Vision for Equitable Climate Action

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Introduction

The U.S. Climate Action Network (USCAN), a network of more than 175 organizations, embarked in 2018 on a transparent, inclusive process to develop a comprehensive vision for tackling the climate crisis. The process led to the creation of this platform, developed by an "Action Team" that every member was invited to join. Nearly 200 individuals from at least 106 organizations contributed. In 2021-22, the VECA was updated to reflect additional feedback and timely input from the membership.

This document presents a vision of just and equitable policies with the goal of satisfying what climate science says is necessary to hold global average temperature rise to 1.5°C. While this vision does not signify universal policy alignment or endorsement of every position, all members of USCAN agree with the need for immediate, equitable action, at all levels of government, at the scale needed to respond effectively to the climate crisis. These policy solutions may be added to, amended, or crystallized in the future based on our work, and innovation, case studies of success, or further understanding of the policy changes that are necessary.

Problem Statement

The Science

Humanity is facing an emergency climate crisis that poses an existential threat to human civilization and guarantees extreme suffering if we do not act immediately.[1] Excess greenhouse gases in the Earth's atmosphere from the production, transportation, and combustion of fossil fuels and from unsustainable forestry, agricultural, and industrial practices are causing extreme and catastrophic changes to the planet's climate system[2] and harming the communities that are host to the polluting facilities and processes. Nineteen of the 20 hottest years on record have occurred since 2001, with 2020 tying 2016 as the warmest.[3] Rising temperatures are resulting in more intense storms, droughts, and ecosystem collapse.

[1] Climate Vulnerability Monitor: A Guide to the Cold Calculus of a Hot Planet. (2012). *DARA*. Retrieved from https://daraint.org/wp-content/uploads/2012/10/CVM2-Low.pdf

[2] Global warming of 1.5°C. (2018). *Intergovernmental Panel on Climate Change*. Retrieved from https://www.ipcc.ch/sr15/

[3] NASA Earth Observatory (2019) 2018 Was the Fourth Warmest Year, Continuing Long Warming Trend

NASA Earth Observatory (2020) 2020 Tied for Warmest Year on Record

Extreme storms like Hurricanes Katrina, Sandy, Harvey, Maria, Irma, and Florence and TyPhoons Haiyan, Mangkhut, and Yutu[4] are becoming more powerful, wetter, costlier, and more deadly in the United States and across the globe. The 2020 Atlantic Hurricane Season broke records with a total of 30 named storms, 12 of which hit the US coastline, including 6 major hurricanes.[5] Inland disasters like flooding across several states, the derecho that struck Midwestern states with hurricane force winds, and wildfires spurred by extreme weather and logging on public and private lands in the West cost billions of dollars in damage to communities and infrastructure and hundreds of lives lost.[6] Ocean acidification is a growing problem that disrupts the ocean life that releases oxygen into the atmosphere. Food and water security are under threat, with some areas facing up to a one-third decline in per capita crop production with 2°C of warming above pre-industrial temperatures.[7] According to the most recent report from the Intergovernmental Panel on Climate Change (IPCC), on our current trajectory, hundreds of millions of people are at risk for extreme suffering and early death. Up to a billion people could be forced from their homes in mass climate-driven migration by 2050.[8] Global warming already severely threatens

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[4] Kossin, J. P, Hall, T., Knutson, T., Kunkel, K. E., Trapp, R. J., Waliser, D. E., & Wehner, M. F. (2017). Extreme Storms. *Climate Science Special Report: Fourth National Climate Assessment, Volume I.* Retrieved from https://science2017.globalchange.gov/chapter/9/

Emanuel, K. (2017). Assessing the present and future probability of Hurricane Harvey's rainfall. *Proceedings of the National Academy of Sciences of the United States of America, 114*(48). Retrieved from https://www.pnas.org/content/114/48/12681.full

Webster, P. J., Holland, G. J., Curry, J. A., & Chang, H. –R. (2005). Changes in Tropical Cyclone Number, Duration, and Intensity in a Warming Environment. *Science*, 309(5742). Retrieved from http://science.sciencemag.org/content/309/5742/1844.full

Holland, G., & Bruyère, C. L. (2013). Recent intense hurricanes response to global climate change. *Climate Dynamics, 42*(3-4). Retrieved from https://doi.org/10.1007/s00382-013-1713-0

Patricola, P. M., & Wehner, M. F. (2018). Anthropogenic influences on major tropical cyclone events. *Nature, 563*. Retrieved from https://www.nature.com/articles/s41586-018-0673-2

Wang, S-Y, S., Zhao, L., Yoon, J-H., Klotzbach. P, & Gillies, R. R. (2018). Quantitative attribution of climate effects on Hurricane Harvey's extreme rainfall in Texas. *Environmental Research Letters*, 13(5). Retrieved from https://iopscience.iop.org/article/10.1088/1748-9326/aabb85/pdf

Risser, M. D., & Wehner, M. F. (2017). Attributable Human-Induced Changes in the Likelihood and Magnitude of the Observed Extreme Precipitation during Hurricane Harvey. *American Geophysical Union.* Retrieved from https://doi.org/10.1002/2017GL075888

[5] NOAA News (2020). Record-breaking Atlantic hurricane season draws to an end

[6] NOAA National Centers for Environmental Information (2020). Billion-Dollar Weather and Climate Disasters: Events

[7] Hodges, J. (2018). Food Crops from Corn to Rice Are Seen at Risk from Warmer Climate. *Bloomberg*. Retrieved from https://www.bloomberg.com/news/articles/2018-10-08/food-crops-from-corn-to-rice-are-seen-at-risk-from-warmer-change

[8] Kamal, B. (2017). Climate Migrants Might Reach One Billion by 2050. *reliefweb.* Retrieved from https://reliefweb.int/report/world/climate-migrants-might-reach-one-billion-2050

many ecosystems and biodiversity generally. Threats to humans and wildlife alike grow significantly worse as warming approaches 1.5°C, with increasingly catastrophic consequences at higher levels of warming. Even under optimistic projections of business-as-usual greenhouse gas pollution, there is an unacceptably high 5% chance by 2100 of global heating to levels that pose "existential threats" to "a majority of [human] populations."[9]

The Injustice

The injustice of climate change creates a moral obligation and call to action. Structural racism and economic injustice, including a history of colonialism and exploitation, have meant that those who are least responsible for the climate crisis and have the least resources to adapt are being hit first and worst: indigenous communities, communities of color, poor people, elderly people, women, young people, immigrants, people with disabilities, the global south, and others whom our current political and economic systems marginalize. Communities that have historically borne the brunt of public health and environmental harms from exploitative and toxic industries, as well as those whose energy burdens are disproportionately high, have been sacrificed for the whole. The combination of inequities in environmental health burdens and access to medical care has directly resulted in dramatically higher impacts from COVID-19, with Black, Brown, and Indigenous communities suffering at 2-4 times the rate of white communities. Extractive systems of mass production and mass consumption, in which we are all complicit, have been perpetuated by the willful deception and greed of a few profiteers in the fossil fuel industry, industrial agriculture, logging, and other extractive industries. A culture of valuing profits over human lives and natural ecosystems has allowed falsities to flourish, such as the idea that the means towards our energy future must forgo climate justice. Intergenerational injustice has been the result of a culture of perpetual growth, and a result of the short-sighted greed and intentional deception of profiteers who knew for decades that their business model, if continued, would cause mass human suffering. Rather than change course or sound the alarm, they have doubled down and used the profits they earned from wrecking the earth to buy off politicians, lie to the public, and do everything in their power to maintain the status quo. We are nearly out of time, especially for those most vulnerable, who are already losing their lives and livelihoods. We must act immediately and at emergency speed. The window to meet this challenge with adequate solutions is closing—not just for those most vulnerable, but for us all.

[9] Xu, Y., Ramanathan, V. (2017). Well below 2°C: Mitigation strategies for avoiding dangerous to catastrophic climate changes. *Proceedings of the National Academy of Sciences of the United States of America*. Retrieved from https://www.pnas.org/content/early/2017/09/13/1618481114. The "optimistic" scenario referred to, termed "baseline-fast," is the IPCC Representative Concentration Pathway 6.0. See IPCC AR5 WIII, Ch. 6, p. 427.

The Roadblocks

Effective responses to the climate crisis have been hindered by the corrupting influence of fossil-fuel and extractive-industry money in politics, by a lack of political will and power to implement equitable and bold solutions, and by fractured organizing. Money from fossil fuel and other extractive industries drives U.S. politics, and as a result, climate denial reaches the highest levels of our government. All our political parties are culpable—either for outright denial, or for failure to put forward a program addressing the crisis with the speed and urgency it demands. We believe that solutions lie within the grassroots, in our communities, in our reconnecting with our interdependence on each other and the natural world, and in organizing. There is no more time for incrementalism, delay, or half-measures. Our movement cannot afford to be fractured. We must unite around common solutions, and we also must join forces with other movements that can help ensure a government that works to protect all people, not just a wealthy few.

Policy Solutions

The policies below comprise what we must do to protect natural and human communities and overcome the injustice and the roadblocks that have prevented us from addressing the climate crisis at scale. Some of them incorporate time frames or measurable criteria. Success in meeting these goals is not guaranteed, but it is necessary to avoid intolerable levels of human suffering. The policies are ambitious and, in most cases, have not been implemented at the scale outlined. They will require commitment over a decade or more, substantial resources, and acceptance of some failures along the way. Like the effort to put humans on the moon more than 60 years ago, we cannot predict every detail of how we will succeed. Nor can we guarantee success. But we are certain that we must try.

As a community, we have a clear and unambiguous goal to act equitably and ambitiously to exceed the U.S. goals originally put forward in the Paris Climate Agreement and meet the global goals of that agreement.

Below, we enumerate a list of needed policies and public investments on a sector by sector basis, followed by two overarching issues that are related to all other policy areas, ensuring a just transition and financing the platform, and four non-sectoral topics.

The recommendations herein are guided by the Precautionary Principle, which states: "When an activity raises threats of harm to human health or the environment, precautionary measures should be taken even if some cause-and-effect relationships are not fully established scientifically"[10]

[10] NIH National Library of Medicine at https://pubmed.ncbi.nlm.nih.gov/15968832/

Sectors and Topics

Economy-Wide Target

The IPCC's special report on Global Warming of 1.5°C was notable for its combination of scientific and ethical clarity. It discussed some critical truths:

1. We must do everything to try to hold the warming to a maximum of 1.5°C. We may fail, but this effort is our only chance of achieving the Paris Agreement's backstop goal of holding global warming "well below 2°C."
2. To have a substantial chance of achieving 1.5°C, global CO_2 emissions must decline by at least 45% and as much as 60% from 2010 levels by 2030 and must reach net zero around 2050.[11]
3. We must simultaneously draw-down excess atmospheric carbon by protecting forests, wetlands, oceans, and natural ecosystems, because slashing emissions alone will not mitigate global temperature rise.

These constraints are not in themselves sufficient to define the U.S. fair share of the global climate mitigation challenge. The United States is an extremely wealthy country with a great deal of historical responsibility for the climate crisis and a large capacity to respond to it. Therefore, it must do substantially more than the global average.

There is lively, ongoing debate about the maximum achievable rate of emissions reductions. In the U.S., a 2030 target of 100% reductions would be ideal, but many experts think it is simply not possible. We should strive toward that goal but, given that authoritative voices are arguing that domestic carbon dioxide emissions can be reduced as much as 70% by 2030, we believe this is an appropriate target and should be coupled with commensurate annual targets. A U.S. fair share also includes substantial financial support for emissions cuts in other, poorer countries. (See Global Issues and Responsibilities below).

Because emissions reductions alone won't be sufficient to stabilize the climate, the IPCC's 1.5 report states that we need to combine steep emissions reductions with increased drawdown of existing atmospheric CO_2 levels. While many of the modeled pathways rely on risky and unproven technologies for carbon dioxide removal, such as carbon capture and sequestration (CCS), the IPCC concluded it is feasible to draw down excess atmospheric CO2 levels by relying

[11] IPCC, 2018: Summary for Policymakers. In: Global warming of 1.5°C. An IPCC Special Report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty [V. Masson-Delmotte, P. Zhai, H. O. Pörtner, D. Roberts, J. Skea, P. R. Shukla, A. Pirani, W. Moufouma-Okia, C. Péan, R. Pidcock, S. Connors, J. B. R. [9]Matthews, Y. Chen, X. Zhou, M. I. Gomis, E. Lonnoy, T. Maycock, M. Tignor, T. Waterfield (eds.)]. World Meteorological Organization, Geneva, Switzerland. C.1, p. 14.

on natural carbon sequestration. The sustainable pathway forward requires steeper and faster emissions reductions and a global commitment to protecting forests and natural ecosystems.

The U.S. can become a world leader again in this dramatic transformation. Coupled with drawdown approaches and agricultural reform we can limit our planet warming to 1.5C before 2050 and begin achieving negative emissions. Our planet is in an emergency and a bold, innovative national program must lead the way for the U.S. and the rest of the world.

The U.S. must enact a bold agenda to electrify virtually all modes of energy consumption in the residential, commercial, and transportation sectors and transition to clean energy pathways. Recent studies have demonstrated the feasibility of equitable and just state-level pathways to 100% clean, renewable energy and electrification.[12] For instance, Energy Innovations has shown that with a national 'moonshot' project, the U.S. can transition to an entirely carbon-free economy by 2035, with the exception of several difficult industrial sectors that could also transform with innovations including new low-carbon fuels and processes.[13] Millions of jobs and economic benefits will be created with a strong federal approach.

