:45 AM), <https://www.weather.gov/btv/The-Great-Vermont-Flood-of-10-11-July-2023-Preliminary-Meteorological-Summary> [<https://perma.cc/D7JK-57WD>].

¹³ See *Phoenix Ends 31-Day Streak of Highs at or Above 110 Degrees—By Reaching 108*, NPR (Aug. 1, 2023, 12:08 AM), <https://www.npr.org/2023/08/01/1191238086/phoenix-ends-31-day-streak-of-highs-at-or-above-110-degrees-by-reaching-108> [<https://perma.cc/Q849-QJTG>].

¹⁴ Gina Martinez, *Hilary Drenches Southern California with Record-Breaking Rainfall as Storm Wreaks Havoc*, CBS NEWS (Aug. 21, 2023, 8:24 PM) <https://www.cbsnews.com/news/tropical-storm-hilary-southern-california-nevada-rain-flooding/> [<https://perma.cc/4GMK-VYHT>].

¹⁵ See, e.g., Timothy M. Lenton et al., *Climate Tipping Points—Too Risky to Bet Against*, 575 NATURE 592, 592–95 (2019); Marten Scheffer et al., *Early-Warning Signals for Critical Transitions*, 461 NATURE 53 (2009).

¹⁶ See, e.g., JAMES HANSON, STORMS OF MY GRANDCHILDREN: THE TRUTH ABOUT THE COMING CLIMATE CATASTROPHE AND OUR LAST CHANCE TO SAVE HUMANITY (2009).

¹⁷ Ajit Niranjani, “Era of Global Boiling Has Arrived,” Says UN Chief as July Set to Be Hottest Month on Record, THE GUARDIAN (Jul. 27, 2023, 9:31 AM), <https://www.theguardian.com/science/2023/jul/27/scientists-july-world-hottest-month-record-climate-temperatures> [<https://perma.cc/V7SK-ZH29>].

¹⁸ ROY SCRANTON, LEARNING TO DIE IN THE ANTHROPOCENE 9 (2015).

than galvanize calls for changes.¹⁹ Their grim strategy has a name—climate doomism.

Instead of using information to spur action, climate doomism deploys IPCC findings to send the message “it’s too late,” with the sometimes spoken but always present corollary, “so why bother.”²⁰ Rebecca Solnit called this “surrendering in advance.”²¹ Writers like Roy Scranton have crafted elegies to climate doom.²² Scranton describes New Orleans in the wake of Hurricane Katrina as ‘chaos and collapse’ with “the machinery of civilization breaking down, unable to recuperate from shocks to its system.”²³ For Scranton, this is our future, and it “is not going away.”²⁴

Having lived through 9/11 and the COVID-19 crisis in New York City, I beg to differ. Where Scranton sees only “a collective-action problem of the highest order,” my experience in New York City taught me that mutual aid can spring up quickly and in unlikely places and that social solidarity can provide pathways forward for seemingly intractable collective action problems.²⁵ I am not naïve. I recognize the enormity of the physical, social, economic, and political challenges we face. The world is warming rapidly. The rise in fascism dovetails with consolidating corporate control of media and with the means of producing and distributing goods, including foods. Precarity has ordinary people turning to drugs and looking for scapegoats.

Mounting evidence shows that continuing with business as usual is a utopian (dystopian) fantasy, not a viable option.²⁶ It is clear that Black and brown communities face the most risk. Indeed, it is precisely because most of the costs are borne by people

¹⁹ See Richard Schiffman, *Climate Deniers Shift Tactics to Inactivism*, SCI. AM. (Jan. 12, 2021), <https://www.scientificamerican.com/article/climate-deniers-shift-tactics-to-inactivism/> [https://perma.cc/B99H-CEPA] (interviewing climate researcher Michael Mann).

²⁰ See, e.g., Jennifer R. Marlon et al., *How Hope and Doubt Affect Climate Change Mobilization*, 4 FRONTIERS IN COMM’N 1, 13 (2019), (describing how various forms of hope and doubt shape beliefs with regard to climate change).

²¹ Rebecca Solnit, *We Can’t Afford to Be Climate Doomers*, THE GUARDIAN (Jul. 26, 2023, 6:05 AM) <https://www.theguardian.com/commentisfree/2023/jul/26/we-cant-afford-to-be-climate-doomers> [https://perma.cc/96L7-7SAF].

²² See SCRANTON, *supra* note 18, at 12.

²³ *Id.* at 82.

²⁴ *Id.*

²⁵ For an exploration of this idea, see Penn Loh, Neenah Estrella-Luna & Katherine Shor, *Pandemic Response and Mutual Aid as Climate Resilience: Learning From Community Responses in the Boston Area*, 1 J. CLIMATE RESILIENCE & CLIMATE JUST. 8 (2023).

²⁶ See JAMES GUSTAV SPETH, *THE BRIDGE AT THE END OF THE WORLD* xiii–xiv (2008) (making this point).

deemed “surplus” to racial capitalism that policies catastrophic to the planet have continued.²⁷ But nothing is inevitable except change. Our future is not predestined.

We need not continue down roads of destruction. We need not perpetuate the racialized injustices of climate colonialism.²⁸ We can, if we choose, come together to address these pressing intertwined issues of climate change and climate justice. I say address rather than solve because I am realistic. There is a whole lot of climate change baked into our current conditions, even if today, right now, every single person, corporation, and country stopped using fossil fuels. As Professor Carmen Gonzalez reminds us, “racism and capitalism [have been] inextricably intertwined” for centuries.”²⁹

This essay is about how to build the “we” that is capable of doing all those things, including making the “rapid, deep and immediate” cuts in greenhouse gas emissions that the IPCC tells us can help avoid the worst impacts of climate change. It is about how to build a social movement capable of translating collective opinions about climate change into effective, on-the-ground action.³⁰ And, doing so in a fashion that centers justice. As Naomi Klein points out, what gets declared a crisis is as much an expression of power as it is a recognition of facts.³¹ In short, this article is about power—how to build it and how to use it.

I. WE MUST START BY REJECTING CLIMATE DOOMISM

The essence of climate doomism is captured in the sentiment “if it’s game over regarding climate change, what’s the point of trying to fight it?”³² This defeatist attitude is extremely convenient

²⁷ For an explanation of racial capitalism and its impact on climate policies, see Carmen G. Gonzalez, *Racial Capitalism, Climate Justice, and Climate Displacement*, 11 OÑATI SOCIO-LEGAL SERIES 108, 113–19 (2021).

²⁸ See Farhana Sultana, *The Unbearable Heaviness of Climate Coloniality*, 99 POL. GEOGRAPHY 1, 3–6 (2022).

²⁹ Gonzalez, *supra* note 27, at 114 (citing the work of political theorist Cedric Robinson and sociologist Aníbal Quijano).

³⁰ A social movement is a set of “actors and organizations seeking to alter power deficits and to effect transformations through the state by mobilizing regular citizens for sustained political action.” Edwin Amenta, et al., *The Political Consequences of Social Movements*, 36 ANN. REV. OF SOCIO. 287, 288 (2010).

³¹ See NAOMI KLEIN, *THIS CHANGES EVERYTHING: CAPITALISM VS. THE CLIMATE* (New York, Simon & Schuster Paperbacks, 2014).

³² u/Pondy001, *Alarmist Article or Not?*, REDDIT (Aug. 22, 2023) https://www.reddit.com/r/climatechange/comments/15y5a46/comment/jxa14ou/?utm_source=share&utm_medium=web3x&utm_name=web3xcss&utm_term=1&utm_content=share_button [https://perma.cc/K96K-2AND].

for those looking to maintain business as usual even as the evidence of climate change becomes clearer.³³ It is unequivocal (that word again) that there are already sweeping climate changes across the globe. The Great Salt Lake is drying up.³⁴ Arctic sea ice is retreating,³⁵ the Greenland ice sheets are melting,³⁶ and sea level is rising.³⁷ Scientists now float collapse of the Atlantic Meridional Overturning Circulation as a near-term possibility,³⁸ and point out that we have extracted so much groundwater from aquifers that we have shifted the earth's axis.³⁹ Many of these changes are irreversible.

