

Health and Climate: An NDC to Build Back Better

**Policy Brief for the Biden Administration
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Preamble

Climate change poses many risks to human health, and numerous climate-sensitive health risks are scientifically established. At the same time, potentially large health benefits will accrue from reductions in fossil fuel emissions.¹

With renewable energy cheaper than fossil fuels in many parts of the country, now is the time to seize the moment to advance U.S. infrastructure to reduce the threat of climate change. The *American Jobs Plan* is timely and valid. We also think political support and adoption of related policies can be furthered by including the health framing of the climate crisis. A recent survey of the US population found that health inspires an even higher level of support for climate solutions than job creation.² The health benefits from clean energy, more sustainable food systems and transportation are large. For example, low-carbon policies across these sectors would avoid an estimated 1 million American deaths every year.³ Savings from health co-benefits would help offset up to 40% of climate change mitigation costs in the U.S.⁴

Yet, in the previous Nationally Determined Commitment (NDC) of the U.S., health is not mentioned at all. For the upcoming COP26 – and relevant to domestic policy making – the World Health Organization and associations representing over 40 million health professionals worldwide are calling for a green and healthy COVID-19 recovery.^{5,6} Our attached policy roadmap, therefore, focuses on recommended mitigation policies that first and foremost **offer benefits to 1) health and 2) equity** and apply across three sectors: energy, food & agriculture, and transportation.

¹ Patz JA, Stull VJ, Limaye VS. A Low-Carbon Future Could Improve Global Health and Achieve Economic Benefits. *JAMA*, 2020;323(13):1247–1248. <https://doi.org/10.1001/jama.2020.1313>

² Speiser, M., Hill, A. (March 2021). American Climate Perspectives Survey 2021. Health Surpasses Jobs in Climate Action Support. ecoAmerica. Washington, DC. <https://ecoamerica.org/wp-content/uploads/2021/03/acps-2021-vol-ii-health-surpasses-jobs-in-climate-action-support.pdf>

³ Hamilton, I., Kennard, H., McGushin, A., Höglund-Isaksson, L., Kiesewetter, G., Lott, M., Milner, J., Purohit, P., Rafaj, P., Sharma, R., Springmann, M., Woodcock, J., & Watts, N. (2021). The public health implications of the Paris Agreement: A modelling study. *The Lancet Planetary Health*, 5(2), e74–e83. [https://doi.org/10.1016/S2542-5196\(20\)30249-7](https://doi.org/10.1016/S2542-5196(20)30249-7)

⁴ Markandya, A., Sampedro, J., Smith, S. J., Van Dingenen, R., Pizarro-Irizar, C., Arto, I., & González-Eguino, M. (2018). Health co-benefits from air pollution and mitigation costs of the Paris Agreement: A modelling study. *The Lancet Planetary Health*, 2(3), e126–e133. [https://doi.org/10.1016/S2542-5196\(18\)30029-9](https://doi.org/10.1016/S2542-5196(18)30029-9)

⁵ World Health Organization (2020). *WHO Manifesto for a healthy recovery from COVID-19: Prescriptions for a healthy and green recovery from COVID-19*. Retrieved March 31, 2021 from <https://www.who.int/news-room/feature-stories/detail/who-manifesto-for-a-healthy-recovery-from-covid-19>

⁶ Global Climate and Health Alliance (2020). Over 40 million health professionals urge G20 leaders to put public health at the core of Covid-19 recovery. Retrieved March 31, 2021 from <https://climateandhealthalliance.org/press-releases/over-40-million-health-professionals-urge-g20-leaders-to-put-public-health-at-the-core-of-covid-19-recovery/>

Introduction and Overview

Nationally Determined Contributions (NDCs) are country commitments to deliver the goal of the Paris Agreement, limiting average global temperature rise to 1.5°C. Countries submitted their first NDCs following COP21 in 2015 and were due to submit updated and enhanced versions by the end of 2020. In the U.S., the health impacts of climate change include heat-related mortality and reductions in labor productivity, extreme weather events, worsening air quality, mental health impacts, and poor water quality.^{7,8} However, the timeliness and level of ambition set out in NDCs to date, including that of the U.S., is dangerously insufficient, threatening both the climate and human health.

The COVID-19 pandemic has exacerbated existing health inequities, with the same populations most affected by COVID often being those also most vulnerable to climate change.⁹ Furthermore, the relaxation of environmental regulations early in the pandemic has multiplied threats due to climate change and other forms of environmental degradation.¹⁰ Without mitigating and adapting to climate change, public health and the economy will both be jeopardized. The World Health Organization and associations representing over 40 million health professionals worldwide have called for a “green and healthy” COVID-19 recovery.^{11,12}

In the U.S. and other high-income countries, unprecedented levels of funding have been unleashed to respond to the immediate impacts of the pandemic and to aid longer term economic recovery. However, since March 2020, a total of \$72.35 billion has been committed to support fossil fuel energy in the U.S. compared to just \$27.27 billion for renewable energy.¹³ Investments and policies which lock in our reliance on fossil fuels will delay our much-needed rapid decline in emissions. By contrast, public investment in companies that promote health and climate related security can yield high returns, creating sustainable jobs and a multipronged offense on inequalities.¹⁴ Moreover, greenhouse gas (GHG) emissions are expected to increase as the economy reopens, following emissions reductions during COVID-19 lockdowns.¹⁵ Implementing ambitious climate policy will be critical in recovering and strengthening U.S. infrastructure following the COVID-19 pandemic. Future infrastructure policy must include climate-focused, health and equity-based solutions that deliver cross-sector collaboration to build back *better and more sustainably*.

President Biden’s announcements of both the *American Rescue Plan* and the *American Jobs Plan* represent an opportunity to redress the current investment of public funds into obsolete and damaging forms of energy. Wise allocation of these funds to support the interrelated priorities of climate, health, economic stability and equity will deliver a safe and robust future for generations to come. **Initiatives which deliver on these four mutually dependent objectives are highly relevant for inclusion in the U.S.’s forthcoming NDC, which defines the nation’s future trajectory on climate action.**

⁷ *Preparing for the Regional Health Impacts of Climate Change in the United States*. (n.d.). 38.