Tribal Nations, Native or Indeginous Peoples

Indigenous people globally are protecting the rights of nature and 80 % of the world's lasting biodiversity while fighting to maintain their culture, all of which are under threat from exploitation, extraction, development, and climate change. In the United States centuries of colonialism, federal legislation and funding decisions have resulted in American Indian/Alaskan Native/Native Hawaiian people not having the basic right to protect their land, air, and water, cultural and sacred sites, including those in areas that are not under their jurisdiction, nor the

[12] Griffith, Saul, Calish, Sam, "Mobilizing for a Zero Carbon America", www.rewiringamerica.com ,29 July 2020. Aggarwal, Sonia, O'Boyle, Mike, "Rewiring the U.S. for Economic Recovery" www.energyinnovation.org, June,2020. Krieger, Elena, Arjun Makhijani. A Clean Energy Pathway for New Jersey. Institute for Energy and Environmental Research, PSE Healthy Energy. October 2017. https://ieer.org/wp/wp-content/uploads/2017/09/NJ_CleanEnergyPathway_Report_92817.pdf Makhijani, Arjun. Prosperous, Renewable Maryland: Roadmap for a Healthy, Economical, and Equitable Energy Future. Institute for Energy and Environmental Research. November 2016. https://ieer.org/wp/wp-content/uploads/2016/11/RenewableMD-Roadmap-2016.pdf "Technical Feasibility of 100% Renewable Energy by 2035." Institute for Energy and Environmental Research. February 2018. https://ieer.org/wp/wp-content/uploads/2018/02/Technical-Feasibility-100percent-Renewable-Electricity-Supply-Maryland-2035_2018-02report.pdf "Estimate of Economic and Fiscal Impact of Maryland's '100% Clean Renewable Energy Equity Act.'" Institute for Energy and Environmental Research. February 2018. https://ieer.org/wp/wp-content/uploads/2018/02/100percent-Act-cost-fiscal-impact-jobs-Maryland-2018-02report(revd22feb).pdf

[13] Phadke, Amol, Aggrawal, Sonia, O'Boyle, Mike, Gimon, Eric, And Abhyankar, Nikit "Illustrative Pathways to 100 Percent Zero Carbon by 2035 Without Increasing Customer Costs", energyinnovation.org, Sept. 2020.

resources or authority to expeditiously transition to renewable energy (as defined herein) or ensure the health of their communities and their ability to be resilient to the impacts of climate change. These rights must be restored and resources must be committed to ensure that tribal communities are not unjustly burdened. In solidarity with tribes, the vision for equitable climate action understands that:

- free and informed prior consent must be achieved by establishing regulations, standards, and procedural requirements that Indian Tribes grant informed consent;
- this consent must be free from influence or repercussions from outside sources including the U.S. Government;
- and must be given prior to any agency action that may adversely affect land and water under Indian jurisdiction, health, cultural activities - including off-reservation treaty-reserved rights to hunting, fishing, gathering -, or the continued protection and access to sacred and cultural sites including on federal, state, or municipal lands.

The vision for equitable climate action further stands with Indigenous peoples globally in opposing the practice and use of "Eminent Domain" by governmental agencies to condemn, exploit or take lands from Indigenous people.

Electricity

President Biden has embraced the ambitious goal of achieving "a carbon pollution-free electricity sector no later than 2035" and made this a centerpiece of his job creation platform.[14] But many of the so-called "clean energy" proposals in Congress allow false climate solutions such as carbon capture and sequestration, biomass energy, nuclear power, and even some fossil fuels to qualify as "clean."[15] This "all of the above" energy strategy, also embedded in many of the deep decarbonization pathways proposed by states and energy studies, will not achieve zero GHG emissions needed to stabilize the climate.

[14] Executive Order on Tackling the Climate Crisis at Home and Abroad, January 27, 2021 https://www.whitehouse.gov/briefing-room/presidential-actions/2021/01/27/executive-order-on-tackling-the-climate-crisis-at-home-and-abroad/

[15] Evergreen Collaborative and Data for Progress, A Roadmap to 100% Clean Electricity by 2035; Power Sector Decarbonization through a Federal Clean Electricity Standard and Robust Clean Energy Investments and Justice-Centered Policies, Feb. 2021.

Renewable Energy

- Target a just and equitable transition to at least 80% pollution-free renewable energy by 2030 and 100% by 2035, while protecting economically disadvantaged ratepayers from temporary rate shocks, ensuring that the benefits of the transition are shared equitably by all, prioritizing marginalized communities, and addressing the health effects of legacy pollution.

- The IPCC defines renewable energy as any form of energy from solar, geophysical (including wind, geothermal, tidal, hydro), or biological sources that is replenished by natural processes at a rate that equals or exceeds its rate of use.[16] We amend this definition to add that renewable energy must not be harmful to our communities or the environment.

- The following should not be treated as renewable energy because of their adverse health, climate, environmental, and/or social justice impacts:

    - Waste incineration (including municipal solid waste, medical waste, and construction and demolition debris)

    - Woody biomass combustion (including wood chips, pellets, trees and woody plants, logging residues, wood wastes, and treated lumber).

    - New large-scale hydroelectric power using impoundment dams

    - Biofuel policies have failed as climate solutions. The overwhelming majority of biofuels used today are crop-based biofuels. Corn ethanol in particular can actually be worse than oil. Biofuels derived from corn, soy, other crops, municipal solid waste, wood, or other sources that are not sustainable, pollute, result in land use change or compete with food crops.[17] Biofuels should not be considered a climate solution, particularly

[16] IPCC Special Report on Renewable Energy Sources and Climate Change Mitigation (IPCC-SRRN), 2011. O. Edenhofer, R. Pichs- Madruga, Y. Sokona, K. Seyboth, P. Matschoss, S. Kadner, T. Zwickel, P. Eickemeier, G. Hansen, S. Schlömer,C. von Stechow (eds), Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA. Technical Summary, 1.2 (p. 38).

[17] For a helpful introduction to biofuels, see Stephanie Searle, International Council on Clean Transportation, Will someone please tell me if biofuels are good or bad for the environment? Dec. 13, 2019 https://theicct.org/blog/staff/will-someone-please-tell-me-if-biofuels-are-good-or-bad-environment

for areas such as personal transport or heating, where the technology for electrification and truly clean renewables already exists..

- All references to “renewable energy” in this Vision for Equitable Climate Action utilize the above definition and exclusions.

Nuclear Energy

- No new nuclear energy.
- Phase out nuclear energy and replace it with renewable energy and efficiency as soon as possible, through a just and equitable transition.
- End direct and indirect subsidies to nuclear energy and redirect those resources to clean renewable energy, phasing out of nuclear energy facilities, and a just transition for nuclear energy workers.

Biomass Energy

Most of the biomass electricity produced in the US comes from burning wood, wood wastes, and the organic portion of municipal solid waste. Biomass power plants and garbage incinerators are extremely polluting and their direct CO2 emissions are higher than fossil fuels, per unit of energy produced. However, these polluting facilities are often falsely treated as “carbon neutral” or “zero emission” renewable energy sources and compete with truly clean, renewable energy technologies, such as wind and solar, for public and ratepayer subsidies.

- All policies designed to reduce CO2 emissions from the power sector must address both fossil fuel emissions and biogenic fuel emissions.
- Carbon emissions from bioenergy must be fully and transparently accounted for.
- Congress must stop passing the annual budget rider directing federal agencies to treat forest biomass energy as “carbon neutral” and “renewable” energy. Burning trees pumps CO2 into the atmosphere immediately, while it can take decades to over a century for the forest to regrow and take up that amount of CO2.

Stop Subsidizing Polluting Fuels

- Eliminate local, state and federal tax credits, grant programs, direct appropriations, and other subsidies for polluting fuels as soon as possible
- Ensure adequate, equitable access to funding and finance for clean renewables, prioritizing tribal nations and marginalized communities.

Enact Utility Reforms

- Accelerate deployment, integration, democratic ownership, public ownership, and affordability of renewables, microgrids, energy storage, community geothermal networks, and other distributed energy resources.
- Maximize energy efficiency and electrification of other sectors.
- Place a moratorium on essential utility service disconnections.Establish and fund energy affordability standards to limit the cost of utility bills to 6% of consumers' gross household income. Ensure low- and moderate-wealth households have access to energy efficiency improvements and community solar to minimize their energy costs and ensure access to renewable energy ownership.
- Promote local, community-based control and decentralized, resilient grid modernization including storage.
- Change the utility business model from vertically-integrated monopolies with captive consumer bases, to a decentralized, distributed energy resource network, prioritizing climate resilience and open access to renewable energy ownership, community-owned energy, microgrids, and energy efficiency.
- Ensure independence of utility regulators. Bar utility and energy industry employees from serving on Public Utility Commissions, and include environmental justice, consumer protection, and economic justice expertise among the required qualifications for commissioners. Create intervenor funding programs to support or enable public interest engagement in PUC proceedings, and enable public interest representatives to initiate rulemaking and enforcement proceedings.
- Ensure that distributed energy resources are able to be aggregated to maximize their value as bulk electricity system resources.

Transportation

Surface Transportation

- Restore the fuel efficiency standards that were in effect through the 2025 model year. Phase in a zero-emission standard for some light- and medium-duty vehicles beginning in 2026, leading to a zero-emission standard for all new light and medium duty vehicles no later than 2030. Require zero emissions for all new heavy duty (freight) vehicles by 2035.

- Offer buyout incentives greater than Blue Book value to internal combustion engine vehicle owners who scrap their vehicles to accelerate both the decarbonization of the existing fleet and the replacement of the most polluting vehicles with clean vehicles. Offering cash to scrap older vehicles will help lower-income households benefit from consumer incentive programs and reduce community exposure to the adverse health impacts of tailpipe pollution.

- To ensure that state and local transportation investments are consistent with national climate policy goals, to advance environmental justice and equity, and to eliminate the tens of thousands of deaths and other adverse impacts on public health caused by emissions from fossil fueled vehicles, make federal surface transportation funding contingent on the adoption by statewide and metropolitan planning organizations of transportation plans that achieve quantifiable reductions in carbon dioxide pollution from mobile sources, averaged over each four-year transportation planning cycle, designed to: (a) reduce CO2 emissions by 30% to 50% by 2030; (b) achieve zero emissions from the surface transport sector by 2050; (c) assure affordable transit access to employment, schools, medical care, entertainment venues, and public services, including paratransit; and (d) protect disproportionately exposed low-income communities and communities of color from the harmful health effects of vehicle pollutants emitted from heavily trafficked highways, high volume parking, freight distribution centers, ports and airports, and other high-polluting transportation infrastructure by requiring that polluting internal combustion engines using those facilities be replaced more quickly with zero-emission technologies.

- To assist states and MPOs in achieving zero emissions from surface transportation, direct federal and state housing investment and grant programs, DOE Clean Cities and energy programs, DOT grant programs and other funding agencies to support (a) implementing “complete streets,” which are designed and operated for all users; (b) expandinging public transit services, walking and

biking; (c) integrating housing and transit policy to encourage high-density affordable housing within walking distance of transit; (d) ensuring access and affordability of transportation options; and (e) providing ubiquitous access to EV charging facilities for residents of multi-family dwelling units and visitors to popular destinations such as shopping centers, sports and entertainment venues, airports, school campuses, hospitals and transit stations. Consideration for funding should be given to the disproportionate lack of funding and resources in rural areas.

- Transition school bus and transit bus fleets, taxis and ride hailing vehicles to zero emission technologies by 2030. Require school and transit fleet operators to submit transition plans by 2024 as a condition for any future federal or state funding, and limit future funding after 2024 to the implementation of those plans.

- Require that all federal fleets (650,000 vehicles) make the transition to zero emissions as soon as possible by requiring GSA, U.S. Postal Service and other procurement authorities to plan for the installation of charging infrastructure for fleets in the current FY budget, and limiting appropriations for new vehicle purchases to zero emission technologies no later than FY 2024. The U.S. Postal Service operates nearly one-third (205,000) of federal vehicles, with a contract to replace 165,000 delivery vehicles over the next 10 years beginning in 2022. The new delivery vehicles are designed to remain in service for 24 years, with some remaining in operation after 2050. This fleet must be zero emission.

- Electrify rail by 2030. (See Solutionary Rail.[18]) Connect major metropolitan areas within 500 miles of each other with publicly owned high-speed rail as an alternative to air travel as soon as possible.

- To reduce air pollution from the transport sector, including pollutants that accelerate climate disruption and impair human health, tax policies to fund transportation infrastructure investments should be designed to (a) ensure an equitable distribution of costs to users based on their use of, and impact on, transportation facilities, and (b) to encourage the replacement of polluting vehicles with zero-emission vehicles.

- To ensure that electrification of the transportation sector does not result in increased emissions of CO2 and conventional air pollutants, the EPA must not

[18] Solutionary Rail, www.solutionaryrail.org

create an electrification pathway in the Renewable Fuel Standard (RFS) that would allow dirty energy sources, like wood-burning power plants, to qualify.[19]

Aviation

- By 2022, the Federal Aviation Administration develops air traffic optimization policies that minimize the overall climate impact of air travel, including not only carbon dioxide emissions but also other, non-carbon dioxide effects in the upper atmosphere.[20]

- Vastly increase R&D for aviation efficiency and alternative fuels, including electricity and green hydrogen, provided that the fuel source be protective of communities and the environment, consistent with VECA's definition of renewable energy, above.

- Achieve low to zero emissions in the aviation sector by no later than 2050, by deploying technology-forcing aviation emission standards for new aircraft types and the current aircraft fleet. Supersonic jets must meet the same emissions standards as subsonic aircraft.

- Implement a private jet and frequent-flier tax to avoid unnecessary flights, calibrated to the expected demand reduction needed to meet climate stability goals, while ensuring equity and mobility for isolated communities.

Shipping

- By 2030, require ships entering U.S. ports to achieve carbon dioxide emissions per ton of cargo that are half of the average rate of emissions in 2018. Vastly increase R&D to develop more fuel-efficient ships and low- to zero-emission ship propulsion technologies with the goal of eliminating greenhouse gas pollution from shipping.

[19] https://foe.org/blog/dirty-electricity-isnt-renewable-fuel/

[20] U.S. aviation is only 9% of U.S. transportation emissions and 2–3% of global greenhouse gases, but ~5% of the global warming impact that the Earth experiences due to the radiative forcing effects from burning jet fuel in the upper atmosphere.

Manufacturing and Industrial Processes

Goals

- Manufacture more renewable energy components, electric vehicles, public transit, and other goods essential to a clean energy economy.