Climate doomers seize on these developments to project an apocalyptic future as inevitable.⁴⁰ But, in many ways, climate doomism is just climate denial repackaged for a new reality.⁴¹ By spreading fatalistic doubt, climate doomers demotivate engagement on climate change because if nothing can be done,

³³ See, e.g., Guy McPherson, *NATURE BATS LAST* (2023), (illustrating that Guy McPherson, who has been called a “doomist cult hero” and “a denialist of a different stripe” is one of the most visible faces of climate doomism, with his website and podcast), <https://guymcpherson.com> [<https://perma.cc/4G5V-RRHG>]; see also Michael Tobias, *McPherson's Evidence That Doom Doom Doom*, PLANET 3.0 (Mar. 13, 2014) (characterizing McPherson as “a denialist . . . of a different stripe”), <https://planet3.org/2014/03/13/mcphersons-evidence-that-doom-doom-doom> [<https://perma.cc/XR4E-HBJ3>]; see also Michael E. Mann, Susan Joy Hassol, & Tom Toles, *Doomsday Scenarios as Harmful as Climate Change Denial*, WASH. POST (July 12, 2017), https://www.washingtonpost.com/opinions/doomsday-scenarios-are-as-harmful-as-climate-change-denial/2017/07/12/880ed002-6714-11e7-a1d7-9a32c91c6f40_story.html [<https://perma.cc/2ACE-NFVS>] (calling McPherson a “doomist cult hero”).

³⁴ See Katherine S. Walter, *The Great Salt Lake Is Becoming Too Salty to Support Life*, THE NATION (Aug. 21, 2023), <https://www.thenation.com/article/environment/dust-great-salt-lake/> [<https://perma.cc/K7B2-TYGF>].

³⁵ See NAT'L SNOW & ICE DATA CTR., *ARCTIC SEA AND ICE NEWS & ANALYSIS* (Aug. 16, 2023), <https://nsidc.org/arcticseaicenews/> [<https://perma.cc/WNK3-PAQV>].

³⁶ See NAT'L SNOW & ICE DATA CTR., *GREENLAND ICE SHEET TODAY* (Aug. 26, 2023), <https://nsidc.org/greenland-today/> [<https://perma.cc/TC23-962B>] (reporting record melting).

³⁷ See Rebecca Lindsey, *Climate Change: Global Sea Level*, NOAA (Apr. 19, 2022), <https://www.climate.gov/news-features/understanding-climate/climate-change-global-sea-level> [<https://perma.cc/6J2X-MXMU>] (reporting that global average sea level has already risen by 8-9 inches).

³⁸ See Peter Ditlevsen & Susanne Ditlevsen, *Warning of a Forthcoming Collapse of the Atlantic Meridional Overturning Circulation*, 14 NATURE COMM'N 4254 (2023).

³⁹ Will Sullivan, *Humans Have Shifted Earth's Axis by Pumping Lots of Groundwater*, SMITHSONIAN MAGAZINE (Jun. 22, 2023).

⁴⁰ See Shannon Osaka, *Why Climate 'Doomers' Are Replacing Climate 'Deniers'*, WASH. POST (Mar. 24, 2023), <https://www.washingtonpost.com/climate-environment/2023/03/24/climate-doomers-ipcc-un-report/> [<https://perma.cc/7VLB-5E5R>]; Marco Silva, *Why is Climate 'Doomism' Going Viral—and Who's Fighting It?*, BBC (May 23, 2022), <https://www.bbc.com/news/blogs-trending-61495035> [<https://perma.cc/DH9V-8LRE>].

⁴¹ See, e.g., Cara Buckley, *'Ok Doomer' and the Climate Advocates Who Say It's Not Too Late*, N.Y. TIMES (Mar. 22, 2022), <https://www.nytimes.com/2022/03/22/climate/climate-change-ok-doomer.html> [<https://perma.cc/V47G-PT6L>].

there is no point in trying.⁴² The paralysis embedded in “it’s too late”⁴³ can be as effective at stymying climate action as “it’s not proven” was for so long.⁴⁴ Both stances impede measures to reduce emissions, even though those measures would, in turn, stem the scope and scale of climate change. Faced with widespread support for climate action,⁴⁵ climate doomers’ deploy climate defeatism to undermine action as surely as climate denial did in the past.⁴⁶

Climate doomism is as wrong as climate denial.⁴⁷ Where there is virtually unanimous agreement among scientists that human activity is driving climate change,⁴⁸ not a single reputable climate scientist thinks we are doomed.⁴⁹ In fact, renewable energy

⁴² See Marlon, *supra* note 20, at 9.

⁴³ See, e.g., Pilita Clark, *The Scourge of Climate Doomism*, FIN. TIMES (Aug. 15, 2023) (explaining that climate doomism breeds paralysis, thereby empowering the forces of climate inaction), <https://www.ft.com/content/60f6e94a-eb3b-4a3e-9ef6-273262967121> [<https://perma.cc/V4WV-NUSH>].

⁴⁴ NAOMI ORESKES & ERIK M. CONWAY, *MERCHANTS OF DOUBT* 246 (2011) (describing how the fossil fuel industry marshaled doubt to block climate action).

⁴⁵ Two studies showed that individuals were willing to make lifestyle changes to respond to climate change. See, e.g., Alec Tyson, Cary Funk, & Brian Kennedy, *What the Data Says About Americans’ Views of Climate Change*, PEW RSCH. (Aug. 9, 2023) (reporting that 69% of Americans support the United States taking steps to become carbon neutral by 2050), <https://www.pewresearch.org/science/2022/03/01/americans-largely-favor-u-s-taking-steps-to-become-carbon-neutral-by-2050/> [<https://perma.cc/5EDF-GVKQ>]; *Three-Quarters of Adults in Great Britain Worry About Climate Change*, OFF. OF NAT’L STAT. (Nov. 5, 2021), <https://www.ons.gov.uk/peoplepopulationandcommunity/wellbeing/articles/threequartersofadultsingreatbritainworryaboutclimatechange/2021-11-05> [<https://perma.cc/P4HY-XCBX>].

⁴⁶ See also SARAH JAQUETTE RAY, *A FIELD GUIDE TO CLIMATE ANXIETY* 35 (2020) (asserting that “[d]oomsayers can be as much a problem for the climate movement as deniers, because they spark guilt, fear, apathy, nihilism, and ultimately inertia”).

⁴⁷ For example, ExxonMobil spent decades obscuring public discourse with spurious claims that the link between fossil fuel use and climate warming was uncertain, even as their own internal projections clearly documented the relationship. See Geoffrey Supran et al., *Assessing ExxonMobil’s Global Warming Projections*, 379 SCI. 115, 153 (2003), <https://www.science.org/doi/10.1126/science.abk0063> [<https://perma.cc/3JXR-67W2>] (concluding that ExxonMobil accurately foresaw the threat of human-caused global warming, in direct contradiction to their lobbying and propaganda campaigns which emphasized uncertainty in order to mislead the public and delay climate action).

⁴⁸ See Mark Lynas et al., *Greater than 99% Consensus on Human Caused Climate Change in the Peer-Reviewed Scientific Literature*, ENV’T RSCH. LETTERS (Nov. 2021), at 1, 4, <https://iopscience.iop.org/article/10.1088/1748-9326/ac2966> [<https://perma.cc/U7HM-QZ9H>].

⁴⁹ See, e.g., Aaron Hagey-Mackay, *Yes, Climate Change Is Bad. No, We’re Not Doomed*, CARBON NEUTRAL CLUB, https://www.carbonneutralclub.com/article/the_truth_behind_climate_doom [<https://perma.cc/HJ4J-7DS6>] (last visited Dec. 14, 2023); Hannah Ritchie, *We Need the Right Kind of Climate Optimism*, VOX (Mar. 21, 2023, 7:53 AM), <https://www.vox.com/the-highlight/23622511/climate-doomerism-optimism-progress-environmentalism> [<https://perma.cc/K3WT-XMJM>]. As climate scientist Michael Mann noted, “[i]f the science objectively demonstrated it was too late to limit warming below catastrophic levels, that would be one thing and we scientists would be faithful to that. But

systems experts continually state that we *can* make the needed sweeping changes and that we can do it quickly.⁵⁰ Moreover, messages about the realistic solutions that already exist to reduce climate impacts have been shown to build constructive hope that motivates climate action.⁵¹

In addition to mischaracterizing the science, and undermining hope, climate doomism also overemphasizes the massive collective action problems for responding to climate change.⁵² This stance is particularly ironic because the fossil fuel industry spent years deflecting attention from the need for systemic change by emphasizing individual responsibility.⁵³ That very same narrative of individual action, once touted as the answer to the climate crisis,⁵⁴ is now trotted out as an insurmountable barrier to success.⁵⁵ Were it really true that “[t]he entire world has to work together to solve global warming,”⁵⁶ then climate doomers might have a point. But, looking at whose actions are driving the climate crisis, and whose actions really need to change, the problem

science doesn’t say that.” Jonathan Watts, *Climatologist Michael E Mann: “Good People Fall Victim to Doomism. I Do Too Sometimes”*, THE GUARDIAN (Feb. 27, 2021, 11:00 AM), <https://www.theguardian.com/environment/2021/feb/27/climatologist-michael-e-mann-doomism-climate-crisis-interview/> [<https://perma.cc/FB5W-WEWH>].