⁸ Salas RN, Lester PK, Hess JJ (2020). Lancet Countdown U.S. Policy Brief. Retrieved 31 March, 2021 from <https://www.lancetcountdownus.org/2020-lancet-countdown-u-s-brief/?hsCtaTracking=1d2211f6-08d5-4d7a-9892-fa81e323ef85%7Ceab22d46-c5c1-47d2-b4ca-7796ca946791>

⁹ *Recommendations for Biden-Harris Administration*. (n.d.). Retrieved March 28, 2021, from https://climatehealthaction.org/cta/climate-health-equity-recommendations/#ind_signers

¹⁰ Climate Transparency (2020). Comparing G20 Climate Action and Responses to the COVID-19 Crisis. Country Profile for the USA. Retrieved March 31, 2021 from <https://www.climate-transparency.org/g20-climate-performance/the-climate-transparency-report-2020>

¹¹ World Health Organization (2020). *WHO Manifesto for a healthy recovery from COVID-19: Prescriptions for a healthy and green recovery from COVID-19*. Retrieved March 31, 2021 from <https://www.who.int/news-room/feature-stories/detail/who-manifesto-for-a-healthy-recovery-from-covid-19>

¹² Global Climate and Health Alliance (2020). Over 40 million health professionals urge G20 leaders to put public health at the core of Covid-19 recovery. Retrieved March 31, 2021 from <https://climateandhealthalliance.org/press-releases/over-40-million-health-professionals-urge-g20-leaders-to-put-public-health-at-the-core-of-covid-19-recovery/>

¹³ United States. (2020, November 16). Retrieved from <https://www.energypolicytracker.org/country/united-states>

¹⁴ Guerriero, C., Haines, A. & Pagano, M. Health and sustainability in post-pandemic economic policies. *Nat Sustain* 3, 494–496 (2020). <https://doi.org/10.1038/s41893-020-0563-0>

¹⁵ Hamilton, I., Kennard, H., McGushin, A., Höglund-Isaksson, L., Kiesewetter, G., Lott, M., Milner, J., Purohit, P., Rafaj, P., Sharma, R., Springmann, M., Woodcock, J., & Watts, N. (2021). The public health implications of the Paris Agreement: A modelling study. *The Lancet Planetary Health*, 5(2), e74–e83. [https://doi.org/10.1016/S2542-5196\(20\)30249-7](https://doi.org/10.1016/S2542-5196(20)30249-7)

Healthy and ambitious NDCs are thus a cornerstone of healthy recovery. As well as meeting necessary international standards for emissions reductions, a healthy NDC is one which recognizes the impacts of climate change on health, and the need for health and equity to be integrated into adaptation planning. It should also set out interventions that reduce emissions that also offer immediate and local health benefits, such as improved air quality, healthier diets, and increased physical activity.

Only 66% of the first NDCs mentioned health, and the U.S. NDC was not one of them.¹⁶ This policy brief outlines policies the U.S. can implement to support an *ambitious, healthy and equitable* NDC in 2021. Each policy we list in the following pages is categorized under one of three major sectors – energy, agriculture, and transportation – in which clear health co-benefits can be reaped. That is, each recommended policy must offer near-term **health and equity benefits alongside goals for GHG reductions**.

While the U.S. is the second largest greenhouse gas emitter in the world, contributing 13% of global emissions, its commitment to combating climate change falls short.^{17,18} The Climate Action Tracker has rated the U.S.’s first NDC, released in 2016, as “critically insufficient” in terms of its alignment to the Paris Agreement’s target of limiting global warming to below 1.5°C.¹⁹ In order to limit global warming to below 1.5°C, the U.S. must execute an improved plan to help reduce global emissions from 52-60 GtCO₂e to 25-30 GtCO₂e by 2030,²⁰ and align with President Biden’s pledge to reach net zero by 2050.

The U.S.’s first NDC makes no mention of health.²¹ A recent modelling study by The Lancet Countdown shows that failure to recognize the health implications of climate change will have fatal results. Conversely, recognizing the health co-benefits of GHG mitigation and centering NDCs around health can save lives, and broaden political support. By placing health as a rationale for climate mitigation policies, an estimated 1,000,840 deaths can be avoided in the US through decreased air pollution, plant-based diets, and increased active travel.²² Moreover, while financial considerations related to health are not discussed in the U.S.’s NDC, economic returns from health savings in a low-carbon future meeting the Paris Agreement goals can be substantial.²³ Savings due to health co-benefits would help cover 10% to 41% of mitigation costs in the U.S.²⁴

In this crucial year of climate action and future planning, the U.S. and the world cannot afford to overlook the centrality of concern for human health and equity in confronting the climate crisis. The health narrative is compelling and can add to the jobs rationale, ultimately broadening support and appeal for timely policy adoption toward net zero emissions.

¹⁶ Howard, C., Tcholakov, Y., & Holz, C. (2020). The Paris agreement: Charting a low-emissions path for a child born today. *The Lancet Planetary Health*, 4(1), e4–e6. [https://doi.org/10.1016/S2542-5196\(19\)30246-3](https://doi.org/10.1016/S2542-5196(19)30246-3)

¹⁷ United Nations Framework Convention on Climate Change. (2016). *U.S.A. First NDC Submission*. <https://www4.unfccc.int/sites/ndcstaging/PublishedDocuments/United%20States%20of%20America%20First/U.S.A.%20First%20NDC%20Submission.pdf>

¹⁸ UN Environment Programme (2020). Emissions Gap Report 2020. Nairobi.

¹⁹ USA | *Climate Action Tracker*. (n.d.). Retrieved March 27, 2021, from <https://climateactiontracker.org/countries/usa/>

²⁰ IPCC, 2018: 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 [Masson-Delmotte, V., 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, and T. Waterfield (eds.)]. In Press.