- Regarding renewable energy production supply chains; rare earth minerals such as cobalt, lithium, and nickel are required. The increased extraction and/or mining of those minerals from oceans (including deep-seabed mining) and land-based resources without appropriate restrictions may lead to irreversible environmental and ecosystem degradation. For example, many key elements used for renewable technologies come from China, where they are mined under dangerous conditions that impact communities and ecosystems. In contexts like the "Lithium Triangle" in Argentina, Chile, and Bolivia, extraction relies upon water-intensive processes in what is known as one of the world's driest areas. More than 70% of the world's cobalt is produced in the Democratic Republic of Congo, where mining operations, particularly in small-scale and artisanal mines, are often fatal to children and adults alike. When extractive practices are necessary, we must adopt practices that do not abuse local habitat, introduce toxic substances or violate human rights.

- Prioritize and invest in programs to collect and recycle rare earth minerals from clean energy components (e.g. solar panels and batteries). Currently, less than 1% of rare earth minerals are recycled. (Please see Renewables, Adaptation, and Global Issues and Responsibilities for more information on rare earth minerals.)

- Make manufacturing clean, removing toxic materials and processes and greenhouse gas emissions—including in the renewables sector—and limit the need for mining.

- Ensure high-quality jobs that pay family-sustaining wages, that are safe for workers and do not expose workers to toxics, with equitable access to jobs, including in the renewable energy sector.

- Reduce manufacturing-related waste and extraction by expanding remanufacturing and reuse to encourage sustainable life cycle materials management as part of a "circular economy."

Policies

- Measure and transparently report job creation, worker safety adherence, pollution reduction progress, and life cycle management—both for the goods produced and the supply chain.
- Develop federal legislation to hold manufacturers accountable for recycling and recovering metals and minerals from products like solar panels or electric vehicle batteries once the product's life cycle has been completed.
- Invest in recycling facilities and in R&D that seeks to improve recoverability of components in an economically viable way.
- Limit the need for mining through increased recycling, right to repair, and longer product life, eliminating planned obsolescence. This includes enacting extended producer responsibility laws, supporting local and state zero waste policies, and providing resources for municipal recycling and reuse programs.
- Environmental impacts analyses should be conducted on proposed extraction and /or mining of rare earth minerals and restrictions on such extractions and/or minings should be appropriately imposed.
- Invest massively in R&D and deployment for solutions to increase manufacturing energy efficiency; eliminate greenhouse gases, other pollutants, and waste from manufacturing; substitute materials; clean up pollution from legacy polluting manufacturing; and redevelop brownfields where appropriate.
- Ensure that government procurement supports clean, equitable, job-creating manufacturing.
- Require companies to clean up pollution from manufacturing and limit the need for mining.
- Create a clean-technology industrial bank (like a "green bank") to deploy clean manufacturing for the clean energy economy (e.g., renewables, electric vehicles, public transit), with democratically determined local content and manufacturing requirements as appropriate for the clean economy of the future.

- Immediately sign and ratify the Kigali Amendment to the Montreal Protocol phasing out the use of hydrofluorocarbons (HFCs).

- Limit greenhouse gas emissions and toxic pollution from manufacturing, and phase out highly polluting manufactured materials.

- Enact policies that require all manufacturing jobs that benefit from the above investments and incentives to abide by high-road labor standards, with unions, frontline communities, and other impacted local populations taking the lead on developing these policies, such as prevailing wages, strict safety standards, and project labor agreements with unions.

Sustainable Food Production

Mitigation, adaptation, and resilience in the agricultural sector are essential to climate action, especially to protect livelihoods and the right to food. The agricultural sector should be a sink and not a source of greenhouse gas emissions.

- Secure the right to food, ensuring that economically disadvantaged areas, communities of color, and climate-impacted communities have access to healthy food.

- Make a massive investment in agroecology and regenerative practices to restore soils, promote biodiversity, and protect ecosystem services in rural areas, including by dramatically reducing the use of synthetic fertilizers and pesticides. Rural areas contain only 19% of the U.S. population but represent 97% of the country's land mass. The potential for this expanse of land to contribute to carbon sequestration is enormous.

- Reform economic support for farmers to better protect family farms and farm workers.

    - Reform subsidies and other forms of price supports to support agroecology and environmentally sound and climate-friendly agricultural practices, such as cover cropping, integrated pest management, and agroforestry.

    - Ensure fair prices for family farmers so that farming provides a decent livelihood.

- Ensure the availability of affordable credit for family farmers, especially young and minority farmers who may lack access to other sources of credit and capital.
- End and provide restitution for historic discrimination against minorities in agriculture programs.
- Enact protections for farm workers to ensure safe working conditions, a livable wage, and other labor protections, regardless of immigration status.
- Enact antitrust rules that stop and reverse the corporate consolidation of agribusiness companies to protect farmers, workers, consumers, and rural communities and reduce vertical and horizontal consolidation.

- Transform the livestock sector by increasing understanding of the significant role animal agriculture plays in driving climate change and addressing the heavy impacts of livestock production on the environment. Support transformative approaches to greenhouse gas reduction and ensure that economically disadvantaged communities, communities of color, and indigenous communities do not continue to disproportionately bear the burden of pollution and climate disruption from the livestock and poultry industries:
  - Establish mandatory targets for greenhouse gas emission reductions for the animal agriculture sector based on a comprehensive life cycle assessment (LCA) approach, from cradle to post-farm gate (including land conversion and feed production through slaughter and processing).
  - Ensure transparency and consistency in the methods by which greenhouse gas emissions data is generated and make all data on the amounts and types of emissions generated by the livestock and poultry industries available to the public.
  - Develop an effective national strategy to reduce the amount of greenhouse gases generated by this industry, including significantly reducing and phasing out concentrated animal feeding operations (CAFOs) and ensuring a just transition for livestock farmers and farm workers.

- Invest in and incentivize mitigation and prevention strategies that reduce greenhouse gas emissions from animal agriculture while improving the surrounding environment, such as supporting efforts to reforest areas that were previously deforested to support grazing or minimizing the use of conventional agriculture for industrial feed purposes.
- Support responsible grazing practices on private lands that recognize the limitations of available pasture and the value of natural grasslands as carbon sinks and native wildlife habitat.
- Legalize and incentivize the retirement of grazing permits on public lands, with a goal of reducing public lands livestock grazing by 50% by 2030.

- Promote diets that prioritize healthy, plant-based options.
  - Encourage procurement policies at all government and institutional levels that increase the availability of healthy, plant-based options and reduce the amount of meat and dairy purchased and served.
  - Emphasize the connection between diets that are healthy for people and the climate by including sustainability considerations in national dietary guidelines and related programs and policies.
  - Support research and development to improve the availability and healthfulness of plant-based foods while minimizing environmental impacts.
  - Support programs that provide safe, affordable, and culturally appropriate food options in underserved communities, for example community gardens and urban agriculture

- Reduce food waste to mitigate unnecessary agricultural greenhouse gas emissions and create a sustainable food system that conserves natural resources.
  - Standardize date labels to reduce consumer confusion and waste.
  - Track and publicly report food waste throughout the supply chain, particularly at the farm and retail levels.
  - Prioritize prevention of food loss and waste through initiatives such as improving inventory management, retailer commitments to whole-crop

and seasonal/bumper-crop purchasing, extended produce specifications, and investments in packing, tracking, and storage innovation.

- Invest in universal composting programs to reduce the amount of compostable food going into landfills while expanding access to fertilizers that are not reliant on CAFO waste or destructive mining practices.

Buildings and Energy Efficiency

Reduce Energy Use in Existing Public, Residential, and Commercial Buildings

- Retrofits
  - Conduct high-quality, deep energy efficiency retrofits of 75% of all existing public and private buildings by 2040 and 100% by 2050 while meeting applicable building safety standards.
  - Start by retrofitting (1) economically disadvantaged households; (2) multifamily residential buildings; (3) properties that are rented; and (4) placing additional early focus on the small number of buildings that consume a disproportionate share of energy.
  - Upgrade existing homes, including multi-family units and mobile homes in low-income and disadvantaged communities that may not currently be sustainable or habitable. If homes are not habitable and cannot be recovered, use those areas for community green space, affordable housing, or other community benefit.
  - Ensure that renters and economically disadvantaged households are not negatively affected; retain housing affordability; and prevent gentrification.
  - State energy departments and U.S. Department of Energy should track the number of buildings that have received deep energy retrofits in each state, beginning in 2020.
- Equity and justice
  - Remove fees for access to renewable energy sources for those who are economically disadvantaged.

- Ensure that houses receive energy efficiency upgrades simultaneous with or prior to converting to renewable energy.

- Provide restitution for victims of predatory lending and other unethical business practices. If companies go bankrupt after receiving federal funding to work on homes, this program will investigate and handle claims as well as seek retribution or recoup funds from those who profit from these practices.

- Ensure energy efficiency work is done by workers earning living wages, working in safe and healthy conditions, with collective bargaining rights, while supporting public jobs programs and prioritizing businesses owned by women and people of color.

- Other supports and incentives

  - Expand federal, state, and local funding and financing tools, including property assessed clean energy financing, federal funds for the Weatherization Assistance Program and funding for utility-based low-income weatherization and energy efficiency programs.

  - Require utilities to prioritize energy efficiency and demand-side management solutions to reduce overall power demand before considering building new power generation.

<u>Reduce Energy Use in New Residential and Commercial Buildings</u>

- Update state and local building codes to require all new commercial and residential buildings to meet the Architecture 2030 ZERO Code standard by 2025.

- Update building codes to require all new commercial and residential buildings to be onsite net-zero ready by 2025 if physically capable of generating all the energy required to operate the building using onsite energy sources.[21]

- Require proposed commercial and residential buildings to undergo an environmental justice assessment of community impact before receiving building permits.

[21] Some properties lack the renewable resource base to generate all power affordably on site—for example, tall towers that have thousands of square feet of floor space and little solar exposure.

Electrify Buildings

- New buildings. Update building codes to require all equipment and appliances (as that phrase is used by the Department of Energy, including heating and cooling loads) used in new buildings to operate on electricity by 2025.

- Existing buildings. Require all replacement appliances and equipment that can be powered by electricity to be powered by electricity by 2025.

Appliance standards

- Update federal appliance and equipment efficiency standards every two years, or as often as is practicable, including a forecast of efficiency standards over the coming 10 years.

- Incorporate appliance durability and repairability standards into the efficiency standards.

Use Land Use Laws to Support Energy Efficiency and Climate Resilience

- Leverage transit-oriented development, mixed use zoning, core density, and smaller dwellings to support energy efficiency in the building and transportation sectors.

- Integrate housing policy, land use policy, and transportation policy to advance equity and carbon reduction goals. For example, locate high density, efficient, affordable housing near convenient urban transit.

- Promote climate-wise development practices for resilience. For example, site new development outside of hazard zones such as fire prone landscapes, flood zones, and low elevation coastal zones.

Health

Climate change is already damaging human health and will have a greater impact in the future. The health effects of these disruptions include: threats to mental health; increased respiratory and cardiovascular disease injuries; premature deaths related to extreme weather events; starvation and malnutrition due to changes in the prevalence and geographical distribution of food; as well as an increase in water-borne illnesses and other infectious diseases including viruses. Climate change also affects the delivery of healthcare and the ability of communities to rebound from extreme weather events and pandemic illnesses like COVID-19. The most vulnerable members of society —children, the elderly, persons with disabilities, low-income

communities, persons with pre-existing conditions, and communities of color—bear a disproportionate burden when it comes to health impacts from climate change and these are the same populations that are least equipped to recover.[22]

The current SARS-CoV-2 (Severe Acute Respiratory Syndrome Coronavirus) COVID-19 pandemic presents a good case study. Many scientists believe that COVID-19 (a zoonotic virus that resulted from the interaction of bats and humans at an animal market in Wuhan, China[23]) was a by-product of climate change, land degradation, and overall spillover of humans into spaces generally occupied by animals, and vice versa.[24] The COVID-19 pandemic has so far resulted in over 6 million deaths worldwide and upwards of 1 million in the U.S. alone. Demonstrating that climate change may have significant direct impacts on the genesis and spread of pandemics.

During 2019- 2022, it has become clear that the lack of effective and accurate communications regarding the COVID-19 pandemic helped to create an atmosphere of mistrust within certain communities within the US. These communities are not bound by social and/or economic status. After 2 years of experiencing millions of infections and over a million subsequent deaths associated with this virus in the US, only 62% of the current adult population within the U.S. is fully vaccinated and less are boosted as well.

The Corona virus has the potential to mutate during each infection of a host which results in exponential mutations during its spread. At this time, Omicron and its many subvariants (which are by- products of the COVID-19 mutations) each possess characteristics that make them more potent to the non-vaccinated hosts. Thus, it is critical that to eradicate COVID-19 and future Corona viruses, people must adhere to the protective measures recommended by their government while also becoming vaccinated in order to halt infections and along with it the opportunity for the virus to continue to mutate.

Similar miscommunications about climate change have led particular communities to believe that it is not real. Therefore, in the future, it is essential that accurate communication that everyone can understand and trust regarding the urgency of adopting measures that would help protect them, their families, and their communities is the key to addressing overall health impacts (especially easily transmitted infectious diseases) associated with climate change.

As climate change poses significant threats to human health, the health sector also contributes nearly 10% of U.S. greenhouse gas emissions. Hospital and health care systems must implement climate-safe healthcare by decarbonizing the health sector and building resilient facilities and

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[22] Refer to the U.S. Fourth National Climate Assessment – Chapter 14: Human Health https://nca2018.globalchange.gov/chapter/14/

[23] Pandemics are Expensive. Preventing them is Cheap (2/4/2022) https://www.huffpost.com/entry/pandemic-prevention-harvard-study_n_61fd5c39e4b05004242cd1d7

[24] Preparing International Cooperation on Pandemic Prevention for the Anthropocene (3/16/2021) (https://gh.bmj.com/content/bmjgh/6/3/e004254.full.pdf)

public health infrastructure. This includes adapting infrastructure, supply chains, and service delivery to remain effective in the face of new threats and build resilience in communities.

Without transformational action, climate-related harms will grow increasingly severe, leading to more illness, injury, and death; displacement of populations due to food and water scarcity; more frequent extreme weather events and violent conflict; all which worsen health inequities. By mobilizing climate action for health and health action for climate, the U.S. can reduce climate pollution and build healthy communities that are resilient in the face of climate risks.