⁵⁰ A research group at Stanford recently collected an array of studies making this point from across the globe. See *Abstracts of 89 Peer-Reviewed Published Journal Articles From 37 Independent Research Groups With Over 210 Different Authors Supporting the Result That Energy for Electricity, Transportation, Building Heating/Cooling, and/or Industry Can Be Supplied Reliably With 100% or Near-100% Renewable Energy at Different Locations Worldwide*, STANFORD (July 18, 2023), <https://web.stanford.edu/group/efmh/jacobson/Articles/I/CombiningRenew/100PercentPaperAbstracts.pdf> [<https://perma.cc/V7N9-JQYP>]; see, e.g., Mark Z. Jacobson et al., *Impacts of Green Hydrogen*, 11 SMART ENERGY, no. 100106, (2023).

⁵¹ See Marlon *supra* note 20, at 12. See generally, JAQUETTE RAY, *supra* note 46 (offering what the author calls “an existential tool kit” for climate activism).

⁵² For a discussion on this point, see u/CowsRetro, *Growing Rise of Climate Doomism*, REDDIT (June 28, 2023, 3:46 PM), https://www.reddit.com/r/climatechange/comments/13y0vnt/growing_rise_of_climate_doomerism/ [<https://perma.cc/R8UU-DYKL>].

⁵³ See Mark Kaufman, *The Carbon Footprint Sham*, MASHABLE, <https://mashable.com/feature/carbon-footprint-pr-campaign-sham> [<https://perma.cc/XRF4-2GUD>] (last visited Dec. 14, 2023) (noting that BP created the concept of individual carbon footprints as propaganda to divert attention from the core problem that fossil fuels “are the basis for the energy system”).

⁵⁴ See Brielle Arnold, *Let’s Ditch Individualism in the Climate Change Fight*, THE DAILY (Apr. 19, 2022), https://www.dailyuw.com/special_sections/earth_day_2022/let-s-ditch-individualism-in-the-climate-change-fight [<https://perma.cc/8AG3-VQQD>] (describing the focus on individual action as “a fossil fuel industry strategy to shift blame”).

⁵⁵ See Säde Hormio, *Collective Responsibility for Climate Change*, 14 WILEY INTERDISC. REVS. CLIMATE CHANGE 1, 4, 11 (2023).

⁵⁶ SCRANTON, *supra* note 18, at 61.

quickly becomes more manageable.⁵⁷ Rather than requiring the full cooperation of 198 nations and 7.4 billion people, sweeping climate change really depends on getting a much smaller subset to agree and act.⁵⁸ This reality, along with the recognition that there are available solutions, can buttress constructive climate hope, which in turn spurs support for climate action.⁵⁹

Yet, even when we reject climate doomism, the super wicked nature of climate change does pose immense challenges to action.⁶⁰

II. WE MUST TREAT CLIMATE CHANGE AS A SUPER WICKED PROBLEM

Climate change is a classic example of what has come to be known as a “wicked” problem.⁶¹ The term, coined in the 1970s by design theorist Horst Rittel and city planner Melvin Webber, distinguishes certain intractable problems from the more typical “tame” problems that engineers and scientists routinely face.⁶²

Make no mistake; calling a problem tame is not to say it is easy. Tame problems can be extremely complex and challenging.⁶³ However, even the most difficult tame problems are marked by relatively well-defined and stable problem statements.⁶⁴ In other words, there is agreement on what the problem is. Tame problems also have defined endpoints—a clear moment at which the problem has been resolved.⁶⁵ This kind of problem typically involves identifying and obtaining missing information that is

⁵⁷ See Henry Shue, *Responsible for What? Carbon Producer CO2 Contributions and the Energy Transition*, 144 *CLIMATE CHANGE* 591, 593 (2017).

⁵⁸ See MARK Z. JACOBSON, *NO MIRACLES NEEDED: HOW TODAY’S TECHNOLOGY CAN SAVE OUR CLIMATE AND CLEAN OUR AIR* 318 (Cambridge University Press ed., 2023).

⁵⁹ See Marlon et al., *supra* note 20, at 1–2 (describing constructive hope in this context); see also Nicholas Smith & Anthony Leiserowitz, *The Role of Emotion in Global Warming Policy Support and Opposition*, 34 *RISK ANALYSIS* 937, 946 (2014) (finding that worry, interest, and hope are strongly associated with increased support for climate action).

⁶⁰ See Buckley, *supra* note 41 (describing how advocates are simultaneously fighting climate change and climate doomism).

⁶¹ Horst W. J. Rittel & Melvin M. Webber, *Dilemmas in a General Theory of Planning*, 4 *POLY SCIS.* 155, 160–61 (1973) (explaining that “wicked” in this context does not mean “ethically deplorable” but “tricky” or “vicious” and not amenable to engineering solutions).

⁶² *Id.* Some experts argue that wicked problems are the norm. Richard Coyne, *Wicked Problems Revisited*, 26 *DESIGN STUD.*, no. 1, 5, 12 (2005).

⁶³ See Joseph C. Bentley, *From Wicked to Tame and Vice Versa*, *TAMING WICKED PROBS.* (June 2, 2017), <https://tamingwickedproblems.com/from-wicked-to-tame-and-vice-versa/> [<https://perma.cc/5X2T-5F93>].

⁶⁴ See Tom Ritchey, *Wicked Problems: Modelling Social Messes with Morphological Analysis*, 2 *ACTA MORPHOLOGICA GENERALIS*, no. 1, Jan. 2013, at 1.

⁶⁵ See *id.* at 1–2.

then used to develop clear, workable solutions.⁶⁶ These solutions can then be vetted for their ability to achieve the defined endpoint and accepted or rejected accordingly. In short, tame problems are amenable to the ordinary tools of analysis.

Wicked problems, by contrast, are open-ended and intractable.⁶⁷ They are marked by complexity, uncertainty, and an intricate interplay between social, economic, and environmental factors. This makes wicked problems exceptionally challenging to address.

There are four basic attributes that make a problem wicked. First, the problem is constantly changing.⁶⁸ With key information not only missing but often unobtainable, there is no way to clearly define a wicked problem except through the process of solving it. As a result, the problem statement becomes a moving target. Second, because of their complexity and ever-changing nature, wicked problems are not amenable to linear, causal chain reasoning. As a result, there are no definitive solutions to wicked problems, only answers that seem better or worse.⁶⁹ Competing values shape which solutions seem desirable.⁷⁰ Third, there is no clear endpoint and no obvious solution to a wicked problem.⁷¹ This means there is no way to be done with solving it. Finally, every wicked problem is unique.⁷² This means that there can be little extrapolation between wicked problems, and the learning curve must be repeated anew for each such problem.⁷³

Climate change clearly qualifies as a wicked problem. Because our understanding of climate change is constantly changing, framing the problem appropriately is difficult. Rather than a single problem, climate change is a constellation of intersecting dynamic problems with intricate feedback loops and cascading effects that compound the crisis. Just articulating what is happening involves working across multiple disciplinary boundaries. Knowledge gaps are legion. Moreover, there is no

⁶⁶ See Robert Farrell & Cliff Hooker, *Design, Science and Wicked Problems*, 34 DESIGN STUD., no. 6, 681, 688 (2013); Marshall W. Kreuter et al., *Understanding Wicked Problems: A Key to Advancing Environmental Health Promotion*, 31 HEALTH EDUC. & BEHAV. 441, 442 (2004).

⁶⁷ See Brian W. Head, *Wicked Problems in Public Policy*, 3 PUB. POL'Y 101, 101 (2008).

⁶⁸ See Rittel & Webber, *supra* note 61, at 161.

⁶⁹ See *id.* at 163.

⁷⁰ See *id.*

⁷¹ See *id.*

⁷² *Id.* at 164.

⁷³ See *id.*

definitive climate answer or solution. Indeed, the IPCC scenarios posit an array of likely outcomes under a range of different behavior models. Economic obstacles, including the need to balance short-term costs with long-term benefits, compound the challenge of identifying and prioritizing solutions. There is no point at which the climate crisis will be “solved.” Moreover, the lack of a clear endpoint compounds the psychological difficulties inherent in motivating action to respond to abstract, seemingly distant threats.