²¹ United Nations Framework Convention on Climate Change. (2016). *U.S.A. First NDC Submission*. <https://www4.unfccc.int/sites/ndcstaging/PublishedDocuments/United%20States%20of%20America%20First/U.S.A.%20First%20NDC%20Submission.pdf>

²² Hamilton, I., Kennard, H., McGushin, A., Höglund-Isaksson, L., Kiesewetter, G., Lott, M., Milner, J., Purohit, P., Rafaj, P., Sharma, R., Springmann, M., Woodcock, J., & Watts, N. (2021). The public health implications of the Paris Agreement: A modelling study. *The Lancet Planetary Health*, 5(2), e74–e83. [https://doi.org/10.1016/S2542-5196\(20\)30249-7](https://doi.org/10.1016/S2542-5196(20)30249-7)

²³ Howard, C., Tcholakov, Y., & Holz, C. (2020). The Paris agreement: Charting a low-emissions path for a child born today. *The Lancet Planetary Health*, 4(1), e4–e6. [https://doi.org/10.1016/S2542-5196\(19\)30246-3](https://doi.org/10.1016/S2542-5196(19)30246-3)

²⁴ Markandya, A., Sampedro, J., Smith, S. J., Van Dingenen, R., Pizarro-Irizar, C., Arto, I., & González-Eguino, M. (2018). Health co-benefits from air pollution and mitigation costs of the Paris Agreement: A modelling study. *The Lancet Planetary Health*, 2(3), e126–e133. [https://doi.org/10.1016/S2542-5196\(18\)30029-9](https://doi.org/10.1016/S2542-5196(18)30029-9)

Summary of Policy Recommendations

Policy Recommendation	Health Impact	Equity Impact	Political Landscape
Energy			
Ban the Expansion and Export of Natural Gas	+	+	Low-Moderate
Community Choice Aggregation and Community Solar	+	+	Moderate
Just Transition and Climate Equity	+	+	Moderate-High
Grid Modernization and Battery Storage	+	+	Moderate-High
Energy Resilient Communities and Microgrid Infrastructure	+	+	Moderate
End Incentives and Liability Protections for Fossil Fuels	+	+	Low-Moderate
Incentivize Green and Weatherized Buildings and Housing	+	+	Moderate-High
Food and Agriculture			
Incentives for Urban and Community Agriculture	+	+	Moderate
Eliminate Government Incentives for Monoculture Farming	+	+	Moderate
Reward Farmers for Transitioning to Regenerative Farming and Improve Land Access to Beginning and Disadvantaged Farmers	+	+	Moderate
Expanded Food Donation Policies	+	+	Moderate
Organic Waste Management and Food Waste Reduction Infrastructure	+	+	Moderate
Transportation			
Invest in the Electrification of Public Transportation	+	+	Moderate
Complete Streets Infrastructure	+	+	Moderate-High
Bike Sharing for Active Transit	+	+	Moderate
Connecting America's Active Transportation System	+	+	Moderate

Energy

Ban the Expansion and Export of Natural Gas

Policy Avenue: Legislation	Health Impact: +
Political Landscape: Moderate-Low	Equity Impact: +

Hydraulic fracturing, also known as fracking, is the process of extracting resources underground, such as oil and natural gas, by injecting water, sand, and chemicals under high pressure into a bedrock formation via a well.²⁵ The US currently relies on natural gas for 32% of energy production, second only to oil at 39%.²⁶ Aside from the impacts of these methods of extraction, both oil and natural gas must ultimately be fully phased out in order to mitigate climate change. The U.S. must ban the expansion and construction of new natural gas infrastructure, such as power plants, wells, and pipelines, as well as the export of natural gas to other countries.

Health Impact: +

Hydraulic fracturing has been linked to an array of health issues including environmental exposures in the air and water such as volatile organic compounds and hydrocarbons among others.²⁷ Air pollution and greenhouse gas emissions due to methane leakages in natural gas pipelines cause higher incidences of asthma and other respiratory illness²⁸. Women who live near drilling and fracking operations have a higher incidence of poor birth outcomes such as premature birth and certain kinds of birth defects²⁹. Also, the technique potentially triggers earthquakes, leading to health consequences related to housing, injuries, and the wider built environment.

Equity Impact: +

Fracking has a large social justice impact, with many wells and drilling sites established in low-income and frontline communities, which also are the most impacted by the negative health consequences of fracking. Banning the construction and expansion of new natural gas infrastructure would decrease these inequities and begin the just transition to renewable energy and electrification for the U.S. and other countries when also banning the export of natural gas.

Political Feasibility: Moderate-Low

New York, Vermont, Maryland, and Washington have all banned hydraulic fracturing as of 2019. However, most of these states had no known frackable gas reserves so the energy impact of these bans is low. To ban new natural gas infrastructure on a federal level will affect energy output in the short-term for some states more than others, specifically Texas. The oil and gas industry heavily influence legislators and are a powerful lobbying industry to prevent this ban. The Fracking Ban Act, introduced in Congress by Representative Alexandria Ocasio-Cortez, would prohibit federal agencies from issuing permits to expand fracking infrastructure and would require the EPA to complete surveys of all oil and natural gas wells.³⁰

²⁵ US EPA, O. (2013, February 7). *The Process of Unconventional Natural Gas Production* [Overviews and Factsheets]. US EPA. <https://www.epa.gov/uog/process-unconventional-natural-gas-production>

²⁶ *Share of energy consumption by source*. (n.d.). Our World in Data. Retrieved March 23, 2021, from <https://ourworldindata.org/grapher/share-energy-source-sub>

²⁷ Kovats, S., Depledge, M., Haines, A., Fleming, L., Wilkinson, P., & Shonkoff, S. B. (2014). The health implications of fracking. *The Lancet*, 383(9919), 757–758.