The social determinants of health, such as income, access to healthcare, and environmental conditions are all interrelated. Thus, climate solutions must be holistic and improve all people's health. Solutions must clear the air, improve land and water quality, and provide healthy food choices to nurture people's bodies and spirits. They must combat the devastating health impacts of climate change, reduce injury and illness, care for mental health, and extend people's lives.

Climate solutions must prepare us for harmful impacts. They must protect our families, our communities, and our livelihoods from the harmful impacts we are already experiencing from climate change and novel diseases, and they must center communities that are the most vulnerable to the physical and mental health impacts of these threats.

Public Health Infrastructure and Community Resilience

- Improve access to care for those that are uninsured, underinsured, or in rural or underserved communities, as these populations are more likely to experience health threats posed by climate change including increased infectious disease and even pandemics.

- Climate change must be an integral component of federal, state, and local public health planning and programming.

- Federal, state, and local public monitoring must include the monitoring of key environmental signals that often presage climate health disasters, including but not limited to: harmful algal blooms, storm surges and heat waves; and the planning , and funding, of ameliorating programs such as the repairing of riparian lands and the construction of cooling centers.

- Deeply engage communities most vulnerable to health harms of climate change in planning, policy development, and budgeting, offering meaningful roles and power in decision-making processes, and respecting history and traditional ecological knowledge.

- Provide adequate planning and funding to protect all communities from the adverse health impacts of climate change, including robust heat island mitigation; expansion of tree canopies, green space, and green infrastructure; cool roofs and cool pavements; rainwater and greywater capture; strategies to reduce the occurrence and impacts of catastrophic wildfires and floods; community preparedness and resilience training; and increased availability of affordable, climate-adapted housing.

- Provide guidance based on an integrated assessment of the health and health equity outcomes of proposed climate solutions and investments.

- Invest in hospital and community health center resilience by providing funds to conduct climate and disaster vulnerability assessments and support infrastructure improvements.

- Implement climate-smart energy, water, transportation, food, anesthetic gas, and waste management practices in health care facilities, clinics, and provider offices.

- Assess vulnerability to extreme weather or other climate-related events that would limit healthcare facility operations, and invest, plan, and implement strategies to build health and mental health system resilience using the BRACE framework[25] in collaboration with public health and other community agencies.

Financial Regulation

Banks, insurance companies and asset managers are the main financial backers of the corporations and activities driving climate change. Financial sector regulators have the authority and responsibility to curtail the flow of funds to greenhouse gas emissions and to encourage funding of climate resilience and of a just transition to a zero emissions economy.

- *Disclose climate risk and protect investor rights.* Give shareholders and retirement plan beneficiaries the right to invest in assets that express their values and the information that they need to accurately assess those investments. To support this, require all firms to publicly disclose the greenhouse gas emissions they produce and finance, the risks their business faces from climate change, and their plans for addressing both.

- *Implement prudential regulation of emissions financing.* Take climate change into account when evaluating banks' and insurers' decisions to lend to, underwrite, or invest

[25] Building Resilience Against Climate Effect Framework. Centers for Disease Control. https://www.cdc.gov/climateandhealth/BRACE.htm

in emissions-increasing industries. Use the tools designed to prevent bank failures and financial crises to manage the danger to the broader economy from financing emissions and deforestation commodities.

- *Regulate Tax Havens.* The existing global tax structure is antithetical to a just international climate transition. Tax havens, including those in the U.S., significantly undermine the revenue necessary to fund climate transitions, especially in lower-income countries; opaque corporate laws allow fossil fuel corporations and other greenhouse emitters to evade accountability for environmental and human rights abuses; and illicit financial flows enable global corruption, rendering governments less democratically accountable.[26] To ensure an equitable international climate transition, the U.S. must therefore use its global influence to promote comprehensive multilateral solutions to the problem of tax havens. The U.S. should lead by example and establish robust corporate transparency rules while strengthening regulation against tax avoidance and evasion at home.

- *Restrict financing of greenhouse gas pollution*. Close loopholes that allow bank holding companies to invest in physical commodities and energy businesses, and require that any future fossil fuel investments bear the full costs that they impose on the economy and the environment. Begin phasing down the financing of greenhouse gas pollution, starting with the most highly polluting sectors and companies.

- *Finance a just transition.* Increase equitable investment in frontline communities. Mitigate harm to vulnerable communities by encouraging banks to support climate resilience as part of their community reinvestment obligations. Do not permit climate risk-management to result in banks and insurers denying service or increasing costs to serve these communities.

Phasing out Fossil Fuels

- *Keep Fossil Fuels in the Ground and Stop Expansion.* Begin responding to the climate crisis by stopping the problem from getting worse than it already is. A phase-out of fossil fuels should include a halt to all new permits for fossil-fuel exploration, production, and infrastructure, a phase-out of all subsidies to fossil fuels, and divestment of all public and private financial investments from the exploration, production, and distribution of fossil fuels. Fossil fuel companies should not receive government assistance or bailouts. Instead, any assistance

[26] https://edgy.app/do-tax-havens-cause-global-warming;
https://www.taxjustice.net/reports/the-state-of-tax-justice-2020/
https://thehill.com/opinion/energy-environment/550787-fair-tax-systems-are-vital-for-strong-climate-action/

should directly support impacted fossil fuel industry workers and communities (such as to diversify tax bases) and lay the groundwork for a just transition.

- *Target a Just Transition to 100% Renewable Energy*. During this transition, center people of color and frontline, indigenous, and low-income rural communities to ensure they receive the early benefits of a just transition. A just transition should include a managed decline of the fossil fuel industry and a phase-out of all existing fossil fuel production, accompanied by massive investment in clean energy. A federal jobs guarantee offering a green job for anyone who wants one, prioritizing programs for non-violent returning citizens who were previously incarcerated, could simultaneously lift communities out of poverty while transitioning our economy to 100% renewables.

- *Ensure That Polluters Pay the Full Costs of Their License to Operate*. To safeguard public funds from the risk of fossil fuel industry insolvency, and to ensure existing point-source risks are not externalized to frontline communities, local communities should secure the funds necessary from the fossil fuel industry, as a condition of industry's license to operate, to ensure that the costs of adaptation, mitigation, and climate risk are not passed on to consumers or workers. They should secure these funds by requiring fossil-fuel risk bonds that protect public funds and prioritize them over the interests of secured creditors.

- *Ensure That Polluters Pay for the Cost of a Just Transition*. Ensure that the costs of phasing out fossil fuels are borne by the polluting corporations that have driven the crisis and obstructed solutions, and that those costs are not passed on to others, through appropriate bonding secured by public officials.

Protecting Natural Carbon Sinks to Draw Down CO2 Levels

The IPCC has warned that deep reductions in greenhouse gas emissions will not be enough to limit global warming to 1.5°C. All modeled pathways project the use of carbon dioxide removal (CDR) to compensate for residual emissions and for delays in implementing emissions reductions.[27] The IPCC found that it is feasible to draw down excess atmospheric carbon dioxide without recourse to experimental carbon capture and sequestration technologies by relying entirely on protected natural ecosystems, primarily forests, in combination with steeper

[27] IPCC, 2018: Summary for Policymakers. In: Global warming of 1.5°C. An IPCC Special Report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty [V. Masson-Delmotte, P. Zhai, H. O. Pörtner, D. Roberts, J. Skea, P. R. Shukla, A. Pirani, W. Moufouma-Okia, C. Péan, R. Pidcock, S. Connors, J. B. R. Matthews, Y. Chen, X. Zhou, M. I. Gomis, E. Lonnoy, T. Maycock, M. Tignor, T. Waterfield (eds.)]. World Meteorological Organization, Geneva, Switzerland. C.3, p. 19.

emissions reductions.[28] In addition, the IPCC noted that conservation and restoration of natural ecosystems and soil carbon sequestration, if done properly, could provide essential co-benefits such as improved biodiversity, soil quality, and local food security.[29] A 2021 publication by the United Nations Environment Program (UNEP) entitled *Making Peace with Nature* makes clear that humanity's war on nature has left the planet broken and that properly valuing nature and understanding that its destruction is driving our current crisis is imperative to combating climate change.[30]

The U.S. is blessed with myriad carbon-rich, biodiverse ecosystems which span the breadth of our country including forests, peatlands, prairie, wetlands (forested and non-forested), freshwater, coastal and marine ecosystems. In addition to storing and sequestering carbon, these ecosystems provide habitat for native plants and animals, serve as nurseries and shelter for many aquatic organisms and foster the growth of microorganisms essential to ecosystem function. In addition, intact ecosystems provide some of the best protections to our communities from the impacts of climate change, including sea surge, flooding and wildfires, to name a few. Unfortunately, most of these ecosystems have been overwhelmingly valued for the commodities that they can provide. Extractive industries, with the support of government agencies and subsidies, have logged, mined, and drained our environment for their natural resources such as wood products, rare earth minerals, and development purposes. The result has been the exploitation, degradation and destruction of the very ecosystems that help maintain a habitable planet. As we move forward in the face of the climate crisis, a reimagining of our priorities and our relationship with native ecosystems is therefore warranted. The Precautionary Principle, which states "When an activity raises threats of harm to human health or the environment, precautionary measures should be taken even if some cause-and-effect relationships are not fully established scientifically,"[31] should govern all of our actions with regard to our environment.

Public and Private Lands Considerations

In addressing carbon drawdown by natural ecosystems to mitigate climate change, it is important that we recognize that there are various forms of land ownership [private (individual, nonprofit, land trust, or corporation), city, county, state, in trust for Indian tribes and federal], each of which is governed by different rules, regulations and requirements from different levels

[28] Booth, M.S. 10/7/2018. The IPCC's Recipe for a Livable Planet: Grow Trees, Don't Burn Them. Retrieved from: http://www.pfpi.net/the-ipccs-recipe-for-a-livable-planet-grow-trees-dont-burn-them

[29] IPCC, 2018: Summary for Policymakers. P. 17, C.3.5, p. 17.

[30] https://www.unep.org/resources/making-peace-nature

[31] NIH National Library of Medicine at https://pubmed.ncbi.nlm.nih.gov/15968832/

of government. This means that policies which prioritize natural solutions will need to be implemented at multiple levels of government through both legislative and executive processes.

Below is a list of policy recommendations that are necessary to preserve the natural ecosystems that are essential to maximize our ability to mitigate global temperature rise and to protect communities and biodiversity from the current and future impacts of climate change. These policies can be crafted to apply to all land ownerships described above.

Forests

Most forests provide the integrity for community identities, provide food for communities, can be barriers to strong winds and precipitation, and provide temperature regulation properties to the surrounding area. Animals, insects, beneficial microorganisms, and plants often use intact forests as corridors to move from an area that they cannot survive in or support their reproductive potential to one that is more life sustaining for them. With increased climate change events, these corridors are essential to the organisms' long-term survival and their biodiversity is affected by them.

With regard to climate change, native forests draw enormous amounts of carbon dioxide out of the atmosphere and store it long-term in the trees, other vegetation and soils which comprise these ecosystems. Logging, as well as clearing forests for animal agriculture, are the biggest threats to forests globally. Industrial logging activities not only reduce carbon stores in our forests, they also damage forest ecosystems, reducing their ability to store and sequester carbon now and into the future. In the U.S. alone, annual CO2 emissions from logging in U.S. forests are comparable to yearly U.S. emissions from the residential and commercial sectors combined.[32] To avoid the pending climate catastrophe, we must rethink the way we value forests. Forests help provide a cost-effective solution to mitigate climate change while creating healthier, more resilient human and animal communities, ecosystems, and economies.[33]

Policy Recommendations:

- At least 30% of all US National Forests must be protected from logging and exploitation by 2030.
- Prohibit the logging and removal of trees in National Parks.
- Maximize carbon storage in our forests, protect biodiversity and protect communities by issuing an immediate moratorium on the cutting and removal of trees on Federal public lands.

[32] https://www.epa.gov/ghgemissions/inventory-us-greenhouse-gas-emissions-and-sinks).
[33] Stand4Forests: A Unified Call for Forest Protection in the United States. Accessed October 2019 from https://stand4forests.org/

- Prohibit clearcutting on public and private lands.
- Eliminate any and all subsidies, incentives, or tax credits for all logging activities
- Fund the planting of urban and suburban trees and forests.
- Fund the acquisition of private forest land from willing sellers for the purposes of creating additional protected public lands while increasing access to nature for disadvantaged communities, local recreation jobs, carbon storage and sequestration, wildlife habitat and mitigating the localized impacts of climate change.
- Incentivize the creation of conservation easements which would leave forests permanently intact on private lands while compensating private landowners.
- Rectify the barriers to land ownership that are prevalent especially in areas with systemic racism to allow all citizens to be able to contribute and benefit from efforts to maintain forests for biodiversity and carbon storage and sequestration.
- Provide more options and incentives for landowners and municipalities to maintain forests and other natural ecosystems for their carbon sequestration, biodiversity, and resiliency benefits.
- Reestablish native forest ecosystems in areas where native forests have been converted to non-native species.
- Incentivize an increase in logging rotations on private industrial forest land to maximize carbon storage and sequestration.
- Ensure accurate and transparent accounting of emissions in the forestry sector, including the loss of carbon storage, sequestration and ecosystem productivity that occur as a result of logging practices.
- Invest in climate and environmentally friendly alternatives to wood and paper products, with a 50% reduction in the manufacture and use of virgin wood and paper products by 2030.
- Create programs that recycle and reuse urban wood waste, including from building demolition and construction.
- Reject government investment in new wood markets or markets for new wood products, such as mass-timber/ Cross Laminated Timber (CLT), and reject the false claims that wood products count as “carbon sequestration” or are a climate solution.
- Halt conversion of natural forests to plantations of genetically engineered trees or non-native species and reject similarly problematic afforestation plans.
- Identify areas of natural forests that have been degraded by logging or other extractive activities on public lands and restore and rewild these areas by: allowing natural processes to rejuvenate the ecosystem; decommissioning roads and replanting the road beds with a mix of native, site specific seedlings; non-toxic removal of invasive species; and repairing or removing culverts.