The wicked nature of climate change introduces multiple barriers to effective action. However, as a team of Yale School of Forestry researchers pointed out a decade ago, calling climate change a wicked problem does not fully capture the magnitude of the challenge. They instead coined the term *super wicked*,⁷⁴ reflecting additional confounding factors. Specifically, they noted that, in addition to the wicked characteristics described above: 1) “time is running out,” 2) those who caused the problem are also the ones tasked with solving it, 3) the central authority needed to address the problem does not exist, and 4) “irrational discounting” pushes responses out into the future.⁷⁵

Climate change checks on all four points. Addressing the last factor first, irrational discounting has allowed an array of interested parties to make the case that taking immediate actions to stave off future climate impacts did not make economic sense. They justify this claim by applying financial forms of valuation to environmental outcomes.⁷⁶ This financialization of climate policy involves conducting a cost-benefit analysis of investments in clean energy or other climate change responses to determine their so-called true value.⁷⁷ Because the costs are incurred in the near term while the benefits extend out over time, economic theory requires that the benefits of averting climate catastrophe be discounted to determine their net present value. This net present value is then

⁷⁴ Kelly Levin et al., *Overcoming the Tragedy of Super Wicked Problems: Constraining Our Future Selves to Ameliorate Global Climate Change*, 45 POL’Y SCIS. 123, 124 (2012).

⁷⁵ *Id.*; see also Richard Lazarus, *Super Wicked Problems and Climate Change: Restraining the Present to Liberate the Future*, 94 CORNELL L. REV. 1153, 1159–61 (2009) (applying this notion to climate legislation to conclude there is no legal authority with the necessary jurisdictional reach to solve global climate change).

⁷⁶ Brian C. Prest et al., *Improving Discounting in the Social Cost of Carbon*, RESOURCES, Fall 2021, at 12 (demonstrating how radically the selected discount rate shifted the social cost of carbon calculations used in United States’ regulatory cost-benefit analyses).

⁷⁷ See Fabian Muniesa & Liliana Doganova, *The Time that Money Requires: Use of the Future and Critique of the Present in Financial Valuation*, 6 FIN. & SOC’Y 95, 102–03 (2020).

fed into the cost benefit analysis to decide whether climate investments should be made. However, there is a catch. The more heavily future benefits are discounted, the smaller their net present value.⁷⁸ And, the smaller the net present value, the less likely investments, or actions to mitigate climate change become. The choice of discount rate becomes outcome determinative.⁷⁹

This trope of economic rationality stalled government climate initiatives for decades.⁸⁰ During the early 2000s, Sir Nicholas Stern conducted a review of the economics of climate change at the behest of the British government.⁸¹ In his review, Stern had the temerity to depart from conventional economics and urge rapid action to stave off the looming climate crisis.⁸² Stern concluded, “[t]he scientific evidence is now overwhelming: climate change presents very serious global risks, and it demands an urgent global response. . . . [T]he benefits of strong, early action considerably outweigh the costs.”⁸³ Fellow economists roundly criticized the Stern Review for the “error” of using a discount rate of 1.4% rather than the 3–5% rate of return on capital that economists typically use.⁸⁴ The choice of discount rate dictated the conclusion—either urgent measures should be taken, or even modest steps could not be justified. And unfortunately, short-term gain at the expense of the climate seems to be the rule, never mind the long-term pain it will bring.⁸⁵

⁷⁸ For an explanation of what discounting is and how it impacts decision making, see Stephen Polasky & Nfamara K. Dampha, *Discounting and Global Environmental Change*, 46 ANN. REV. ENV'T & RES. 691, 692–93 (2021).

⁷⁹ See LILIANA DOGANOVA, DISCOUNTING THE FUTURE (forthcoming Feb. 2024) (on file with author); see also FRANK ACKERMAN & LISA HEINZERLING, PRICELESS: ON KNOWING THE PRICE OF EVERYTHING AND THE VALUE OF NOTHING 179, 189, 195 (The New Press ed., 2004) (describing the impacts of discounting in a chapter titled “Honey I Shrunk the Future”).

⁸⁰ For example, the Bush Administration adopted a plan of reducing carbon emission intensity per unit of GDP, rather than committing to actual carbon emission reductions. *Bush Unveils Voluntary Plan to Reduce Global Warming*, CNN: INSIDE POL. (Feb. 14, 2002, 11:08 PM), <https://www.cnn.com/2002/ALLPOLITICS/02/14/bush.global.warming/index.html> [<https://perma.cc/VV99-EEUB>].

⁸¹ NICHOLAS STERN, STERN REVIEW: THE ECONOMICS OF CLIMATE CHANGE i–ii (2006).

⁸² *Id.*

⁸³ *Id.*

⁸⁴ William D. Nordhaus, *A Review of the Stern Review on the Economics of Climate Change*, 45 J. ECON. LITERATURE 686, 688, 691, 694 (2007); Jerry Taylor, *Nordhaus vs. Stern*, CATO INST. (Nov. 28, 2006, 5:03 PM), <https://www.cato.org/blog/nordhaus-vs-stern> [<https://perma.cc/4Q7T-STQK>]. For an explanation of why these critiques miss their mark, see Frank Ackerman, *Climate Economics in Four Easy Pieces*, 51 DEV. 325 (2008).

⁸⁵ See, e.g., Robert O. Mendelsohn, *A Critique of the Stern Report*, 29 REGUL. 42 (2006) (noting that “[e]conomists have long argued that stabilizing greenhouse gases at 550 ppm is not efficient because the costs far outweigh the benefits”).

Even as irrational discounting of future climate impacts lulled governments into a false sense of security, facts on the ground underscored ever more clearly that we do not have the luxury of time. For climate action, time is running out. In 2018, the IPCC issued a Special Report on keeping climate change below 1.5°C.⁸⁶ The report found that limiting global warming to 1.5°C will require a “rapid and far-reaching” transition⁸⁷ and estimated that global society had a narrow window in which to act to stave off catastrophic climate outcomes.⁸⁸ Specifically, the IPCC stated that to keep warming under 1.5°C, nations would have to cut 2010 emissions levels nearly 50 percent by 2030⁸⁹ and achieve net-zero by 2050.⁹⁰ That report was five years ago. Since then, emissions have reached new highs.⁹¹ Even though there are some encouraging developments in renewable energy, we are nowhere near halving emissions by 2030. Every year of delay brings us closer to the precipice. Even now, while we still remain below 1.5°C, the impacts of climate change “are already ferocious.⁹² Already relentless. Already deadly.”⁹³

The super wicked factor that those who created the problem are tasked with solving it has been the bane of climate activists everywhere. The Framework Convention on Climate Change elected to hold its 28th Conference of the Parties (“COP”) in the United Arab Emirates (“UAE”), a country that produces more than

⁸⁶ Intergovernmental Panel on Climate Change [IPCC], *Special Report: Global Warming of 1.5°C: Summary for Policymakers* (2018), https://www.ipcc.ch/site/assets/uploads/sites/2/2022/06/SR15_Full_Report_HR.pdf [<https://perma.cc/CE6C-R5S6>] [hereinafter IPCC 1.5 Report].

⁸⁷ *Id.* at 15.

⁸⁸ See Press Release, General Assembly, Only 11 Years Left to Prevent Irreversible Damage from Climate Change, Speakers Warn During General Assembly High-Level Meeting, U.N. Press Release GA/12131 (Mar. 28, 2019) (quoting General Assembly President María Fernanda Espinosa Garcés).

⁸⁹ IPCC 1.5 Report, *supra* note 86, at 12.

⁹⁰ *Id.*

⁹¹ See Zhu Liu et al., *Monitoring Global Carbon Emissions in 2022*, 4 NATURE REV. EARTH & ENV'T 205, 205–06 (2023).

⁹² July 2023 became the first month to surpass 1.5°C warming. See *July 2023: Global Air and Ocean Temperatures Reach New Record Highs*, COPERNICUS CLIMATE CHANGE SERVS. (Aug. 8, 2023), <https://climate.copernicus.eu/july-2023-global-air-and-ocean-temperatures-reach-new-record-highs> [<https://perma.cc/Y52Q-CPVY>].

⁹³ Inger Andersen, Exec. Dir. United Nations Env't Programme [UNEP], *The Urgency of Transformative Climate Adaptation Action* (Sept. 1, 2023), in UNEP, <https://www.unep.org/news-and-stories/speech/urgency-transformative-climate-adaptation-action> [<https://perma.cc/VGQ4-3YPH>] (last visited Dec. 14, 2023).

four million barrels of oil each day.⁹⁴ The UAE selected oil company executive Sultan Ahmed Al Jaber to head the COP, drawing praise from OPEC, but condemnation from most others.⁹⁵ But putting an oil executive in charge of the COP merely made manifest the significant control that fossil fuel has over the entire process of climate response. At the two prior COPs, in Sharm el-Sheikh and Glasgow respectively, hundreds of oil and gas lobbyists swarmed the meeting. In fact, in Glasgow, these lobbyists were the largest delegation, outnumbering the representatives of any single country.⁹⁶ As mentioned earlier, ExxonMobil stands accused of funding a decades-long climate denial campaign that directly contradicted its own internal research.⁹⁷

During the Trump administration, former ExxonMobil CEO Rex Tillerson served as Secretary of State. In that capacity, Tillerson oversaw the United States delegations to COP23 in Bonn, even as the administration announced plans to withdraw from the Paris Agreement.⁹⁸ Tillerson was only one of a slew of fossil fuel executives to serve in the Trump administration. Climate skeptic Scott Pruitt was Trump's first EPA administrator, followed by coal industry lobbyist turned EPA administrator

⁹⁴ See *Oil Production in the United Arab Emirates from 1998 to 2022*, STATISTA (Aug. 25, 2023), <https://www.statista.com/statistics/265191/oil-production-in-the-united-arab-emirates-in-barrels-per-day/> [https://perma.cc/NZT8-S3M8].