²⁸ Concerned Health Professionals of NY & Physicians for Social Responsibility. (2019). *Compendium of Scientific, Medical, and Media Findings Demonstrating Risks and Harms of Fracking (Unconventional Gas and Oil Extraction)* (6th Edition).

https://concernedhealthny.org/wp-content/uploads/2019/06/Fracking-Science-Compendium_6.pdf

²⁹ Concerned Health Professionals of NY & Physicians for Social Responsibility. (2019). *Compendium of Scientific, Medical, and Media Findings Demonstrating Risks and Harms of Fracking (Unconventional Gas and Oil Extraction)* (6th Edition).

https://concernedhealthny.org/wp-content/uploads/2019/06/Fracking-Science-Compendium_6.pdf

³⁰ Fracking Ban Act, H.R.5857, 116th Congress (2019-2020) (2020). <https://www.congress.gov/bill/116th-congress/house-bill/5857>

Community Choice Aggregation and Community Solar

Policy Avenue: Legislation	Health Impact: +
Political Landscape: Moderate	Equity Impact: +

The U.S. needs local, community-driven action in the transition to a green economy. Policies need to support and incentivize communities to invest in renewable energy projects so they can be part of the green economy future. Community Choice Aggregation (CCA) allows communities more ownership over the electricity in their community. Under CCA, the community as an aggregate has purchasing power while the utility maintains the infrastructure, such as transmission lines and customer service.

Health Impact: +

The burning of fossil fuels produces damaging air pollution and increases exposure to toxic chemicals that lead to adverse health outcomes. Expanding renewable energy infrastructure, since it does not emit harmful pollutants, can improve health impacts by reducing air pollution and improving lung-related illnesses. According to a study in *Nature Energy*, the expansion of renewable energy prevented 12,700 premature deaths, saved the U.S. as much as \$220 billion from improved air quality, avoided health care costs, and fewer sick days over a nine-year period.³¹ Developing renewable energy infrastructure also helps to improve the built environment, create more local jobs and help reduce energy insecurity.

Equity Impact: +

In the past, CCAs have targeted more affluent communities and not low-income and frontline communities.³² Thus, this policy must make it easier for everyone to have ownership over their energy. Using CCAs and community solar allow communities to have more choice and ultimately have purchasing power over the utilities on the source of their energy. This will have positive effects in both rural and urban areas which face a higher energy burden and are more prone to energy blackouts.

Political Landscape: Moderate

Many states have already implemented community solar programs. Colorado recently updated its community solar gardens to increase the maximum size and making it easier for people to join the garden.³³ Michigan introduced legislation in 2019 to create a community renewable energy program.³⁴ Minnesota, seen as a leader in community solar, launched a community solar program in 2014. Since then, the program helped employ 4,000 workers in 2018, paid landowners for leases and royalty payments, paid counties and towns through the state Solar Production Tax Credit and helped cut global warming emissions by almost a million tons per year and over 400 tons of sulfur and nitrogen oxide emissions.³⁵ In terms of CCAs, New York introduced legislation to allow a municipality to participate in community choice energy aggregation program and expand renewable energy at the community level.³⁶ Colorado introduced legislation in 2020 for its Public Utilities Commission to evaluate community choice energy for the state.³⁷

³¹ Millstein, D., Wiser, R., Bolinger, M., & Barbose, G. (2017). The climate and air-quality benefits of wind and solar power in the United States. *Nature Energy*, 2. <https://doi.org/10.1038/nenergy.2017.134>

³² Bolon, C., Lanckton, T., & Baker, S. (n.d.). *Utilities 101: A guide to the basics of the electric utility industry with a focus on justice*. Initiative for Energy Justice. <https://iejusa.org/wp-content/uploads/2020/08/Utilities-101-Full-Guide-v3.pdf>

³³ Community Solar Gardens Modernization Act, HB19-1003, 2019. <https://leg.colorado.gov/bills/hb19-1003>

³⁴ Energy; alternative sources; community renewable energy generation systems; provide for on subscription basis, HB 4995, 2019. <http://legislature.mi.gov/doc.aspx?2019-HB-4995>

³⁵ Institute for Local Self-Reliance, MnSEIA, & VoteSolar. (2019). *Minnesota's Solar Gardens: The Status and Benefits of Community Solar*. https://votesolar.org/wp-content/uploads/2021/01/VS-Minnesota-Solar_Gardens-2019-Report.pdf

³⁶ An act authorizing certain municipalities to participate in a community choice energy aggregation program by a single municipality or through an inter-municipal agreement with two or more municipalities in order to coordinate efforts to procure electric and/or gas supply services on behalf of participating residents, businesses and municipal customers within municipal jurisdictional boundaries, A00136, 2019. https://assembly.state.ny.us/leg/?default_fld=&leg_video=&bn=A00136&term=2019&Summary=Y&Actions=Y&Committee%26nbspVotes=Y&Memo=Y

³⁷ Public Utilities Commission Study of Community Choice Energy, HB20-1064, 2020. <https://leg.colorado.gov/bills/hb20-1064>

Just Transition and Climate Equity

Policy Avenue: Legislation	Health Impact: +
Political Landscape: Moderate-High	Equity Impact: +

Fossil fuels are central to the extractive U.S. economy and have ultimately led to environmental degradation and negative health consequences. The U.S. must transition from this extractive economy to a regenerative economy, rooted in environmental justice, workers' rights, and health. This transition provides an opportunity for the U.S. to create jobs and have workers who were previously in the fossil fuel industry, incarcerated, or in low-wage jobs be part of the green economy. To ensure climate equity and a just transition, there must be adequate training programs for workers who were formerly in the fossil fuel industry, a federal jobs guarantee with family leave, sick days, fair wages, and health insurance and an office dedicated to the implementation of a just transition.

Health Impact: +

Employment and health are inextricably linked, with job benefits, work environment, job security, and job demands all affecting health outcomes. In the U.S., 1 in 10 people live in poverty, affecting their income and ability to afford healthy foods, health care, and housing.³⁸ Unemployment itself can have negative health outcomes, such as depression, anxiety, low self-esteem and physical pain, and more stress-related illnesses including high blood pressure, stroke, heart attacks, heart disease, and arthritis.³⁹ People with job security are less likely to live in poverty and more likely to be healthy.⁴⁰

Equity Impact: +

Fossil fuel extraction and combustion not only disproportionately affects low-income, BIPOC, and frontline communities, but also workers in the industry with hazardous work environments and exposure to toxic pollutants. Specific focus on these communities is vital to equity and environmental justice. Ensuring fair access to good jobs that are healthy, safe, and sustainable, will allow everyone, not only the affluent, to benefit from the transition to a green economy. It is also essential for community engagement in decision making from frontline, BIPOC, and low-income communities.