- Federal and State agencies must develop just economic transition strategies for rural communities dependent on extractive forest economies, particularly Indigenous communities and economically disadvantaged or otherwise disenfranchised communities.

Issues Related to the Intersection of Forests, Energy, and Environmental Justice

Wood Pellet Production for Export

Over the past decade there has been a steep increase in wood pellet production in the U.S., primarily for export to countries in Europe and Asia, where ambitious renewable energy targets and policies that subsidize biomass energy as zero-emission, carbon neutral and renewable are driving up demand for wood fuels. Currently the U.S. is the leading exporter of wood pellets to generate electricity, with most of the logging and production occurring in the Southeastern U.S..

Because of the rapid spread of destructive logging practices; industrial pollution associated with wood pellet production; and the negative impacts on marginalized communities, we must begin to enact measures that would end wood pellet production for export in the United States In the U.S. Southeast, the wood pellet industry is ravaging forests and wetlands, including clearcutting old growth hardwood forests, and calling it "clean energy." In addition to the ecological impacts, the wood pellet production process has enormous health and social justice impacts. Wood pellet plants, where the wood is chopped, dried, ground into powder, and compressed into pellets are highly polluting, and the wood dust is very combustible, leading to fires and explosions at storage facilities. Wood pellet manufacturing facilities in the Southeast are disproportionately sited in environmental justice communities.[34] Once the pellets are produced, they are transported to storage facilities (usually located in marginalized communities) near ports for drying and ultimately shipping abroad. The transport routes from the clearcutting sites to wood pellet manufacturing facilities to ports are through marginalized communities as well. For more information associated with impacts of burning wood pellets for energy, see the International Section.

Policy Recommendations:

- No new wood pellet production facilities, forest clearcutting sites, transportation routes, storage facilities for logs or wood pellets, or port facilities should be developed.
- Enact ordinances and adopt regulations at the local and state level to protect the health and safety of communities impacted by currently operating wood pellet manufacturing and transport such as: regulations to minimize or eliminate dust creation; stronger air

[34] Koester, S. and S. Davis. 2018. Siting of wood pellet production facilities in environmental justice communities in the southeastern United States, at: https://www.liebertpub.com/doi/10.1089/env.2017.0025

pollution controls; traffic and travel restrictions including re-routing transportation routes for equipment, logs or pellets, and limiting hours where transport can occur; and minimum retention of trees within areas to be logged for wood pellets to create buffers that protect communities from sea surge, flooding and excessive wind

- Halt state and federal subsidies for wood pellet harvesting, production and marketing.

Logging for Domestic Biomass Energy Production

After a surge in growth, the domestic biomass power industry in the U.S. has plateaued in recent years, in part because even with renewable energy subsidies and other public support, wood-burning power plants are much more expensive to build and operate than other sources of energy, particularly wind.[35] Not only are wood burning power plants more expensive, they are also more environmentally destructive. A typical 50-MW wood-burning power plant burns more than a ton of wood chips per minute, or 650,000 tons of wood a year - the equivalent of clearcutting more than 25 acres of forest every single day.

Because wood has a high moisture content, it is a very inefficient and polluting form of fuel. Every ton of wood burned in a biomass power plant releases about a ton of CO2. In fact, CO2 emissions from biomass power plants are 50% higher than coal, per megawatt of energy produced. Re-growing forests cut for biomass fuel in a timeframe meaningful to addressing climate change is impossible. The net emissions from bioenergy can exceed emissions from fossil fuels for time spans ranging from decades to over a century, even if only forestry "residues" are burned. This of course is long past the time when steep emissions reductions are required.[36] In addition to the carbon emissions, biomass power plants emit more fine particulates and other harmful air pollutants than coal plants, and, like other polluting facilities, are disproportionately sited in environmental justice communities.[37]

However, none of this information has not stopped the biomass industry from using every false argument it can to expand state and federal subsidies in the U.S. for wood-burning power plants, including claiming burning wood for energy will: create "clean" electricity for electric cars (see above, it won't); will "improve" forests by "salvaging" trees affected by extreme

[35] Mary S. Booth and Brett Leuenberger, *The Bioenergy Boom from the Federal Stimulus: Outcomes and Lessons*, Partnership for Policy Integrity, October 2018. Available at https://www.pfpi.net/wp-content/uploads/2018/10/PFPI-Bioenergy-and-the-Stimulus-Oct-24.pdf

[36] Walker, T., P. Cardellichio, J. S. Gunn, D. S. Saah and J. M. Hagan (2013). "Carbon Accounting for Woody Biomass from Massachusetts (USA) Managed Forests: A Framework for Determining the Temporal Impacts of Wood Biomass Energy on Atmospheric Greenhouse Gas Levels." *Journal of Sustainable Forestry* 32(1-2): 130-158; Mary S. Booth, Not carbon neutral: Assessing the net emissions impact of residues burned for bioenergy. *Environmental Research Letters*, Feb. 21, 2018, at https://iopscience.iop.org/article/10.1088/1748-9326/aaac88.

[37] Bullard, R.D. 2011. Biomass incinerators being promoted in black communities as clean energy and green jobs. Found at https://www.opednews.com/articles/Biomass-Incinerators-Being-by-Robert-Bullard-110523-887.html

weather events (removing trees from our forest ecosystems does not improve them[38]); or that logging and burning trees for energy will "reduce the threat of wildfires" (it hasn't[39]). In fact, since 2015, Congress has passed an annual budget rider declaring burning forest biomass to be "carbon neutral" and "renewable" energy, despite the mountain of science indicating otherwise[40], opening up the potential for even more subsidies or tax credits to prop up this industry. In 2021 the Infrastructure Investment and Jobs Act (IIJA), commonly referred to as the Bipartisan Infrastructure Framework, rolled back environmental laws and dedicated about $2 billion to remove trees and vegetation from millions of acres of public and private lands, with much of the vegetation likely making its way into the biomass power plant pipeline, creating yet another government subsidy - cheap or free feedstock - for this polluting industry.

Policy Recommendations:

- The United States must ensure accurate and transparent accounting of carbon emissions in the forestry and bioenergy sectors, such as direct emissions from burning woody biomass, direct emissions from logging and transportation, as well as the impacts of loss of carbon storage, sequestration and ecosystem productivity that occur as a result of logging practices including, but not limited to, clearcutting, selective logging or "thinning".
- Oppose any new and rescind all existing local, state or federal government policies which categorize woody biomass energy as clean, renewable or climate friendly.
- Oppose any new and rescind all existing local, state or federal clean energy, renewable energy, or climate policies that seek to incentivizing woody biomass energy
- Oppose any new and rescind all existing policies that falsely claim or treat the logging and burning of forests for energy as "carbon neutral", "zero emission" or "negative emission"

Wetlands

The preservation, restoration, and conservation of freshwater and marine wetlands and peatlands is necessary to provide efficient sinks for greenhouse gases such as carbon dioxide, methane, and nitrous oxide. These ecosystems also provide nurseries for many aquatic organisms and play a role in adaptation and resiliency associated with climate change.

[38]https://johnmuirproject.org/wp-content/uploads/2021/11/ScientistLetterOpposingLoggingProvisionsInBBB_BIF4Nov21.pdf
[39] *Id.*
[40] John D. Sterman, Lori Siegel and Juliette N Rooney-Varga, Does replacing coal with wood lower CO_2 emissions? Dynamic lifecycle analysis of wood bioenergy, *Environmental Research Letters*, Jan 18, 2018, at https://iopscience.iop.org/article/10.1088/1748-9326/aaa512/meta

Policy Recommendations:

- At least 30% of US wetlands must be protected by 2030.
- In particular, peatlands, seagrass meadows, salt marshes, and mangrove forests should be protected and reestablished for their carbon drawdown and sequestration potential.
- Federal, State and local governmental entities should prioritize purchasing or funding the purchase of wetlands such that these ecosystems will be protected for their enhancement of biodiversity and carbon storing potential .
- Nuisance species that destroy or degrade wetlands should be analyzed and if their removal won't cause significant impacts to the integrity of the food chain, they should be eradicated. However, in some cases the Precautionary Principle should be applied.
- Natural means to reestablish wetlands, such as the introduction of native beavers where appropriate, should be prioritized as a more effective and permanent measure than creating artificial wetlands that are prone to failure.
- Discharges of pollution or runoff that contains contaminants that would degrade and/or destroy the function of wetlands should be discontinued.

Oceans

Oceans contain 97% of global surface waters and represent 71% of the earth's surface area. These waters provide food, recreation, and pathways for trade and other activities for governments, industries, and communities. It is important that ocean jurisdictional boundaries are mentioned here. These boundaries allow coastal states and nations to regulate passage and management of ocean resources within the baseline and out to the territorial seas. State and Federal ocean jurisdictions overlap from the territorial seas to the contiguous zone. Ultimate Federal jurisdictions lie in the Exclusive Economic Zone or EEZ. These boundaries, as defined by the National Oceanic and Atmospheric Administration (NOAA), allow for State, Federal, and international governments to coordinate and cooperate in restoring oceans.

Oceans directly absorb atmospheric heat and play vital roles in carbon drawdown and storage. Healthy oceans have enormous potential of reducing atmospheric carbon concentrations. Many of the organisms within the marine environment also play a vital role in the aquatic carbon cycle. Because of the warming and acidification of the oceans, marine ecosystems are being degraded and/or destroyed at alarming rates. Therefore, oceans are on a current pathway of becoming net carbon emitters instead of carbon sinks.[41]

[41]https://www.pbs.org/newshour/science/the-ocean-helps-absorb-our-carbon-emissions-we-may-be-pushing-it-too-far

Policy Recommendations:

Because of the vastness and connectivity of oceans, one strategy for restoring them such that they are drawing down and storing their optimal potential of carbon, is to reduce other human negative impacts upon them. This can be done by using existing policies for protecting these public waters.

- Current policies include the establishment of No Discharge Zones (NDZs) for vessel sewage. This provision protects designated waters from the discharge of fecal coliform from installed toilets and/or porta potties into these waters. Currently there are NDZs designated by most of the States in the US. All states should designate more NDZs and expand existing ones, particularly in warmer waters where fecal coliform bacteria are more reproductive.
- In addition, the Federal government has designated Marine Protected Areas (MPAs) to protect aquatic ecosystems. Currently there are over 1612 MPAs established in US waters. More MPAs must be designated to protect and restore appropriate marine and estuarine areas for their carbon drawdown and storage potential, while maintaining traditional uses of these areas by local communities for food and sustenance.

New policies that should be developed and implemented to restore the significant carbon storing potential of oceans by preserving the overall health of coastal and ocean ecosystems include the following:

- Protect at least 30% of U.S. ocean ecosystems by 2030.
- Take decisive action on offshore drilling, by making the temporary oil and gas leasing moratorium instituted by President Biden permanent, and by reinstating and increasing the Obama administration's restrictions which placed 94% of outer continental shelf resources off-limits, to 100%.
- Impose a permanent moratorium on deep-seabed mining for rare earth minerals, which has the potential to degrade marine ecosystems and fisheries systems, as well disturb the ocean carbon sequestration processes.
- Reinstate the National Ocean Policy's (NOP) stewardship ethics to protect, maintain, and restore the ocean, our coasts, and Great Lakes, to replace its current focus on resources extraction & national security.
- Restore protections for the Northeast Canyons and Seamounts Marine National Monuments.
- Encourage investment in low-impact tourism that regenerates the marine and coastal ecosystems upon which it depends while providing economic opportunities, skills and employment for local communities.
- Provide financial incentives for coastal habitat protection & restoration.

- Restore wild fish stocks, and eliminate illegal, unreported and unregulated fishing,
- Improve transparency within global supply chains, prohibit harmful fisheries subsidies that contribute to overfishing, and implement science-based plans to rebuild depleted fish stocks.
- Implement strong policies to clean up ocean plastic and end oceanic plastic pollution.
- Improve the use of existing scientific information by creating a mechanism or institution that regularly provides independent scientific oversight of ocean and coastal management.
- Double funding for basic ocean science and research.
- Revise, strengthen, and expand pollution laws to focus on limiting non-point source pollution including marine debris.
- Address unabated point sources of pollution and nontraditional sources of pollution, such as concentrated animal feeding operations, cruise ships, invasive species and noise.
- Redefine the principal objective of American marine fishery policy to protect marine ecosystems.
- The marine ecosystems of mangroves, kelp forests, certain beneficial phytoplankton, seaweed beds, and other submerged aquatic vegetation, as well as shellfish and coral reefs, all play critical roles in the marine carbon cycle and should be maintained, protected and/or reestablished where these ecosystems have been removed.
    - However, when reestablishing marine ecosystems the predator prey relationships must be thoroughly examined whenever particular species are introduced or reintroduced. For example, if kelp forests are to be conserved in the marine environment, sea otters must also be introduced to maintain the sea urchin population (since sea urchins can decimate a kelp forest very quickly).
- Halt the proliferation of ocean dead zones by removing anthropogenic sources of ocean deoxidation, such as sewage, and decreasing the proliferation of harmful algal blooms. Restoration of ocean health in these dead zones may require marine permaculture activities. However, such actions must employ the Precautionary Principle.

Adaptation and Resilience

Climate adaptation and resilience require reconciling the changing climate caused by human activities with existing environmental, ecological, social, and economic systems. The climate impacts on ecological and social systems are consistently overlooked because they are least represented in decision making. The overarching principle of adaptation and resilience is that the perspective of those most impacted and those most knowledgeable of local conditions must be given voice and taken into consideration in planning.