⁹⁵ *Compare OPEC Offers Its Full Support to the UAE COP28 Presidency*, ORG. PETROL. EXPORTING COUNTRIES (May 29, 2023), https://www.opec.org/opec_web/en/press_room/7153.htm [https://perma.cc/4E8K-KGEM], with Lara Williams, *An Oil Exec Running COP? This Isn't a Joke*, WASH. POST (Jan. 15, 2023, 4:17 PM), https://www.washingtonpost.com/business/energy/an-oil-exec-running-cop-this-isnt-a-joke/2023/01/13/2511ec92-9304-11ed-90f8-53661ac5d9b9_story.html [https://perma.cc/P4ZL-6WDG].

⁹⁶ Ruth Michaelson, *'Explosion' in Number of Fossil Fuel Lobbyists at COP27 Climate Summit*, THE GUARDIAN (Nov. 10, 2022, 4:32 AM), <https://www.theguardian.com/environment/2022/nov/10/big-rise-in-number-of-fossil-fuel-lobbyists-at-cop27-climate-summit> [https://perma.cc/W263-B57R].

⁹⁷ See Shannon Hall, *Exxon Knew About Climate Change Almost 40 Years Ago*, SCI. AM. (Oct. 26, 2015), <https://www.scientificamerican.com/article/exxon-knew-about-climate-change-almost-40-years-ago/> [https://perma.cc/5EYE-PS3A]. In fact, not only was ExxonMobil aware that its industry was driving anthropogenic climate change, but its internal predictions were remarkably accurate, predicting global warming "correctly and skillfully." See Supran et al., *supra* note 46, at 153.

⁹⁸ See Justin Catanoso, *COP23: Trump, U.S. Govt. Seen as Irrelevant to Global Climate Action*, MONGABAY (Nov. 7, 2017), <https://news.mongabay.com/2017/11/cop23-trump-u-s-govt-seen-as-irrelevant-to-global-climate-action/> [https://perma.cc/335C-FGJ7]. Negotiated in 2015 at COP21, the Paris Agreement is the international framework for responding to climate change. It included a commitment to keeping climate change well below 2°C and to pursue efforts to keep climate change below 1.5°C.

Andrew Wheeler.⁹⁹ In the capacity of administrator, both had the power to advance or block climate initiatives designed to lower carbon emissions and reduce fossil fuel use. Guess which option they chose.¹⁰⁰

The final super wicked factor, the lack of a central authority capable of addressing the problem, is the super wicked attribute most clearly related to law. Climate change is a global issue with conduct that occurs within nation states, driving impacts that transcend national borders. Indeed, this feeds directly into a common critique of international law—is it really law?¹⁰¹ Without police power or a way to enforce compliance, what exactly is international law?¹⁰² What does that mean for the Paris Agreement? Under that agreement, each state party self-identified so-called nationally determined contributions (“NDCs”).¹⁰³ These were the carbon reduction targets states chose for themselves. Even assuming legal and foreign policy scholar Louis Henkin’s description of international law is true—that “almost all nations observe almost all principles of international law and almost all of their obligations almost all of the time,”¹⁰⁴ the actions that drive climate change lurk in the interstices. The Paris Agreement NDCs fell far short of the reductions needed to keep climate change below 1.5°C. And, it is not clear that states are meeting even these self-imposed targets. Institutional limitations abound. The lack of an overarching superstructure of

⁹⁹ *EPA’s Administrators*, U.S. EPA, <https://www.epa.gov/history/epas-administrators> [<https://perma.cc/QA6X-T4ZB>] (last visited Jan. 17, 2024). See Daniel Bush, *All of the Ways Scott Pruitt Changed Energy Policy*, PBS (July 5, 2018, 7:12 AM), <https://www.pbs.org/news-hour/nation/all-of-the-ways-embattled-epa-chief-scott-pruitt-has-changed-energy-policy#:~:text=Pruitt%2C%20a%20noted%20climate%20change,major%20cause%20of%20climate%20change> [<https://perma.cc/T44Y-LMNX>]; see also David Malakoff, *Trump Picks Prominent Climate Skeptic as EPA Chief*, SCIENCE (Dec. 7, 2016), <https://www.science.org/content/article/trump-picks-prominent-climate-skeptic-epa-chief#:~:text=As%20Ok-lahoma’s%20attorney%20general%2C%20Scott%20Pruitt%20led%20legal%20challenges%20to%20climate%20rules&text=President%20Donald%20Trump%20is,%20C%20according%20to%20media%20reports>. [<https://perma.cc/UEG6-FACR>].

¹⁰⁰ See Lisa Friedman, *Andrew Wheeler, Who Continued Environmental Rollbacks, Is Confirmed to Lead E.P.A.*, N.Y. TIMES (Feb. 28, 2019), <https://www.nytimes.com/2019/02/28/climate/andrew-wheeler-epa-confirmation.html> [<https://perma.cc/A7BP-QRQZ>].

¹⁰¹ See, e.g., Anthony D’Amato, *Is International Law Really “Law”?*, 79 NW. U. L. REV. 1293, 1293 (1985) (posing the question and the critique that it is difficult to “enforce a rule of law against an entire nation”).

¹⁰² See *id.* at 1295–96.

¹⁰³ *Nationally Determined Contributions (NDCs)*, U.N. CLIMATE CHANGE, <https://unfccc.int/process-and-meetings/the-paris-agreement/nationally-determined-contributions-ndcs> [<https://perma.cc/K5LD-CFUB>] (last visited Dec. 22, 2023).

¹⁰⁴ LOUIS HENKIN, *HOW NATIONS BEHAVE* 47 (2d ed. 1979) (emphasis omitted).

authority poses a clear problem in responding to climate change. Yet, as we have seen within the United States, as the national government wobbles between denial and dysfunction, enforceability of law does not simplify the problems that climate change poses. Merely having an overarching superstructure of nominally enforceable law does not get us that far.

The reality of inadequate government structures is both terrifying and liberating. If there is no central authority, no world government, what makes the Paris Agreement enforceable? At COP28, hosted by the UAE, there was a global stock-taking to assess progress since the Paris Agreement. Even if every state met its target, the progress would still be inadequate. But, the stock-taking did provide a reality check of what is happening and what still needs to be done to reduce carbon emissions.

III. THINK GLOBALLY, ACT LOCALLY

Recognizing that climate change is super wicked need not feed into climate doomism. Instead, cultivating constructive climate hope can actually promote policies that advance climate mitigation and adaptation. The answer for how to cultivate that constructive hope may lie in thinking smaller rather than bigger, locally rather than globally. At the same time that the wicked and super wicked attributes of climate change act as constraints, they are also liberating. If there is no “right” answer, that means we are all free to try things. If there is no overarching legal authority, that creates room to experiment.

Moreover, even when national governments are stymied at international negotiations, it is worth remembering that there are other actors with legal authority and capacity to affect climate policies. Indeed, during the Trump years, when United States policies were full-on climate denial, many subnational entities, including local governments and state governments, stepped into the void. These legal actors developed their own climate policies, frequently rooted in radically restructuring the economy to simultaneously reduce carbon emissions while increasing social justice. Because there is so much focus on federal policies, these local stories often go untold. By shifting focus away from climate stagnation on the national level, and instead centering the ever-growing array of emerging ground-up climate initiatives, it becomes easier to imagine a path forward. The more we tell this alternative story rooted in local, place-based actions, the easier it becomes to build a platform for further, wider climate action.