Political Landscape: Moderate-High

In 2020, then-Senator Kamala Harris and Representative Alexandria Ocasio-Cortez introduced the Climate Equity Act to ensure protection of frontline communities is foundational to any environmental and climate-related policies, rules, regulations, and investments. The Act established a Climate and Environmental Equity Office and the Office of Climate and Environmental Justice Accountability and required any new legislation, regulation, or federal investment related to environmental or climate change issues to determine its impacts on frontline communities.⁴¹ In 2019, Minnesota introduced the Minnesota Green New Deal to create job training programs and the opportunity to participate in the clean energy economy for communities of color, indigenous people, low-income, workers in the fossil fuel industry and released prisoners.⁴² Colorado has a Just Transition Office in the Division of Employment and Training under the Department of Labor and Employment as well as a Just Transition Advisory Committee to develop a draft just transition plan.⁴³

³⁸ Semega, J., Kollar, M., Creamer, J., & Mohanty, A. (2020). *Income and Poverty in the United States: 2018* (No. P60-266(RV)). U.S. Census Bureau, Current Population Reports. <https://www.census.gov/content/dam/Census/library/publications/2019/demo/p60-266.pdf>

³⁹ *Employment—HealthyPeople2020*. (n.d.). Office of Disease Prevention and Health Promotion. <https://www.healthypeople.gov/2020/topics-objectives/topic/social-determinants-health/interventions-resources/employment#5>

⁴⁰ *Economic Stability—Healthy People 2030 | health.gov*. (n.d.). U.S. Department of Health and Human Services, Office of Disease Prevention and Health Promotion. Retrieved March 28, 2021, from <https://health.gov/healthypeople/objectives-and-data/browse-objectives/economic-stability>

⁴¹ S.4513 - 116th Congress (2019-2020): Climate Equity Act of 2020, S.4513/H.R.8019, 116th Congress (2019-2020) (2020). <https://www.congress.gov/bills/116th-congress/senate-bill/4513>

⁴² Minnesota Green New Deal established, and reports required., HF 2836, 2019–2020. <https://www.revisor.mn.gov/bills/bill.php?b=house&f=HF2836&ssn=0&y=2019>

⁴³ Just Transition From Coal-based Electrical Energy Economy, HB19-1314, 2019. <https://leg.colorado.gov/bills/hb19-1314>

Grid Modernization and Battery Storage

Policy Avenue: Legislation	Health Impact: +
Political Landscape: Moderate-High	Equity Impact: +

The national grid is essential for the provision of reliable, safe, and cheap electricity to people across the country. The grid has been developed as part of a system reliant on fossil fuels. To enable a transition to 100% renewable energy, the grid must be modernized to incorporate storage for electricity generated from renewable sources, and with attention to new efficient technologies and more equitable distribution. Incentives and funding towards updating the grid is essential to implement technologies such as smart grids, demand response, and battery storage to ensure a resilient and reliable national grid.

Health Impact: +

Modernizing the grid makes it easier to increase the share of renewable energy in the electricity system, contributing to greenhouse gas emission reduction and improved air quality. An updated grid can also improve energy reliability, especially during more extreme weather events such as flooding and cold storms, ensuring people have energy for heating, cooling, refrigeration, and other essentials.

Equity Impact: +

Grid modernization makes the grid more efficient, with benefits in terms of cost affordability and just price rates. This can alleviate the energy cost burden (with some households forced to spend the majority of their income on energy)⁴⁴, while also keeping overall costs low. It also helps to prevent power outages that disproportionately affect BIPOC, low-income and frontline communities.

Political Landscape: Moderate-High

In 2020, Representative Conor Lamb introduced the Grid Modernization Research and Development Act to expand research programs at the Department of Energy related to the electric grid and hybrid energy systems and award competitive grants to conduct research and development to improve resilience and reliability of the electric grid.⁴⁵ In 2019, Representative John Sarbanes introduced the 21st Century Power Grid Act to require the Department of Energy to establish a program to provide financial assistance for projects designed to improve the grid while also ensuring safe, secure, reliable, and affordable power.⁴⁶ Several states also have introduced legislation for grid modernization. New York State introduced the New York Grid Modernization Act to address the grid infrastructure by establishing a grid modernization program and creation of a smart grid advisory council.⁴⁷ Illinois has a bill that covers investment in infrastructure and modernization, including Smart Grid technology.⁴⁸

⁴⁴ Office of Energy Efficiency & Renewable Energy. (n.d.). *Low-Income Household Energy Burden Varies Among States-Efficiency Can Help In All of Them*. U.S. Department of Energy. https://www.energy.gov/sites/prod/files/2019/01/f58/WIP-Energy-Burden_final.pdf

⁴⁵ Grid Modernization Research and Development Act of 2020, H.R.5428, 116th Congress (2019-2020) (2020). <https://www.congress.gov/bill/116th-congress/house-bill/5428/cosponsors>

⁴⁶ 21st Century Power Grid Act, H.R.5527, 116th Congress (2019-2020) (2020). <https://www.congress.gov/bill/116th-congress/house-bill/5527>

⁴⁷ New York Grid Modernization Act, A00185, 2019.

https://assembly.state.ny.us/leg/?default_fld=&leg_video=&bn=A00185&term=2019&Summary=Y&Actions=Y&Memo=Y

⁴⁸ UTILITIES-INFRASTRUCTURE, SB2080, 2019.

<https://www.ilga.gov/legislation/billstatus.asp?DocNum=2080&GAID=15&GA=101&DocTypeID=SB&LegID=120160&SessionID=108>

Energy Resilient Communities and Microgrid Infrastructure

Policy Avenue: Legislation	Health Impact: +
Political Landscape: Moderate	Equity Impact: +

As the climate crisis worsens and extreme weather events become more common, there is a need to prepare and support communities with more resilient energy and microgrid infrastructure. Investment in resilient infrastructure such as grant programs for critical energy infrastructure, clean energy microgrids, and creation of adaptation plans can help communities adapt to climate change impacts and reduce uncertainties in energy price fluctuations, especially low-income and frontline communities.