Guiding Principles

Adaptation and resilience must include perspectives of people and natural systems impacted by climate change. These perspectives should be applied to asset inventories and prioritization, vulnerability studies, adaptation and/or resilience plans, and climate action plans at all levels of government. The creation and implementation of adaptation and resilience policies must be guided by the following principles:

- Avoid the placement of new developments for housing or industry in areas that are, or may be, particularly climate-vulnerable.
- Prioritize and incorporate urban green infrastructure in climate plans and development projects. These may include: greenways; urban forests and wetlands; parks easily accessible to marginalized communities, stormwater runoff retaining ponds; and microporous pavements to reduce acute flooding events.
- Expand acreage of urban forests and wetlands to help cool temperatures in areas that are predominantly pavement, buildings, and industries resulting in pockets of heat intensity or heat islands.
- Center equity considerations in the siting, resourcing, and construction of green infrastructure, ensuring that those most vulnerable benefit from such projects in terms of health, well-being, employment, finances, and environmental improvements.
- Center equity in the development and implementation of climate adaptation plans, community resilience plans, and disaster action plans. Plans must reflect the voices, experiences, and expertise of those impacted first and worst by climate change.
- Use a human rights-centered approach when people are displaced by climate change and its impacts to ensure that the movement is well-resourced and those being moved are safe, have access to clean water, food, and health care, and have the right to return to their communities.
- Apply equity considerations in managed retreats to ensure that both the retreating communities and the communities that plan to receive them are resourced and treated with dignity and respect.
- Resiliency efforts must address climate displacement and migration, protect those most vulnerable, protect nature, and be resourced and include technical and health support for frontline communities.

- Efforts to restore degraded and/or destroyed ecosystems must center equity, justice and native ecology in all practices. These strategies should ensure effective and inclusive stakeholder engagement while prioritizing locally led transformative adaptation approaches. These efforts should also include investments in local communities to drive locally-led development that contribute to resilience and adaptation in areas likely or already experiencing climate-driven impacts. The living organisms that inhabit such ecosystems must be given equitable and just consideration as well in relation to any discussions, plans, and implementation strategies that could impact their overall survival including propagation.

- Restoration activities must not involve extraction of natural resources that leads to environmental degradation, pollution impacts, and/or human rights violations, including but not limited to logging and clearcutting forests, mining of rare earth minerals, clearing vegetation from natural ecosystems, and draining wetlands.

- Coastal resiliency, especially when addressing chronic flooding due to sea level rise, should use nature-based solutions first and resort to built solutions and relocation options after the nature-based ones have been exhausted.

Adaptation for the Built Environment and Communities

- Reform insurance programs that provide support to communities impacted by flooding, hurricanes, droughts, and wildfires to include affordability, mitigation, access, equity, and accurate flood and fire maps. Require that all rebuilding activities utilize materials that are climate change resilient (like fire-wise building in fire-adapted ecosystems) and are recycled or zero carbon and gentle on the natural world.

- Halt development in climate-vulnerable areas that risks worsening the vulnerability of communities, such as development in flood-prone areas, fire-adapted ecosystems, forests, and wetlands. The National Flood Insurance Program should be reformed to ban new construction in floodplains and have stronger enforcement of floodplain management requirements. Overall, flood insurance should not be issued for new construction in (so-called) 100-year floodplains.

- Update building codes to include area-specific climate resilience needs so that all new construction is clean, green, and environmentally sustainable and addresses highly localized conditions.

- Aim for balance between pre- and post-disaster spending. Currently, for example, the Disaster Recovery Act only sets aside 6% for pre-disaster resilience. Support policies that protect people, their homes, and protect or upgrade community infrastructure to meet the demands of dangerous or harmful weather that falls short of disaster, such as more frequent and more intense heat waves and downpours.

- Develop and implement a human rights-centered approach to displacement, migration, and resettlement. Provide support for communities to plan and implement responses to extreme weather, disease, and disasters to ensure that vulnerable populations are provided with transportation assistance, shelter, food, health services, and other resources and accommodations as needed. Ensure a legal right to return for communities. If economically disadvantaged or middle-income people cannot return to a place because it has been rendered unsafe by climate impacts and private insurance does not provide adequate compensation, provide a right to recompense from the federal government. Build or rebuild affordable housing and transportation for displaced residents, with a priority on supporting those with the greatest need.

- Establish and provide policies, governance frameworks, and funding for people to move if they must or want to. The right to return should not require people to return to unsafe places. Economically disadvantaged communities and individuals should receive assistance and recompense of property equivalent to fair market value prior to climate events to relocate from lands frequently impacted.

- Spend Community Development Block Grant funding provided by the U.S. Department of Housing and Urban Development with an equity-centered frame, including:

    - Providing disaster funds to residents of manufactured homes.

    - Putting the needs of families struggling to make ends meet first and prioritizing them for support for future climate-related crises.

    - Supporting rental assistance.

<u>Adaptation for the Natural Environment and Ecosystems</u>

Ecosystems are already badly degraded due mostly to extraction and exploitation activities that have caused and continue to exacerbate the climate emergency. Ecosystems are resilient but need to be protected from extraction and exploitation and in some areas restored, reestablished or rewilded for their own sake, to preserve biodiversity and to help humans adapt to climate change.

- Defend the Clean Water Act to protect fragile water, essential ecosystem services and human health around point source discharge areas.
- Increase protections for species and habitats under the Endangered Species Act.
- Incorporate the Rights of Nature into federal environmental legislation.
- Implement natural adaptation measures, including, but not limited to:
    - Implement beach and dune nourishment and plant mangrove trees and seagrass to address sea level rise and violent storm impacts.
    - Support safe reuse of water, regulate groundwater use and restrict excess water use in urban and suburban areas to adapt to drought and low-water supply conditions.
    - Expand and preserve forests, wetlands, and aquatic grasslands to buffer against chronic flooding, wind damage, and wildfires, and support aquifer replenishment.
    - Preserve, protect, restore, connect, and expand intact native forests, wetlands, and other corridors for animals and plants to migrate to more climate suitable habitats, and protect aquatic conduits that support movement of animals and plants. Measures include roadless rules, removal of aquatic obstructions, and other policies to protect species migration.
    - Science-based, non-toxic best practices should be developed and implemented for the control of invasive species that threaten the natural ecosystem function.
    - Require that contaminated stormwater runoff from hog and chicken farms, landfills, and other land-based pollution sources be captured and treated by the polluter.
    - Coastal states should collaborate with each other and any other partners for the enhancement of marine ecosystem health and ocean waters integrity.

- Protection of mangroves, kelp forests, submerged aquatic vegetation, beneficial phytoplankton, and other marine organisms should be included in local climate mitigation and resilience plans.

Remediation, Repair, Recovery, and Renewal of Communities

Energy and mineral extraction, industrial production, forest degradation, deforestation, and corporate agriculture have resulted in widespread pollution and environmental destruction. Chemical and radioactive pollution affect public health, access to safe drinking food and water, ecology, and sustainability, for people today and for generations to come.

A partial list of sites in the U.S. polluted by fossil fuel and other extractive industries includes:

- 1,344 Superfund sites
- 550+ coal ash ponds
- 1.7 million oil and gas wells (conventional and fracked)
    - Abandoned oil and gas wells create intractable problems, especially when bankruptcies lead to more orphaned wells and taxpayers footing the bill for reclamation and cleanup.
- Oil refinery and chemical factory sites, including 150 in Louisiana's Cancer Alley alone[42]
- 48,529 abandoned coal mines[43] and ~450,000 abandoned mines of other types[44]
- 15,000+ abandoned uranium mines, 120+ nuclear reactors, dozens of Manhattan Project and nuclear fuel production and reprocessing sites, 80,000+ tons of commercial high-level radioactive waste, six "low-level" radioactive waste sites, 800,000 tons of depleted uranium, etc.
- Dozens of large hydroelectric dams, destroying the ecology of rivers and fisheries, displacing Indigenous peoples, subsuming vital landscapes and ecosystems, accumulating toxics in sediments, etc.

Climate action must include remediation of toxic and radioactive pollution, just and sustainable sewage and waste management, repairing human caused harm to ecosystems, reparation for past and ongoing harms, and access to quality, affordable healthcare. Remediating these

[42] https://www.ourdailyplanet.com/story/louisianas-cancer-alley-visualized%E2%80%8B/
[43] https://skytruth.org/2015/10/mapping-abandoned-coal-mine
[44] https://naturalresources.house.gov/imo/media/doc/Abandoned%20Mines.pdf

impacts and restoring environmental health and ecological vitality is essential to climate resilience, racial equity and justice, and strengthening and healing the nation-to-nation relationship with sovereign Indigenous Nations. To prevent pollution and environmental degradation in the future, extractive industries and manufacturing practices must be regulated toward zero-waste/-pollution standards and adoption of the precautionary principle.[45]

A national program for environmental remediation, restoration, and reparation is necessary, and must prioritize Indigenous lands and environmental justice communities. It is also an opportunity to drive investment and job creation in frontline communities, alongside other climate adaptation and resilience measures, to ensure a just transition that repairs and restores communities that have suffered inequitable and unjust harms.

Framework and Goals

Establish a federal program, akin to the Works Progress Administration, governed by a board with representation of frontline community leaders, labor unions, independent scientists and technical experts, and environmental justice organizations. This agency, call it the Community Health and Environmental Restoration Program (CHERP), would create an initial inventory of remediation and restoration projects and implement them, with input and participation of state and federal agencies.

- Process: Communities must be guaranteed leadership and resources in the planning and implementation of remediation and restoration projects. CHERP would prioritize, schedule, and fund projects equitably. Local governments and members of the public must be empowered to notify CHERP of new and additional sites, and petition for them to be prioritized and funded.
- Indigenous Land Rights and Treaties: CHERP will ensure that remediation and restoration projects are undertaken with the full information, participation, and leadership of Indigenous peoples, and in ways that strengthen and heal the nation-to-nation relationship with sovereign Indigenous Nations. Projects will respect, preserve, and be guided by the knowledge, traditions, and practices of peoples indigenous to the affected lands.

[45] Kriebel, D., Tickner, J., Epstein, P., Lemons, J., Levins, R., Loechler, E. L., Quinn, M., Rudel, R., Schettler, T., & Stoto, M. (2001). The precautionary principle in environmental science. Environmental health perspectives, 109(9), 871–876. https://doi.org/10.1289/ehp.01109871

- Environmental justice: The program will be grounded in principles of environmental justice, and prioritize projects that address environmental injustices and inequities. In working with communities to identify, develop, fund, and implement projects, CHERP will be guided by the Jemez Principles of Democratic Organizing.

- Health Protection: CHERP will work with federal and state agencies to provide access to medical care and infrastructure to ensure that residents of impacted communities are able to receive treatment, recovery, and rehabilitation for health impacts resulting from pollution.

- Job Creation: The program would provide training and employment, through the formation of a jobs corps. Priority for training and jobs must be reserved for residents of impacted communities undertaking environmental remediation and restoration projects.

- Remediation + Reparations: The program will undertake remediation and restoration projects holistically. It will address historic and systemic inequities and injustices that gave rise to and arise from pollution and environmental degradation, through reparative and regenerative measures. Projects will be led and designed by impacted communities, to the maximum extent they desire. CHERP will provide communities access to technical assistance for planning and implementation, including economic recovery and sustainability measures.

- Economic and Environmental Sustainability: CHERP will encourage and support remediation and restoration projects that are regenerative, designed to enable communities to thrive and achieve economic and environmental sustainability. This will include working with communities and technical experts to develop techniques and technologies to manage toxic and radioactive materials in ways that achieve maximum protection of environmental and public health, as well as equity and justice. This is necessary to ensure that remediation and restoration is real and permanent, and that cleaning up one community does not result in polluting another.

- Corporate Accountability: CHERP will work with communities and state and federal regulatory and law enforcement agencies to hold polluters responsible for environmental justice and health impacts. The program will also provide legal support to residents and communities undertaking civil actions against responsible parties. CHERP will also provide communities legal and technical support to protect, access, and benefit from technological and intellectual innovations that are developed through remediation, restoration, and management of toxic and radioactive materials, so that they are not patented or otherwise privatized by for-profit corporations.

Crosscutting Overlays

Just Transition

- *Those most affected should benefit first from the transition.* Communities that have suffered the worst adverse impacts from the extractive economy—particularly environmental justice communities, census tracts with high levels of poverty or unemployment, and indigenous communities—should be prioritized for the benefits of the clean-energy transition. The transition should be used as an opportunity to build household and community wealth in these communities, which historically have had wealth and resources extracted from them. This means policies such as the following:
    - When recovering from climate harms, prioritize providing support and assistance related to health, infrastructure, jobs, and economic recovery for the most affected communities and those with the least resources.
    - When creating climate resilient communities, habitat, forest, and eco-restoration/rewilding should take precedence as effective measures to use, instead of recourse to experimental carbon capture and sequestration technologies. (For more details on why a just transition for impacted communities requires eco-restoration instead of CCS technologies, please see the Carbon Capture and Storage Technologies section below.)
    - As we transition electric power generation from fossil fuels to renewable energy, prioritize—and provide public funding for—community owned and controlled renewable energy in frontline communities, including rural communities that are vulnerable economically through economic and social transitions. Ensure that rural communities that are financially dependent on leasing land for fossil fuel extraction can find alternative income sources that are not harmful to people and the environment, such as leasing land for renewable energy generation.
    - As we redesign buildings, including homes, public buildings, and commercial buildings, to be more energy efficient, prioritize households and communities with the greatest needs, such as frontline and indigenous communities, residents of low-income housing, communities

with a high energy burden, traditionally economically disadvantaged communities, manufactured home communities, and rural communities.

  - As we transition the transportation system from gasoline-burning cars, prioritize and fund electrified public transit accessible to all, electric vehicle charging infrastructure, and adequate rebates to make personal electric vehicles affordable in those communities that have borne the largest historical burden from transportation-related pollution or that face a lack of adequate transportation choices.

  - As we transform the food and agriculture system, ensure that farm and other food system workers earn living wages, work in safe and healthy conditions, and have collective bargaining rights. Prioritize access for communities that lack adequate access to nutritious food.

  - Ensure affordable electricity, housing, transportation, water, and food through policy and direct government spending.

  - In these and other areas, ensure that people in affected communities have mechanisms to determine the needed investments in their own communities instead of receiving solutions imposed from outside.

- *Justice for extraction-dependent workers and communities.* Many communities, even while they face adverse environmental and health impacts from extractive and other polluting industries, are dependent on those industries for their local economy and tax base. It is not just the workers in extractive and polluting industries who are affected, but small businesses that depend on sales to the workers in those industries, and public sector workers such as school teachers, firefighters and emergency personnel, utility workers, who depend on tax revenues from the extractive and polluting facilities. These are also communities where a just transition must prioritize wealth-building. Transition plans must include:

  - Viable pathways to a healthy, resilient local economy for all communities and workers, prioritizing extraction-dependent communities and workers.