IV. LESSONS FROM “WE ARE STILL IN”

During the Trump era, activists determined to make climate progress embraced the bumper sticker slogan “think globally, act locally.”¹⁰⁵ On June 1, 2017, Trump announced that he was withdrawing the United States from the Paris Agreement.¹⁰⁶ While his supporters probably celebrated, Americans generally were not pleased.¹⁰⁷ Former New York City Mayor Michael Bloomberg led the American Cities Climate Challenge,¹⁰⁸ a coalition of United States cities working to meet the Paris Accord commitments under the banner “We Are Still In.”¹⁰⁹ The idea was to make progress on the ground that would add up to the Paris Agreement NDCs regardless of what the federal government did or did not do. The very day that Trump made his announcement, the Governors of New York, Washington, and California announced formation of the United States Climate Alliance.¹¹⁰ The organization rapidly grew to represent states and territories containing more than 50% of the United States’ total population,

¹⁰⁵ See Paul Kingsnorth, *The Lie of the Land: Does Environmentalism Have a Future in the Age of Trump?*, THE GUARDIAN (Mar. 18, 2017, 4:00 AM), <https://www.theguardian.com/books/2017/mar/18/the-new-lie-of-the-land-what-future-for-environmentalism-in-the-age-of-trump> [<https://perma.cc/BN64-WQLZ>].

¹⁰⁶ *President Trump Announces U.S. Withdrawal from the Paris Climate Accord*, TRUMP WHITE HOUSE ARCHIVES (June 1, 2017), <https://trumpwhitehouse.archives.gov/articles/president-trump-announces-u-s-withdrawal-paris-climate-accord/> [<https://perma.cc/T8AQ-V6QJ>]. Of course, Trump could not do that under the terms of the Paris Agreement, which required three years to pass from the date of its ratification, and twelve months’ notice by the country wishing to leave. Matt McGrath, *Climate Change: US Formally Withdraws from Paris Agreement*, BBC (Nov. 4, 2020), <https://www.bbc.com/news/science-environment-54797743> [<https://perma.cc/44Z4-JAJ5>]. The date on which the United States could withdraw from the Paris Agreement fell after Trump lost the 2020 election. *Id.* One of President Biden’s first acts on his first day in office was to rejoin the Paris Agreement. Oliver Milman, *Biden Returns US to Paris Climate Accord Hours After Becoming President*, THE GUARDIAN (Jan. 20, 2021, 5:28 PM), <https://www.theguardian.com/environment/2021/jan/20/paris-climate-accord-joe-biden-returns-us> [<https://perma.cc/RT52-S3G5>].

¹⁰⁷ See Morning Consult & Politico, *National Tracking Poll*, POLITICO (May 1, 2018), <https://www.politico.com/f/?id=00000163-1d83-d977-a7e7-9d8b23190001> [<https://perma.cc/9YSB-2HHZ>]. In a sample size of 1,991 respondents, 53% stated that they disapprove of former president Donald Trump’s performance. *Id.*

¹⁰⁸ See *American Cities Climate Challenge*, BLOOMBERG PHILANTHROPIES, <https://www.bloomberg.org/environment/supporting-sustainable-cities/american-cities-climate-challenge/> [<https://perma.cc/V7B5-R75L>].

¹⁰⁹ “*We Are Still In*” Declaration, WE ARE STILL IN, <https://www.wearestillin.com/we-are-still-declaration> [<https://perma.cc/4UMF-R8F9>].

¹¹⁰ See Press Release, Jay Inslee, Governor, Washington, Inslee, New York Governor Cuomo, and California Governor Brown Announce Formation of the United States Climate Alliance (Jun. 1, 2017), <https://governor.wa.gov/news/2017/inslee-new-york-governor-cuomo-and-california-governor-brown-announce-formation-united-states> [<https://perma.cc/Q62T-AVS6>].

and responsible for more than 60% of the United States' total economic activity.¹¹¹ New York was one of the leaders taking up the challenge of filling the void left by the federal government. The next section describes some of the measures New York has taken since then to reduce its carbon emissions.

A. What Did “We Are Still In” Mean in New York?

At the time Trump made his announcement, New York's then-Governor Andrew Cuomo was in the middle of a long-running feud with New York City's Mayor Bill de Blasio.¹¹² Nevertheless, both men were on the same page about the ill-advised nature of Trump's move. Both spoke out immediately to proclaim that leaving the Paris Agreement was a bad idea. Denouncing Trump's move as a “reckless” move with “devastating repercussions for the planet,” then-Governor Andrew Cuomo signed an executive order reaffirming the Paris Agreement and redoubling New York's fight against climate change.¹¹³ New York City Mayor Bill de Blasio signed an executive order adopting the goals of the Paris Agreement for New York City.¹¹⁴ Characterizing Trump's actions as “put[ting] millions of Americans at risk,” the executive order declared that “New York City must step up to stop climate change.”¹¹⁵ Since then, both New York State and New York City have taken significant steps to turn this rhetoric into reality.

V. CONCRETE STEPS IN NEW YORK STATE

In 2019, the New York legislature enacted, and Governor Cuomo signed, the Climate Leadership and Community Protection Act (“CLCPA”).¹¹⁶ This ambitious climate legislation significantly

¹¹¹ See States United for Climate Action, U.S. CLIMATE ALLIANCE, <https://usclimatealliance.org/> [<https://perma.cc/QR9L-PH9T>].

¹¹² See Ross Barkan, *A Brief History of the Cuomo-de Blasio Feud*, THE NATION (Apr. 17, 2020), <https://www.thenation.com/article/politics/cuomo-deblasio-covid-feud/> [<https://perma.cc/W35W-DYS5>].

¹¹³ Press Release, Jay Inslee, *supra* note 110. See N.Y. COMP. CODES R. & REGS. tit. § 9, § 8.166 (2021).

¹¹⁴ See Press Release, Bill de Blasio, Mayor, City of New York, Mayor de Blasio Signs Executive Order to Adopt Goals of Paris Climate Agreement for New York City (Jun. 2, 2017), <https://www.nyc.gov/office-of-the-mayor/news/386-17/mayor-de-blasio-signs-executive-order-adopt-goals-paris-climate-agreement-new-york-city#0> [<https://perma.cc/Z2TG-E2PA>].

¹¹⁵ *Exec. Order 26, Climate Action Exec. Order*, OFFICE OF THE MAYOR, THE CITY OF N.Y. (Jun. 2, 2017) https://www.nyc.gov/assets/home/downloads/pdf/executive-orders/2017/eo_26.pdf [<https://perma.cc/VB5M-GAEZ>].

¹¹⁶ See S. 6599, A. 8429, 2019 S. Assemb., Reg. Sess. (N.Y. 2019) (Climate Leadership and Community Protection Act).

ratcheted up the state’s climate commitments that had previously been set out by executive order.¹¹⁷ Specifically, the CLCPA committed the state to 100% carbon-free energy by 2040¹¹⁸ and a net-zero carbon economy by 2050.¹¹⁹ By requiring that at least 35% of the benefits of clean energy investment flow to disadvantaged communities, this legislation embeds environmental justice and climate justice at its core.¹²⁰ The law is having a real impact on the ground. For example, pursuant to both the carbon-free energy mandate and the environmental justice mandate of the CLCPA, New York’s Department of Environmental Conservation denied two permits for fossil fuel peaker plants in New York City in 2021.¹²¹ The New York Public Service Commission approved construction of a transmission line to import more than ten terawatt-hours of hydropower to New York City from Quebec.¹²² The state has embraced offshore wind, with projects expected to generate 4,032 megawatts of green power currently under active development.¹²³

In the years since the CLCPA was enacted, New York has also passed the All-Electric Building Act, banning fossil fuel

¹¹⁷ See N.Y. COMP. CODES R. & REGS. tit. § 9, §8.166 (2021). New York’s climate goals had previously been set by executive order “as reducing greenhouse gas emissions from all sources within the State eighty percent (80%) below levels emitted in the year nineteen hundred ninety (1990) by the year twenty-thousand fifty (2050).” N.Y. COMP. CODES R. & REGS. tit. § 9, § 7.24 (2021) (continuing N.Y. COMP. CODES R. & REGS. tit. § 9, § 8.2 (2021)).

¹¹⁸ Climate Leadership and Community Protection Act sec. 4, § 66–p(2), 2019 N.Y. Laws at 871 (codified at N.Y. PUB. SERV. LAW § 66–p(2) (McKinney 2023)).

¹¹⁹ *Id.* sec. 2, § 75–0103(11), 2019 N.Y. Laws at 863 (codified at ENV’T CONSERV. § 75–0103(11)).

¹²⁰ *Id.* sec. 2, § 75–0117, 2019 N.Y. Laws at 869 (codified at ENV’T CONSERV. § 75–0117). For more information on this point, see N.Y. State Climate Action Council, *Climate Justice Working Group*, N.Y.’S CLIMATE LEADERSHIP & CMTY. PROT. ACT, <https://climate.ny.gov/Resources/Climate-Justice-Working-Group> [<https://perma.cc/9W62-4MNE>].