Health Impact: +

The recent Texas power crisis brought to light how energy infrastructure without resiliency and adaptation measures can lead to health consequences such as minimal heating, contaminated water, power outages, and mortality.⁴⁹ Investing in resilient energy infrastructure can help reduce these health consequences when climate events occur and help general reliability of energy to communities.

Equity Impact: +

Low-income and frontline communities are most affected by these extreme weather events as communities with the fewest resources are most susceptible to negative impacts as a result. In addition, redlining practices of restricting access to housing and services based on race or ethnicity have contributed to overpopulation in areas that are less desirable and more climate vulnerable.⁵⁰ Investing in resilient energy infrastructure with a focus on these communities can help improve these inequities in terms of energy reliability.

Political Landscape: Moderate

Recently, Representative Nanette Diaz Barragan introduced the Energy Resilient Communities Act to require the Department of Energy to establish a grant program to make critical energy infrastructure resilient to climate change hazards, including grants for clean energy microgrids to support community infrastructure.⁵¹ Senators Ron Wyden and Jeff Merkley introduced legislation to provide incentives to utility companies to ensure a more disaster resilient power grid.⁵²

⁴⁹ Cohen, A. (n.d.). *Texas Energy Crisis Is An Epic Resilience And Leadership Failure*. Forbes. Retrieved April 1, 2021, from <https://www.forbes.com/sites/arielcohen/2021/02/19/texas-energy-crisis-is-an-epic-resilience-and-leadership-failure/>

⁵⁰ APHA. (n.d.). *Climate Changes Health: Extreme Weather*. American Public Health Association. Retrieved April 1, 2021, from <https://www.apha.org/topics-and-issues/climate-change/extreme-weather>

⁵¹ Energy Resilient Communities Act, H.R.448, 117th Congress (2021-2022) (2021). <https://www.congress.gov/bill/117th-congress/house-bill/448>

⁵² A bill to require the Secretary of Energy to establish a grant program to improve the resiliency of the power grid to natural disasters and reduce the risk of wildfires caused by power lines, and for other purposes., S.704, 117th Congress (2021-2022) (2021). <https://www.congress.gov/bill/117th-congress/senate-bill/704/cosponsors>

End Incentives and Liability Protections for Fossil Fuels

Policy Avenue: Legislation	Health Impact: +
Political Landscape: Low-Moderate	Equity Impact: +

The transition from burning fossil fuels to using renewable energy to prevent major catastrophe as a result of climate change involves ending all incentives, subsidies, and liability protections from environmental crises for the fossil fuel industry. Oil Change International estimates the U.S. federal government funnels \$15 billion every year into the production of fossil fuels, not including subsidies to bring down gas prices and utility bills, fossil fuel projects overseas, or environmental damages from pollution.⁵³ The U.S. should end these incentives and instead invest in renewable energy to improve health and help prevent catastrophic impacts from the climate crisis.

Health Impact: +

Ending incentives and subsidies for fossil fuels can help shift the U.S. towards renewable energy, improving air quality, reducing greenhouse gas emissions, and reducing environmental exposures from pollution crises. It can also help expand renewable energy markets and help communities be part of the just transition with fair jobs and fair wages.

Equity Impact: +

Race and class are the number one indicator for placements of power plants in the U.S. contributing to health inequities with an array of negative health impacts from the toxic pollutants and contaminated water and food.⁵⁴ Ending incentives and subsidies can help close and replace these power plants for more sustainable and resilient infrastructure.

Political Landscape: Low-Moderate

In 2020, Representative Ilhan Omar and Senator Bernie Sanders introduced the End Polluter Welfare Act to abolish dozens of tax loopholes, incentives, subsidies, ending energy resource giveaways to polluters on public land, and prohibit taxpayer-funded fossil fuel R&D.⁵⁵ Recently, Representative Cori Bush introduced the Environmental Justice Mapping and Data Collection Act to establish an interagency Environmental Justice Mapping Committee to create a tool to identify environmental justice communities and require the EPA to establish an environmental justice data repository to maintain data collected by the committee.⁵⁶

⁵³ Redman, J. (2017). *Dirty Energy Dominance: Dependent on Denial—How the U.S. Fossil Fuel Industry Depends on Subsidies and Climate Denial*. Oil Change International. http://priceofoil.org/content/uploads/2017/10/OCI_US-Fossil-Fuel-Subs-2015-16_Final_Oct2017.pdf

⁵⁴ NAACP | *Environmental & Climate Justice*. (n.d.). NAACP. Retrieved April 1, 2021, from <https://naacp.org/issues/environmental-justice/>

⁵⁵ End Polluter Welfare Act of 2020, H.R.7781, 116th Congress (2019-2020) (2020). <https://www.congress.gov/bill/116th-congress/house-bill/7781/text>

⁵⁶ Environmental Justice Mapping and Data Collection Act of 2021, H.R.516, 117th Congress (2021-2022) (2021). <https://www.congress.gov/bill/117th-congress/house-bill/516>

Incentivize Green and Weatherized Buildings and Housing

Policy Avenue: Legislation	Health Impact: +
Political Landscape: Moderate-High	Equity Impact: +

Updating buildings to be greener, more efficient, and more resilient to climate change impacts is essential in transitioning to a 100% renewable energy society. Buildings produce 6% of heat-trapping emissions worldwide and use more than half of all electricity.⁵⁷ Ensuring buildings are efficient and weatherized can reduce wasted energy and make it easier for renewable energy to supply all of the energy needs in the U.S. Investing in weatherization and energy efficiency grant programs and tax incentives will help mobilize the U.S. in transitioning buildings to be run on renewable energy and resilient to climate change impacts.