  - Funding for local communities to implement their visions for resilience.

  - Guaranteed income and benefits for at least three years—preferably five years—for all affected workers.

    - These mechanisms must be initiated before economic disruption begins.

- *Unionization rights.* The transition must strengthen and protect the right of all workers to organize, unionize, and bargain collectively, free of coercion, intimidation, or harassment.

- *Job quality.* The transition must create inclusive, good-paying, family-sustaining jobs with adequate health, retirement, and other benefits and protections for workers' health and safety. Quality jobs should provide much more than enough remuneration for survival. They should provide opportunities and skills training for households and communities to build wealth for greater resilience. They also should incorporate training to ensure that workers have the knowledge and skills needed to participate fully in the transitioning economy.

- *Job access.* The transition should include local, targeted hiring strategies, as well as specific goals for pre-apprenticeship and apprenticeship programs.

    - *Federal jobs guarantee.* To ensure that the needed transition does not result in economic dislocation and large-scale unemployment, there should be a federal jobs guarantee ensuring that everyone who is able and willing can get meaningful work.

    - *Inclusivity.* Benefits should flow to workers as well as community members who have been chronically unemployed and underemployed, the undocumented, the formerly incarcerated, indigenous peoples, and all other populations that have not benefited from or have not been able to fully participate in the extractive economy.

- *Rural Investment.* Rural areas are characterized by low density of population, homes, and businesses per square mile and frequently have limited infrastructure and access to key services. Rural communities often experience reduced local tax base and inadequate public spending, and their residents are further burdened by increased spending and travel to access basic and critical services such as healthcare.

    - While these geographies may be high in greenhouse gas impacts from resource extraction or agriculture (grazing or agribusiness monocropping), they may also be rich in potential for carbon sequestration, from both forests and agriculture, offering great opportunities for mitigation with the right incentives.

- More resources and infrastructure need to be appropriated to prepare and support vulnerable rural communities with emergency preparedness, recovery, and restoration. A just transition for rural communities must invest in rural educational attainment, provide universal rural broadband access and job skills training, and support rural prosperity.

Financing the Platform

- There is no higher priority for government investment than responding to COVID-19 and the climate emergency. A national economic recovery and response to the climate threat should not be stymied by demands that all actions be fully funded by existing revenue or cuts in other government services. We face crises that demand immediate responses by the whole of society.

- There are many federal government initiatives for which we do not ask the question, "How do we pay for it?"[46] Recent examples are expensive wars and tax cuts for major corporations and the wealthiest Americans.[47]

- History, including very recent history, has demonstrated repeatedly that governments can engage in a large degree of deficit spending without harmful consequences.

- The costs of responding effectively to the impacts of COVID-19 and the climate crisis cannot be considered in a vacuum. They must be considered in our current context, a world in which decades' worth of reckless exploitation of fossil fuels and inaction by policymakers have set humanity on course for unspeakable disaster. The alternative to ambitious, large-scale climate action—failing to respond adequately—would not only abdicate our moral and constitutional responsibilities and cause unimaginable suffering and loss of life; it would be far more expensive than taking ambitious and equitable action to respond to the crisis.

- Switching to renewable energy will save trillions of dollars in fuel and health care costs, and the transition will involve massive investments that will create jobs and spur economic growth.

[46] This discussion applies to federal government expenditures on U.S. activities.

[47] Treasury will again borrow $1 trillion to pay for tax cuts, spending https://www.axios.com/treasury-borrowing-debt-government-spending-tax-reform-a5f699d6-31a9-41b1-861a-02329a744797.html.

Other Topics

Greenhouse Gas Pricing

Not all carbon prices are created equal. A carbon price belongs in the USCAN Vision for Equitable Climate Action only if it meets very stringent requirements:

A carbon price must not be a primary source of revenue for climate funding. There are other, better ways of funding the necessary investments. Carbon pricing revenues will decrease as fossil fuel use declines and will not provide a reliable long-term funding source. In addition, climate action should not be limited by claims that sound policy must be entirely "paid for" "as you go," by tax increases or other tradeoffs in government budgets. A carbon price should be employed to achieve specific climate policy objectives, including equitable treatment of communities affected by those objectives.

A carbon price should be progressive and must not be regressive. We recognize that even a fee placed at the point of extraction/import would have the effect of increasing the cost of living for consumers in the near term. As a result, a carbon price should be coupled with policies that offset increased costs to economically disadvantaged households and communities, to assist them in transitioning away from dependence on fossil fuels to cleaner, more affordable options; and benefit communities experiencing historical and present-day exploitation by the fossil fuel industry. Communities hurt by present-day and historical exploitation by the fossil fuel industry must also receive direct long-term health care assistance.

A carbon price must not allow any free permits. A persistent weakness of carbon markets (including California, the Regional Greenhouse Gas Initiative, and the European Emissions Trading System) is that there have been handouts of free allowances. There should not be any such handouts, period. At the same time, policies must be designed so that carbon prices do not incentivize the leakage of emissions sources to other jurisdictions.

A carbon price must not create pollution hotspots or perpetuate environmental injustice. There is documented evidence that in some jurisdictions that have adopted a carbon price, such as California, polluting industries such as oil refiners have purchased rights to pollute instead of cutting pollution in those communities—disproportionately low-income and people of color—that have borne the greatest historical pollution burden. Any carbon pricing system must contain mechanisms that prevent this from occurring. In practice, this means that carbon pricing should not in any way be seen as an alternative to non-market-based regulations. This is particularly true in communities with severe air quality problems.

A carbon price must in practice cover all greenhouse gas emissions, with the sole exclusion of soil carbon and land-used emissions, as below. The price must cover emissions from all non-fossil-based fuels such as forest biomass, and trash, and non-energy emissions such as refrigerants and cement manufacturing. It is imperative that we do not transition to fossil fuel

replacements that emit even more greenhouse gases than fossil fuel sources. The pricing mechanisms must cover all methane emissions, including leaked emissions, and methane emissions should be priced based on their greenhouse gas impacts on a 20-year time horizon. All other climate forcers, such as hydrofluorocarbons and black carbon, must also be covered based on their climate impacts.

A carbon price should not be applied to soil carbon, livestock, or land-use emissions. Mitigation can and must occur in these sectors, including reducing methane emissions from the livestock sector (especially concentrated feeding operations) and nitrous oxide from the overapplication of fertilizers, both of which have many environmental costs beyond climate change. However, other policy tools will be more effective at driving this mitigation than a price on carbon while also being more responsive to the many justice and equity issues in this sector, including the right to food and the need to support small, independent family farmers. The pricing mechanism should be applied to all fossil energy inputs associated with farming, such as tractor fuel.

A carbon price must be placed at the point of extraction or import. This will help ensure that fossil fuel companies are forced to bear the true cost of fossil fuels and that the price is applied without loopholes or complex, manipulatable schemes that may be difficult to enforce. If companies pass along costs to consumers, the increased cost will still be forced into their business model. This fee at the point of extraction or import should be set to ensure that as consumption of oil decreases, the cost of oil remains high, deterring further extraction and preventing demand growth.

A carbon price must not be enacted outside of a broader policy platform. Putting a price on carbon will not be enough to reduce U.S. emissions at the rate necessary. Any price on carbon must be accompanied by a suite of regulations and investment policies that rapidly transition the economy away from greenhouse gas emissions. In particular, a carbon price addresses the "demand side" by raising the price of fossil energy, but it cannot be effective without simultaneous "supply side" regulations such as a ban on new fossil fuel extraction, exploration, and processing facilities, and a phaseout of existing facilities.

A carbon price must not be a bargaining chip. A carbon price must not be coupled with deregulation, liability limits, or other policies that make it more difficult to mitigate the climate crisis or other environmental harms. A carbon price is a complement to other climate and environmental policies, not a replacement for them.

A carbon price must prevent a drop in fossil fuel prices as their use declines. A carbon price is an important tool to ensure that fossil fuels do not become so inexpensive that low fuel costs create a disincentive for making the transition to zero emission alternatives.

A carbon price must be high and increase over time until we achieve zero emissions. If a carbon price is not high enough, it will not have the desired effect. The IPCC has said that a minimum carbon price in 2030 must be at least $135/ton carbon dioxide equivalent, and in

2050 the price must be $245/ton. A carbon price smaller than these numbers will not be worth enacting. The necessity of a high carbon price underscores the need to ensure that poor and vulnerable populations get a disproportionate rebate to ensure they come out ahead under the new pricing mechanism.

A carbon price must be coupled with strong just transition provisions. When fossil fuel sectors go into decline because of market forces, which will happen if a carbon price is enacted, there is potential for rapid, destabilizing economic shifts in some regions that are dependent on extraction. These shifts affect workers as well as the tax base of local communities. Any carbon price must be accompanied by strong just transition provisions that ensure that workers and communities are not left stranded. An intentionally planned transition always produces more predictable and just outcomes than one left to the whims of market forces.

Carbon Capture and Storage Technologies

As stated earlier in this platform and equally relevant here is that the Precautionary Principle which states: "When an activity raises threats of harm to human health or the environment, precautionary measures should be taken even if some cause-and-effect relationships are not fully established scientifically"[48]

Carbon capture and storage or utilization strategies aim to use technology to create systems that capture the carbon dioxide emissions from climate-polluting industries in an attempt to keep them from being released into the atmosphere. The claim is that the captured CO2 would then either be stored by pumping it into the ground or into unused oil wells, or be utilized by turning the emissions into a product, or by using the CO2 gas for another purpose, such as injecting the captured CO2 into shale fields to frack for natural gas (known as “enhanced oil recovery”). For the reasons articulated below, no Vision for Equitable Climate Action should include carbon capture and storage or sequestration (CCS), carbon capture utilization and storage (CCUS) or bioenergy with CCS (BECCS), referred to collectively hereafter as “CCS technologies.”

Development and deployment of CCS technologies is ineffective, and would increase local emissions of toxic pollutants and fine particulates into communities (typically disproportionately affecting lower-income communities and communities of color), undermining health and safety. This is due not only to the continued and increased fossil fuel combustion that building and expanding CCS infrastructure would entail, but also to the fact that independent analysis finds that, contrary to industry claims, carbon-fuel combustion facilities with carbon capture technology (as well as direct air carbon capture and use facilities), only capture a small fraction (11%) of the carbon emitted into the atmosphere (and even that

[48] NIH National Library of Medicine at https://pubmed.ncbi.nlm.nih.gov/15968832/

minor 11% is likely more than erased by leakages), while simultaneously increasing pollution into communities and undermining health.[49] Further, claims by the biomass industry that BECCS is "carbon negative" are based on the false premise that bioenergy is carbon neutral, and, with regard to forest bioenergy, fail to account for stack emissions, reductions in forest carbon sequestration, and soil carbon loss that are caused by the removal of trees through logging.[50]

The considerable monetary investment necessary to develop scalable CCS technologies will restrict funding of known and tested means of reducing CO2 from the atmosphere. For example, the 2021 Infrastructure Investment and Jobs Act (IIJA) allocates more than $12 billion for CCS technologies over the next ten years. This money could have been used to transition away from fossil fuels and into community solar, or to invest in protecting forests, wetlands[51], and other ecosystems that draw carbon out of the atmosphere and protect communities and biodiversity from the impacts of extreme weather events brought on by climate change.

In the near term (next decade) the development of CCS technologies is dependent on *increased* fossil fuel production and use and therefore *increased* emissions at a time when it is imperative that we both reduce emissions and draw down existing CO2 from our atmosphere. This is because a 30% increase in fossil fuel production and combustion facilities nationally (and globally) would be required in order to generate the enormous amount of additional power that is necessary to produce and install thousands of miles of CO2 pipelines and compress CO2 into liquid form for transport in the pipelines[52]. Put simply, investment into CCS/CCUS/BECCS would just extend and increase the government subsidies and tax credits that already flow to the fossil fuel and logging industries.

S**caling the storage of CO2 emissions by pumping it into the ground would increase earthquake activity,** leading to catastrophic releases of CO2 into the atmosphere, along with lethal toxic contaminants like Hydrogen Sulfide, which can kill people, animals, and plants.[53]

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[49] Jacobson, M.Z. 2019. The health and climate impacts of carbon capture and direct air capture. Energy and Environmental Science 12: 3567-3574.

[50] Sterman, J.D., Siegel, L., and Rooney-Varga, J.N. 2018. Reply to comment on 'Does replacing coal with wood lower CO2 emissions? Dynamic lifecycle analysis of wood bioenergy.' Environmental Research Letters 13: Article 128003.

[51] Wetlands in a Changing Climate: Science, Policy and Management, Bill Moomaw et al. (2017) https://link.springer.com/content/pdf/10.1007%2Fs13157-018-1023-8.pdf

[52] https://onlinelibrary.wiley.com/doi/pdf/10.1002/wcc.266; ii) http://shalegas-bg.eu/download/ccs/100106-Health-Risks-CCS.pdf; iii) https://iopscience.iop.org/article/10.1088/1748-9326/11/2/024011/pdf; iv) https://www.pnas.org/content/pnas/109/26/10164.full.pdf.

[53] *Id.*

Scaling the storage of CO2 emissions by pumping it into the ground would acidify aquifers and poison drinking water, because CO2 dissolves in water and undergoes a chemical reaction that produces carbonic acid.[54]

Scaling the capture, storage and or utilization of CO2 emissions would cause huge diversions of water from rivers and streams for industrial cooling purposes.[55]

Even if CCS technologies were effective and without tremendous downsides, which it is not, we could not deploy it in the time frame necessary to actually mitigate the worst effects of climate change[56].