¹²¹ Marie J. French, *New York Denies Gas Plant Permits in First-Ever Decision Citing Climate Law*, POLITICO (Oct. 27, 2021, 4:28 PM), <https://www.politico.com/states/new-york/albany/story/2021/10/27/hoehul-administration-denies-permits-for-two-gas-plants-under-new-climate-law-1392062> [<https://perma.cc/YXZ6-KMUJ>].

¹²² Press Release, Lynn St-Laurent, Senior Commc’ns Advisor, Hydro-Québec, Final Approval Obtained in the U.S. – Hydro-Québec’s Exp. Project to New York City: Green Light from the Pub. Serv. Comm’n (Apr. 14, 2022), <https://news.hydroquebec.com/en/news/236/final-approval-obtained-in-the-us-hydro-quebecs-export-project-to-new-york-city-green-light-from-the-public-service-commission> [<https://perma.cc/UDK9-FPSV>].

¹²³ *Offshore Wind Projects*, N.Y. STATE ENERGY RSCH. & DEV. AUTH., <https://www.nyserda.ny.gov/All-Programs/Offshore-Wind/Focus-Areas/NY-Offshore-Wind-Projects> [<https://perma.cc/3CZ5-SJ2T>].

connections in new housing and commercial construction,¹²⁴ and the Build Public Renewables Act, requiring, *inter alia*, that all state-owned properties use 100% renewable energy by 2030.¹²⁵

Perhaps most importantly, in 2021, the citizens of New York voted overwhelmingly (by roughly 3 to 1) to amend the state constitution by adding an environmental rights provision. The environmental amendment, added as section 19 of Article I, the State Bill of Rights, provides: “Each person shall have a right to clean air and water, and to a healthful environment.”¹²⁶

The new constitutional provision is both sweeping and simple. It guarantees all New Yorkers the constitutional right to live, work, and play in communities that are safe, healthy, and free from harmful environmental conditions. As Steve Englebright, the amendment’s primary sponsor in the State Assembly, explained: “the right to clean air and clean water and a healthful environment is an elementary part of living in this great state.”¹²⁷ By overwhelmingly approving the Environmental Rights Amendment, New York voters sent a clear message that environmental justice is central to how New York law should be understood and implemented.¹²⁸ The legislature followed this

¹²⁴ *New York Passes Law Banning Fossil Fuel Equipment in Most New Buildings*, NPR (May 4, 2023, 4:45 AM), <https://www.npr.org/2023/05/04/1173910706/new-york-passes-law-banning-fossil-fuel-equipment-in-most-new-buildings> [<https://perma.cc/7VYT-DFKS>].

¹²⁵ Aliya Uteuova, *New York Takes Big Step Toward Renewable Energy in ‘Historic’ Climate Win*, GUARDIAN (May 3, 2023, 6:00 AM), <https://www.theguardian.com/us-news/2023/may/03/new-york-renewable-energy-public-utilities> [<https://perma.cc/88LV-RHVP>].

¹²⁶ N.Y. CONST. art. I, § 19.

¹²⁷ Assemblyman Steve Englebright, Statement Explaining His Vote in Favor of the Environmental Rights Amendment Before the New York State Assembly (Apr. 30, 2019) (transcript available at <https://nyassembly.gov/av/session>). I have elsewhere written extensively about how this constitutional amendment could transform environmental protection in New York. See, e.g., Rebecca Bratspies, *Administering Environmental Justice: How New York’s Environmental Rights Amendment Could Transform Business as Usual*, 41 PACE ENVTL. L. REV. (forthcoming 2023); Jaclyn Spencer & Rebecca Bratspies, *Avoiding Mistakes in Implementing New York’s Green Amendment*, 43 N.Y. ENV’T LAW. 35 (2023); Rebecca Bratspies, *This Changes Everything: New York’s Environmental Amendment*, 33 N.Y. ENV’T LAW. 95 (2022).

¹²⁸ The ballot initiative that added environmental rights as Section 19 of Article I of the New York Constitution was supported by more than 70% of voters. *New York Proposal 2: Environmental Rights Amendment (2021)*, BALLOTPEDIA (2021), [https://ballotpedia.org/New_York_Proposal_2_Environmental_Rights_Amendment_\(2021\)](https://ballotpedia.org/New_York_Proposal_2_Environmental_Rights_Amendment_(2021)) [<https://perma.cc/PL4Z-2N76>]. Support for the measure cut across the usual political divides. Indeed, in their opposition to the proposal, the New York Business Council acknowledged widespread political support for adding environmental rights to the state constitution. *The Business Council Opposes Proposition 2—Environmental Rights Amendment*, THE BUS. COUNCIL (Oct. 27, 2021), <https://www.bcnys.org/news/business->

constitutional amendment with the 2022 Cumulative Impacts Law,¹²⁹ requiring that state regulators consider environmental justice in all permitting decisions. Each one of these laws takes concrete steps toward meeting New York’s climate commitments.

New York City has been equally busy enacting local climate legislation. The next section describes some of the most significant city initiatives intended to meet or exceed New York City’s climate commitments under the Paris Agreement.

A. Climate Action in New York City

Even before New York State enacted the CLCPA, New York City was already moving forward aggressively to combat climate change. Just before Earth Day in 2019, New York’s City Council passed the Climate Mobilization Act, an ambitious legislative package aligned with the 1.5°C Climate Action Plan developed under Mayor de Blasio’s Paris Agreement executive order.¹³⁰ Central to the Climate Mobilization Act is Local Law 97, first-of-its-kind legislation placing emissions limits on New York City’s large buildings, both commercial and residential.¹³¹ This law imposed enforceable carbon emissions caps for 50,000 large buildings (more than 25,000 square feet) that collectively contribute to 30% of the City’s overall carbon footprint. When fully implemented in 2050, these emission caps will reduce carbon emissions from New York City buildings by 80%.¹³² The law also imposes an interim target of 40% emissions reductions by 2030.¹³³

For perspective on how big the impact of this law will be, consider that the avoided emissions just from meeting Local Law 97’s interim 2030 target will be equivalent to all of San Francisco’s

council-opposes-proposition-2-environmental-rights-amendment [https://perma.cc/UVV5-X228]. Moreover, before being added to the ballot, the proposed amendment first had to be approved by both houses of the state legislature in two separate legislative sessions. N.Y. CONST. art. XIX § 1. Only after two successive legislatures approved the amendment (which they did by overwhelming margins) was the proposal presented to the voters for ratification.

¹²⁹ See Lisa Whitely Coleman, *New York’s Cumulative Impacts Law*, EHS DAILY ADVISOR, <https://ehsdailyadvisor.blr.com/2023/02/new-yorks-cumulative-impacts-law/> [https://perma.cc/SK6X-T7ZG] (last updated Feb. 21, 2023).

¹³⁰ See *1.5° C: Aligning New York City With The Paris Climate Agreement*, NYC (Sept. 2017), https://www.nyc.gov/assets/sustainability/downloads/pdf/publications/1point5-AligningNYCwithParisAgrmt-02282018_web.pdf [https://perma.cc/K5QP-8YK5].

¹³¹ N.Y.C., N.Y., LOCAL LAW No. 97 (2019).

¹³² *Id.* For an explanation of the provisions, see *Local Law 97*, NYC SUSTAINABLE BLDG, <https://www.nyc.gov/site/sustainablebuildings/l197/local-law-97.page> [https://perma.cc/R864-GS35] (last visited Nov. 18, 2023).

¹³³ See sources cited *supra* note 132.

current emissions.¹³⁴ Even more importantly, New York City's Local Law 97 offers a proof of concept that building retrofits can be done—both politically and technically. If this plan can succeed in New York, climate initiatives focusing on building retrofits will likely become more common across the country and around the world.

In addition to Local Law 97, the Climate Mobilization Act included several other laws geared towards reducing New York City's carbon footprint. These laws include requiring green, solar, or high albedo roofs on most new construction,¹³⁵ requiring prominent display of letter grades assessing building energy performance,¹³⁶ establishing financing tools to support the required retrofits,¹³⁷ and directing the Department of Buildings to investigate wind energy.¹³⁸ While the Climate Mobilization Act will not single-handedly reverse the effects of climate change, it “will be the largest emissions reduction policy in the history of New York City or any city anywhere.”¹³⁹

There are too many additional initiatives designed to reduce New York City's carbon footprint to list them all. A few of the most significant include Renewable Rikers,¹⁴⁰ congestion pricing,¹⁴¹ and the complete streets plan which prioritizes pedestrians, buses, and protected bike lanes in the city's transit planning.¹⁴²

¹³⁴ See Ric Dragon, *NYC Building Emissions Law Summary*, STILL N.Y. (Nov. 14, 2020), <https://stillnewyork.nyc/nyc-building-emissions-law-summary/> [<https://perma.cc/HZ7U-2LQ5>].