Health Impact: +

Low-income residents can often find themselves choosing between heat and food in winter, putting them at risk of malnutrition or cold exposure or both. On the hot end of the spectrum, lack of access to efficient, affordable cooling puts low-income people, especially seniors, at risk during heat events.⁵⁸ According to the Energy Information Administration (EIA), one-fifth of Americans in 2015 reported reducing or forgoing necessities such as food and medicine to pay an energy bill. In addition, 11% of households reported keeping their home at an unhealthy or unsafe temperature to lower energy bills and 14% received a disconnection notice.⁵⁹ In addition, Project Drawdown estimates that solutions in the building sector, such as building retrofitting and enhancing efficiency, can prevent 73.7 to 141.2 gigatons of CO₂.⁶⁰ This can substantially reduce greenhouse gas emissions and improve air quality.

Equity Impact: +

Data for Progress estimates that a 10-year, \$172 billion investment to retrofit over 1 million public housing units can create 240,000 jobs per year in the U.S. and improve the living conditions of almost 2 million residents.⁶¹ These jobs would improve local economies and help alleviate unemployment and income disparities. In addition, these updates can reduce water and energy bills, reducing the energy burden low-income and frontline communities face.

Political Landscape: Moderate-High

In 2019, Senator Bernie Sanders and Representative Alexandria Ocasio-Cortez introduced the Green New Deal for Public Housing Act to require the Department of Housing and Urban Development to award grants to public housing agencies and other entities to make upgrades, replacements, and improvements for energy efficiency, water quality, and building electrification among others.⁶² In 2019, Representative Julia Brownley introduced the Green Energy for Federal Buildings Act to require federal buildings to increase the amount of renewable energy it uses to 100% by 2050.⁶³

⁵⁷ *Buildings: ProjectDrawdown.* (2020, February 5). Project Drawdown. <https://drawdown.org/sectors/buildings>

⁵⁸ New York State Energy Research and Development Authority (2011). Home Energy Affordability in New York: The Affordability Gap. LIFE Resources. Retrieved 1 April, 2021 from <https://www.nyserda.ny.gov/All-Programs/Programs/Low-Income-Forum-on-Energy/LIFE-Resources>

⁵⁹ American Council for an Energy-Efficient Economy (2019). Understanding Energy Affordability. Retrieved 1 April, 2021 from <https://www.aceee.org/sites/default/files/energy-affordability.pdf>

⁶⁰ *Buildings: ProjectDrawdown.* (2020, February 5). Project Drawdown. <https://drawdown.org/sectors/buildings>

⁶¹ *Green New Deal For Public Housing.* (n.d.). Data For Progress. Retrieved April 1, 2021, from <https://www.dataforprogress.org/green-new-deal-public-housing>

⁶² Green New Deal for Public Housing Act, S.2876, 116th Congress (2019-2020) (2019). <https://www.congress.gov/bill/116th-congress/senate-bill/2876>

⁶³ Green Energy for Federal Buildings Act, H.R.1327, 117th Congress (2021-2022) (2021). <https://www.congress.gov/bill/117th-congress/house-bill/1327/text>

Agriculture and Food

Incentives for Urban and Community Agriculture

Policy Avenue: Legislation and/or Agency Action	Health Impact: +
Political Landscape: Moderate	Equity Impact: +

Expanding participation in agriculture to urban areas can have far-reaching effects on emission reductions and nutrition. Urban and community agriculture allow communities to be small, local farmers that grow various fruits and vegetables using a small patch of land. Increasing incentives for more city-dwellers and local farmers to participate in agriculture can help improve food insecurity and help transition from a meat-based diet to a plant-based diet.

Health Impact: +

Incentivizing urban and community agriculture will increase availability of healthy fruits and vegetables and can help fight hunger in urban areas. According to the Thomson Reuters Foundation, urban farms could supply almost the entire recommended consumption of vegetables for city dwellers, reducing food waste and emissions from transportation of agricultural products.⁶⁴ Urban farms also increase vegetation cover which can also help reduce the urban heat island effect,⁶⁵ and help to retain water to decrease flood risk.

Equity Impact: +

Urban and community agriculture can help revitalize communities, specifically low-income, and BIPOC communities, who experience food insecurity and crumbling infrastructure. It can help improve access to healthy food and workforce development and training.⁶⁶

Political Landscape: Moderate

Under the former administration, support for federal action for urban and community agriculture was not widespread, but this could change thanks to the prioritization of climate change by the Biden Administration. Both legislation and agency action from the USDA could help improve incentives for urban and community agriculture.

There have been previous attempts to help incentivize urban and community agriculture with the introduction and later failure of the Community Agriculture Development and Jobs Act in 2012 which would establish the Office of Community Agriculture and give grants to nontraditional communities to start community agriculture.⁶⁷ Also, the USDA currently has Climate Hubs which help to coordinate efforts to address major challenges urban farmers face.⁶⁸ Current USDA programs is another policy lever that would require agency action to further incentivize community agriculture, as recommended by PolicyLink in 2012, such as the Community Food Projects Competitive Grant Program⁶⁹ and the Healthy Urban Food Enterprise Development Center grants.⁷⁰

⁶⁴ Foundation, T. R. (n.d.). *Urban farms "critical" to combat hunger, adapt to climate change*. News.Trust.Org. Retrieved March 24, 2021, from <https://news.trust.org/item/20180111102522-tb51m/>

⁶⁵ Foundation, T. R. (n.d.). *Urban farms "critical" to combat hunger, adapt to climate change*. News.Trust.Org. Retrieved March 24, 2021, from <https://news.trust.org/item/20180111102522-tb51m/>

⁶⁶ Hagey, A., Rice, S., & Flournoy, R. (2012). *Growing Urban Agriculture: Equitable Strategies and Policies for Improving Access to Healthy Food and Revitalizing Communities*. PolicyLink. https://www.policylink.org/sites/default/files/URBAN_AG_FULLREPORT.PDF

⁶⁷ *Summary of H.R. 3225 (112th): Community Agriculture Development and Jobs Act*. (n.d.). GovTrack.Us. Retrieved March 24, 2021, from <https://www.govtrack.us/congress/bills/112/hr3225/summary>