CCS technologies are not required to draw down atmospheric CO2, since ecological methods are just as effective. The IPCC found that it is feasible to draw down excess atmospheric carbon dioxide without recourse to experimental carbon capture and sequestration technologies by relying entirely on nature-based solutions, primarily forests, in combination with steeper emissions reductions.[57] In addition, the IPCC noted that restoration of natural ecosystems and soil carbon sequestration, if done properly, could provide essential co-benefits such as improved biodiversity, soil quality, and local food security.[58]

Geoengineering

Solar radiation management. Solar radiation management strategies aim to reflect a small proportion of the sun's energy back into space, counteracting the temperature rise caused by increased levels of greenhouse gasses in the atmosphere that absorb energy and raise temperatures. These methods include injecting highly reflective sulfur aerosols into the stratosphere, seeking to increase the brightness of clouds by seeding them with salt from seawater droplets, and mounting mirrors on satellites to reduce incoming solar radiation.

We oppose these solar radiation management approaches on the grounds that they could pose serious environmental risks. Those risks include altering precipitation patterns in a way that undermines food production in developing countries and slowing the replenishment of the ozone layer. Moreover, solar radiation management does not address the root causes of climate change and does not mitigate ocean acidification. It also could hamper climate solutions by

[54] *Id.*
[55] *Id.*
[56] https://www.pnas.org/content/pnas/109/26/10164.full.pdf
[57] Booth, M.S. 10/7/2018. The IPCC's Recipe for a Livable Planet: Grow Trees, Don't Burn Them. Retrieved from: http://www.pfpi.net/the-ipccs-recipe-for-a-livable-planet-grow-trees-dont-burn-them

[58] IPCC, 2018: Summary for Policymakers. P. 19, C.3.5, p. 19.

reducing the efficiency of solar energy technologies. To rely on solar radiation management could lock future generations into continuing the technology or facing “termination shock,” rapid warming that gives species and ecosystems far too little time to adapt.

We do not oppose low-tech strategies such as painting rooftops or paved spaces white, although it is unclear that they would contribute significantly to mitigating global warming. These strategies are low cost, low risk, and do not threaten agriculture or interfere with solar energy technologies. They also will help with climate adaptation in urban environments by mitigating heat-trapping and heat-islanding.

Direct air capture. Direct capture of carbon dioxide from the air may be helpful on the margins, as one small part of a broader set of policies that achieve net zero carbon pollution and return atmospheric carbon to safe levels, and may be more relevant to some actors and sectors than other parts of the economy. Moreover, the IPCC has modeled scenarios consistent with keeping global temperature increase below 1.5°C that rely entirely on natural solutions for carbon removal.

But direct air capture is not a substitute for other climate policies, and we should not rely on it to meet climate goals. At present, the technology is only in the piloting phase. It is unlikely to become capable of removing large amounts of carbon from the atmosphere, and given its current state, it cannot meet the demands of aggressive decarbonization at the scale and on the timeline necessary.

Direct air capture also carries significant risks. One is that it could incentivize the continued use of fossil fuels, which would needlessly harm countless communities, despoil the natural environment, diminish public health, and waste money. Carbon dioxide from direct air capture must not be used for enhanced oil recovery.

Direct air capture is energy intensive; therefore, any use of direct air capture must account for competing uses for renewable energy, particularly because the rapid electrification of the economy may increase demand for electricity.

Direct air capture should be used only at the margins of climate policy, to mitigate the impact of residual carbon pollution that cannot be phased out more quickly in a scenario of rapid, economy-wide decarbonization or, in a scenario of net-zero carbon pollution, to assist in restoring atmospheric carbon to safer levels. At the same time, climate policy should not encourage “overshoots,” in which atmospheric carbon is deliberately permitted to exceed safe thresholds for some period before being removed from the air.

Our priority should be to use natural solutions to draw down atmospheric carbon as much as possible. If used, direct air capture must be coupled with policies to ensure that it does not prolong the use of fossil fuels or create new harms or inequities.

Global Issues and Responsibilities

The IPCC tells us that "Limiting global warming to 1.5°C requires rapid, far-reaching and unprecedented changes in all aspects of society," and that "the rates of system changes associated" with such an effort would have "no documented historic precedent."

In this context, the United States has now rejoined the Paris Agreement. This is a major step towards a better future in which the U.S. is a responsible global actor, but it will take more than Paris re-entry to establish the new age of "American leadership" that President Biden dreams about.

To signal such a new age, the U.S. must greatly strengthen its contribution to the Green Climate Fund (GCF). It must commit to the delivery of the pledge the Trump Administration rescinded (at least $8 billion to the GCF: $2 billion to fulfill the Obama-period pledge plus $6 billion to double that pledge in the current GCF replenishment cycle) and also substantially increase that pledge to more closely reflect U.S. wealth and capacity, while also making a substantial contribution to the UNFCCC's adaptation fund and an equally substantial contribution to a new funding stream aimed at the all-important challenge of Loss and Damage.

Moving forward, the U.S. must become a full and fair participant in the climate negotiations, and in all related multilateral fora. This will involve extremely challenging actions and initiatives, all of which must be achieved in a manner that improves the lives of poor and vulnerable people throughout the world, as well as within the U.S. What is needed is a portfolio of initiatives designed to immediately end all support – public and private – for fossil energy and deforestation here and around the world, while also pivoting toward a new international political economy in which a comprehensive global climate mobilization can be rapidly and justly achieved.

To establish itself as a legitimate partner in these efforts, the U.S. must not only bring its own house into order, as per the many domestic actions enumerated above, it must also table a far more ambitious Nationally Determined Contribution to the Paris Agreement, committing it to 70% domestic emissions reductions by 2030, while at the same time greatly increasing the scale of its support for climate action in developing countries. The goal can be nothing less than a mobilization in which the U.S. does its fair share in all aspects of the emergency international effort that is now needed to stabilize the climate system.

More specifically:

The U.S. must immediately end all financing and subsidy of fossil energy and deforestation, both within its borders and throughout the world. (See Financial Regulation, above). This

cessation must include oil, gas, coal and timber/logging projects, as well as loans and guarantees via development banks, export credit agencies, and other taxpayer-backed government agencies. These actions must be accompanied by diplomatic initiatives designed to establish a global regime in which other countries also cease to support fossil energy, logging and deforestation practices.

The American people must begin a profound new conversation about global climate justice, and about the U.S.'s fair share in the international effort of rapidly stabilizing the climate system. USCAN, with the goal of furthering this conversation, argues that the U.S. fair share of the global mitigation effort in 2030 is equivalent to a reduction of 195% below its 2005 emissions levels, with 70% of that reduction occurring within its own territory. For more on this, see https://usfairshare.org/

The fair shares conversation must also weave together the international and domestic challenges, and it must not be limited to mitigation. To these ends, USCAN supports a very broad collaboration designed to define a visionary U.S. climate mobilization that reflects its fair share in, not only the global mitigation challenge, but also the global adaptation and loss and damage challenges. In practice, this necessarily implies extremely ambitious actions that will be possible only if they are very widely seen as fair – there can be no trade off between domestic economic justice and international solidarity.

U.S. international action means climate finance, technology transfer, and capacity building, all pursued in cooperative manners. This effort must go beyond mitigation finance to include significant assistance in the form of technology transfer and other measures to ensure that environmentally sound and socially just technologies are affordable and easily accessible to poorer countries. Further, all U.S. development funding must be aligned with the overarching goal of achieving a just and ambitious global climate transition and at least 75% of that funding should be directed to vulnerable communities for their implementation of adaptation and/or loss and damages measures. No foreign assistance of any kind should be used to fund new fossil fuel infrastructure, or to extend the life of any existing fossil fuel infrastructure. Nor should it be used in any manner inconsistent with human rights. Rather, the goals of U.S. international action should be focused on universal human well-being within planetary ecological limits, and more specifically the justice principles that underlie the Sustainable Development Goals. This implies the reform of existing financial arrangements, including the very pressing need to forgive the often odious external debt that makes it impossible for developing countries to concentrate their resources on sustainable development, adaptation, and disaster management.

To advance locally led and just solutions, the U.S. should seek to ensure a portion of these investments are allocated to indigenous, traditional, and local communities through direct

financing mechanisms that limit administrative and operational burdens. GCF and all U.S. government foreign assistance directed at global conservation, climate mitigation, and climate adaptation should require the centering of rights-based approaches that prioritize the voice and agency of local communities whose lives may be shaped by these efforts. This means promoting inclusive stakeholder engagement that advances locally-led development and engages communities as partners rather than beneficiaries. In doing so, U.S. climate funding can support equity and justice in climate-related foreign assistance projects that in many cases have failed to advance the needs and interests of local communities.

Critically, such policies must not allow companies to offset or export their emissions overseas or encourage fossil fuel production. Nor should trade policies include deregulatory policies such as "good regulatory practices" that weaken environmental standards. They should absolutely allow nondiscriminatory climate measures and other public interest measures, and indeed protect such measures from challenge by state-to-state or investor-state trade disputes. In fact trade policies should include strong social and environmental policies as a floor and, conversely, should not weaken stronger national environmental policies, when they exist.

The challenge of trade-embodied carbon must be faced, and the U.S. will have to use trade policy to support international climate action. Trade policy could, for example, be used to preference "green" procurement, and to help exporters focus on regional, domestic, and community-based industries that build climate and economic resilience. It could even, potentially, extend to the imposition of border carbon taxes. But it's necessary to tread very carefully here, and to consider alternatives (e.g. import standards and regulations). In all cases, trade-related climate policies must be applied in equitable and universal manners. The U.S. must not for example assert sanctions against other countries (e.g. China) that leverage international trade to "outsource" emissions or high-emissions technologies (e.g. coal-fired power plants) unless it is itself in compliance with the "high road" rules it purports to be globally supporting. Nor should climate-related border charges be applied in discriminatory ways.

The U.S. must acknowledge its considerable role in contributing to current and future climate-induced forced migration. In facing these responsibilities, the U.S. must provide support, commensurate with a fair-shares analysis, for persons permanently displaced by climate change, allow for significant inflows of climate-displaced persons into our country, and ensure full protection of the rights of those who relocate here. More generally, the U.S. must support new international legal frameworks that allow displaced persons to claim refugee status on climate grounds. The U.S. must also play a constructive and even visionary role in ongoing and future negotiations to develop international agreements on the rights of climate-displaced persons.

U.S.-based fossil-fuel companies must cease domestic and international coal, oil and gas exploration and development, and U.S.-based banks, insurance companies, and asset management companies must cease the financing of such activities. Continued U.S. fossil-fuel development will impede the world's ability to manage a climate-safe, equitable decline of oil and gas production. This policy demands a correspondingly ambitious just transition program, which must be well planned and funded at scale.

It is in the security interests of the U.S. to rapidly and fairly transition its own economy away from fossil fuels and to assist other countries in doing the same. To that end, it is in the security interests of the U.S. to rapidly wind down our extraction and exports of fossil fuels while ensuring a just transition for extraction-dependent workers and communities. Further, it is against the security interests of the U.S. to provide any form of assistance to corporations and foreign governments, if that assistance will be used to explore and develop fossil fuel resources, or to build infrastructure such as pipelines or export and import terminals that lock in fossil fuel extraction and use.

Looking beyond fossil energy, the road to electrification must be a clean one, and to that end the U.S. must seek a sustainable supply chain. In particular, renewable energy devices often require rare earth minerals and metals, and these are often mined and refined in regions with lower regulatory standards for labor rights and environmental protection. This must stop. Extraction of resources vital to renewable energy should not mean environmental destruction or disproportionate harms to vulnerable communities. The U.S. should ensure that government funded or subsidized renewable energy projects source materials from verifiable supply chains that guarantee robust human rights and environmental standards. Beyond ethical procurement standards, the government should earmark some foreign aid investments to address sustainability and human rights in supply chains and seek to engage in additional public-private partnerships like the Public-Private Alliance for Responsible Minerals Trade.

The U.S. must also work to end the inaccurate emissions accounting policies, here and abroad, that have allowed biomass power to be incentivized as "carbon neutral" renewable energy. Policies such as EU's Renewable Energy Directive (RED), which treats wood-burning as having zero carbon emissions, provide generous renewable energy subsidies for converting coal plants to wood-pellet burning plants. As a result, more than 60% of Europe's renewable energy now comes from burning wood, while the growth of wind and solar has been minimal.[59] Many other countries, including the United Kingdom, South Korea, Japan, and the United States, also treat biomass as a "carbon neutral" source of renewable energy and offer utilities lucrative

[59] Mary S. Booth and Ben Mitchell, *Paper Tiger: Why the RED II biomass sustainability criteria fail forests and the climate*, (PFPI), July 2020 at
http://eubiomasscase.org/wp-content/uploads/2020/07/RED-II-biomass-Paper-Tiger-July-6-2020.pdf

incentives to increase reliance on biomass electricity. **These policies have led to increased demand for wood fuels, rapidly escalating destruction of forests around the world, human rights impacts, and undercounting of global carbon emissions, and must stop.**

While world leaders have pledged to end deforestation and forest degradation, they continue to ignore how the rising global demand for wood pellets is devastating forests in the U.S. Southeast, Canada, Eastern Europe, Brazil, and other countries.[60] Logging and clearcutting forests for biomass energy has three fallacies: (1) the destruction of forests (including old growth forests) has removed a cost effective natural carbon drawdown mechanism, while the logging releases carbon from the soils that is not being accounted for; (2) in the U.S,. the logging, production, and transportation of wood pellets overseas adds significant carbon to the atmosphere; and (3) burning of the wood pellets as fuel to generate electricity releases more carbon into the atmosphere than burning coal, but is counted as zero. **The U.S. must become a leader in protecting forest ecosystems, at home and abroad, and move away from exploitation of forests for energy production.**

Given that the U.S. military is the largest institutional emitter of greenhouse gases in the world—responsible for more emissions than many countries—it is imperative that the U.S. significantly roll back its extensive forward-deployed military posture and make dramatic cuts to the Pentagon's unwieldy and unstrategic budget. It follows that under no circumstances should the U.S. military intervene or provide technical or logistical assistance to secure fossil fuel infrastructure—whether owned by U.S. corporations or not—against social movements opposed to extraction, or foreign governments planning or implementing a fossil fuel phase-out. Such actions would, to say the least, be inconsistent with U.S. national security.

[60] Global Markets for Biomass Energy are Devastating US Forests, NRDC, 2019
https://www.nrdc.org/sites/default/files/global-markets-biomass-energy-06172019.pdf