¹³⁵ N.Y.C., N.Y., LOCAL LAW 94 (2019); see also N.Y.C., N.Y., LOCAL LAW 92 (2019).

¹³⁶ N.Y.C., N.Y., LOCAL LAW 95 (2019).

¹³⁷ N.Y.C., N.Y., LOCAL LAW 96 (2019).

¹³⁸ N.Y.C., N.Y., LOCAL LAW 98 (2019).

¹³⁹ Caroline Spivack, *NYC Passes Its Own “Green New Deal” in Landmark Vote*, CURBED (Apr. 22, 2019, 4:32 PM), <https://ny.curbed.com/2019/4/18/18484996/nyc-council-passes-climate-mobilization-act-green-new-deal> [<https://perma.cc/JFM5-JMFE>] (quoting Costa Constantinides, the Climate Mobilization Act's prime sponsor in city council).

¹⁴⁰ I have elsewhere written extensively about the plan to convert Rikers Island from New York City's main jail to a center for renewable energy generation and storage. See generally Rebecca Bratspies, *What Makes It a Just Transition? A Case Study of Renewable Rikers*, 40 PACE ENV'T. L. REV. 1 (2023); Rebecca Bratspies, *Decarceration with Decarbonization: Renewable Rikers and the Transition to Clean Power*, 13 SAN DIEGO J. CLIMATE & ENERGY L. 1 (2022); Rebecca Bratspies, *Renewable Rikers: A Plan for Restorative Environmental Justice*, 66 LOY. L. REV. 371 (2020).

¹⁴¹ See Ginia Bellafante, *Congestion Pricing Is Coming. It Doesn't Have to Be Painful*, N.Y. TIMES (Sept. 8, 2023, 11:50 PM), <https://www.nytimes.com/2023/09/08/nyregion/congestion-pricing.html> [<https://perma.cc/464F-8WHG>].

¹⁴² N.Y.C., N.Y., LOCAL LAW 195 (2019) (requiring that the city install 250 miles of protected bike lanes by 2026); see also N.Y.C. DEPT OF TRANSP., NYC STREETS PLAN UPDATE 2023 (implementing Local Law 195).

I shared these details about New York not to convince you that New York is great (though it is), but to demonstrate how multiple small changes can combine to become social transformation.

CONCLUSION: JUSTICE IS A CLIMATE STRATEGY!

In presenting the most recent climate assessment report, the IPCC emphasized the importance of transformational change built around climate justice.¹⁴³ They pointed to multiple feasible and effective options to reduce greenhouse gas emissions and adapt to human-caused climate change, while putting human rights, justice, and equity at the center of policymaking.¹⁴⁴ There is no question that those suffering first and most have contributed the least to the climate crisis.¹⁴⁵ Recent research documents that pollution disproportionately impacts populations of color across the United States and around the world.¹⁴⁶ These are often the same communities most vulnerable to climate change. The good news buried in this realization is that the link between larger exposure to pollution and heightened vulnerability to climate change opens a clear path for achieving broader climate results by prioritizing climate justice. The surest and fastest way to reduce emissions is to focus on reducing the pollution exposures of the most impacted and vulnerable populations. By making choices that focus on protecting those most clearly in harm's way, we deploy resources in a fashion that most effectively addresses the overall problem.

As you join the struggle against climate change, there are some important lessons to remember. Do not give way to climate doomism. Climate anxiety is real and growing, but constructive climate hope helps us visualize a path forward. Climate doomism preys on climate anxiety to generate climate paralysis and climate despair. Remembering all the real, on-the-ground actions that can happen (and that are happening in New York) helps ward off

¹⁴³ IPCC, *Sixth Assessment Report*, at 57, (Mar. 19, 2022), https://www.ipcc.ch/report/ar6/syr/downloads/report/IPCC_AR6_SYR_LongerReport.pdf [<https://perma.cc/N3DC-YE3A>].

¹⁴⁴ See Press Release, IPCC, Urgent Climate Action Can Secure a Livable Future for All (Mar. 20, 2023).

¹⁴⁵ See BARBARA ADAMS & GRETCHEN LUCHSINGER, CLIMATE JUSTICE FOR A CHANGING PLANET: A PRIMER FOR POLICY MAKERS AND NGOS 5 (U.N. Non-Governmental Liaison Services, 2009) (articulating the global justice concern that those who suffer most from climate change are those who have done the least to cause it).

¹⁴⁶ See Christopher W. Tessum et al., *PM2.5 Polluters Disproportionately and Systematically Affect People of Color in the United States*, 7 *SCI. ADVANCES*, 1 (Apr. 28, 2021).

climate doomism. But to be productive rather than delusional, climate hope must be rooted in recognition of the super wicked nature of the climate problem.

I will end with some advice and a personal story. First, the advice: find ways to make meaningful change on a small scale in your own community. The pathway forward will be different for each of us, as we all have different skills, talents, and desires. Bring your whole self to this work, and do not be afraid to be creative. For example, in 2014, I began a collaboration with artist Charlie LaGreca to make *The Environmental Justice Chronicles*, a series of environmental justice comic books.¹⁴⁷ Our goal was to use storytelling and research to promote environmental justice by building a new generation of environmental leaders focused on the urban environment. The third book in the series, *Troop's Run*, directly speaks to climate activism. In 2023, the EPA awarded our comic book project its Clean Air Act Excellence Award for Education/Outreach. As Charlie and I accepted the award at EPA Headquarters in Washington D.C., we had the opportunity to reflect on the project. What started out as a small, unconventional idea that played to our unique talents, morphed into a much bigger project. To date, these books have reached thousands of young people in New York City, across the country, and around the world.

We also began a project funded by the United Nations to create *The Earth Defenders*, a graphic novella composed of short, illustrated chapters depicting the dangers that environmental defenders face around the world.¹⁴⁸ As of this writing, the first three stories are available online. *The Keepers* tells the story of the Sengwer People, Kenyan forest dwellers being evicted from their lands so that their traditional territories can become conservation lands included in the REDD program.¹⁴⁹ *The Song of the Sunderbans* tells of the grassroots resistance to Bangladesh's decision to build an enormous coal-fired power plant in the largest

¹⁴⁷ The comic books in the Environmental Justice Chronicle can be accessed at the Rebecca Bratspies website. Rebecca Bratspies, *Environmental Justice Chronicles*, <https://www.rebeccabratspies.com/environmental-justice-chronicles> [<https://perma.cc/H7TR-V7UW>] (last visited Oct. 31, 2023).

¹⁴⁸ *Earth Defenders – A Graphic Novella*, UN ENV'T PROGRAMME (Aug. 19, 2022), <https://www.unep.org/resources/publication/earth-defenders-graphic-novella> [<https://perma.cc/VR3D-P65>].

¹⁴⁹ See CHARLIE LA GRECA VELASCO & REBECCA BRATSPIES, *THE KEEPERS* 1-8 (Rebecca Bratspies ed. 2022), available at <https://wedocs.unep.org/bitstream/handle/20.500.11822/40492/TKWeb.pdf?sequence=4> [<https://perma.cc/F5KE-JRKP>] for a preview of the forthcoming graphic novel.

intact mangrove forest in Asia.¹⁵⁰ The *Prey Lang Patrollers* shows how indigenous people in Cambodia's Prey Lang forest have organized themselves into forest patrols to combat illegal logging.¹⁵¹ The next, soon-to-be published installment, *Cadena de Colombia*, tells of Afro-Colombian women resisting displacement and land grabs perpetrated in the name of economic development.

These stories have been the result of a decade of hard work. By bringing our whole selves to the struggle against climate change, we wound up making a unique contribution to the ongoing climate and environmental justice dialogue. This is the kind of thing that anyone reading this article can do— find a way to use their own talents and gifts as part of truly grassroots local action for environmental justice.

To change everything, we need everyone.

¹⁵⁰ See JEFF LAGRECA, SONG OF THE SUNDARBANS 1-8 (Rebecca Bratspies ed., 2022), *available at* https://wedocs.unep.org/bitstream/handle/20.500.11822/42071/song_sundarbans.pdf?sequence=3&isAllowed=y [<https://perma.cc/L3W5-JS7N>] for a preview of the forthcoming graphic novel.

¹⁵¹ See JEFF LAGRECA & CHARLIE LAGRECA VELASCO, PATROLLERS OF THE PREY LANG (Rebecca Bratspies ed., 2023), *available at* <https://wedocs.unep.org/handle/20.500.11822/43685> [<https://perma.cc/249M-WQVM>].