⁶⁸ *Urban Agriculture | USDA Climate Hubs*. (n.d.). Retrieved March 24, 2021, from <https://www.climatehubs.usda.gov/urban-agriculture>

⁶⁹ *Community Food Projects Competitive Grant Program (CFPCGP) | National Institute of Food and Agriculture*. (n.d.). Retrieved March 24, 2021, from <https://nifa.usda.gov/program/community-food-projects-competitive-grant-program-cfpcgp>

⁷⁰ *USDA Grant to Create Healthy Urban Food Enterprise Development Center in Arkansas | National Institute of Food and Agriculture*. (n.d.). Retrieved March 24, 2021, from <https://nifa.usda.gov/press-release/usda-grant-create-healthy-urban-food-enterprise-development-center-arkansas>

Eliminate Government Incentives for Monoculture Farming

Policy Avenue: Legislation	Health Impact: +
Political Landscape: Moderate	Equity Impact: +

Agriculture accounts for 10% of total U.S. greenhouse gas emissions, primarily due to agricultural management practices that lead to emissions of nitrous oxide, and livestock that produces methane.⁷¹ There is an opportunity for the U.S. to change its agricultural practices to not only reduce greenhouse gas emissions but also help to sequester carbon through regenerative farming. To transition from monoculture industrial farming, which requires additional pesticides and/or fertilizer, to one that is family-run and regenerative, the U.S. must limit eligibility for government subsidized crop insurance to include crops grown using approved soil conservation practices such as cover crops, stream buffer strips and other practices to sequester soil carbon as well as phase out government subsidized crop insurance programs for single crops.⁷²

Health Impact: +

According to the Rodale Institute, small-scale farmers and pastoralists could sequester more than 100% of current annual global CO₂ emissions with a switch to organic management practices, termed regenerative organic agriculture, emphasizing diversity, traditional knowledge, agroforestry, and landscape complexity.⁷³ This reduces greenhouse gas emissions already in the atmosphere, helping to reverse the greenhouse effect. This leads to various health benefits such as improved air quality and reduction of respiratory conditions as well as an improved built environment, potentially improving local economies.

Equity Impact: +

Monoculture industrial farming and the current food system is centered on the exploitation of labor, including farmworkers in the field, processing plants, supermarkets or restaurants.⁷⁴ In addition, there is corporate concentration in ownership over the monoculture industrial farming, leaving out small-scale, family-run farms and leading to inequality. Incentivizing regenerative agriculture can help improve inequality by spurring local economies and giving more ownership and land access to communities instead of corporate interests.

Political Landscape: Moderate

Recently, Representative Earl Blumenauer introduced the Climate Emergency Act to declare a national emergency with climate change and outlines response plans, including creating opportunities for farmers and rural communities by bolstering regenerative agriculture.⁷⁵ In addition, Senator Edward Markey introduced a resolution recognizing the duty of the Federal Government to implement an agenda to Transform, Health and Renew by Investing in a Vibrant Economy (THRIVE) which also includes specific mention of bolstering regenerative agriculture.⁷⁶

⁷¹ US EPA, O. (2015, December 29). *Sources of Greenhouse Gas Emissions: Agriculture* [Overviews and Factsheets]. US EPA. <https://www.epa.gov/ghgemissions/sources-greenhouse-gas-emissions>

⁷² Feldman, M. (2020). *Regenerative Farming and the Green New Deal* (Green New Deal Policy Series: Food & Agriculture). Data for Progress. <https://www.filesforprogress.org/memos/regenerative-farming-and-the-green-new-deal.pdf>

⁷³ Rodale Institute. (n.d.). *Regenerative Organic Agriculture and Climate Change: A Down-to-Earth Solution to Global Warming* [White Paper]. Rodale Institute. <https://rodaleinstitute.org/wp-content/uploads/rodale-white-paper.pdf>

⁷⁴ *Beyond the Farm Bill*. (n.d.). Institute for Agriculture and Trade Policy. Retrieved March 31, 2021, from <https://www.iatp.org/documents/beyond-the-farm-bill>

⁷⁵ Climate Emergency Act of 2021, H.R.794, 117th Congress (2021-2022) (2021). <https://www.congress.gov/bill/117th-congress/house-bill/794/text>

⁷⁶ A resolution recognizing the duty of the Federal Government to implement an agenda to Transform, Heal, and Renew by Investing in a Vibrant Economy ("THRIVE"), S.Res.6931, 116th Congress (2019-2020) (2020). <https://www.congress.gov/bill/116th-congress/senate-resolution/693/text>

Reward Farmers for Transitioning to Regenerative Farming and Improve Land Access to Beginning and Disadvantaged Farmers

Policy Avenue: Legislation	Health Impact: +
Political Landscape: Moderate	Equity Impact: +

As the U.S. transitions from monoculture to regenerative agriculture, existing farmers need support and beginning small-scale farmers must be given equitable access. Farmers should be rewarded for undertaking practices that enhance ecological functions, such as with the USDA Conservation Stewardship Program, and remodel training for existing U.S. soil experts.⁷⁷ In addition, to address the historical discrimination against socially disadvantaged farmers, land investment by large corporations must be limited, barriers to entry must be lowered for new farmers from disadvantaged communities (BIPOC, LGBTQ+, women, immigrants, etc.), and credit lending and land access rights for BIPOC and beginning farmers must be strengthened.⁷⁸

Health Impact: +

Supporting farmers and giving access to beginning and disadvantaged farmers towards regenerative agriculture will help the practice be adopted more readily, leading to more carbon sequestration and helping to reduce the greenhouse effect. In addition, incentivizing more small-scale and local farming can help boost local economies and reduce emissions from transporting food over long distances. Small scale farming with regenerative practices can also lead to more local farmers markets bringing nutritious and diverse food to the local community and those facing food insecurity and food deserts.

Equity Impact: +

In 1910, one in seven farmers were African American and held titles to approximately 16-19 million acres of farmland.⁷⁹ But, 98% of Black farmers were dispossessed through discriminatory practices of the USDA over the next century, leading to a 90% loss of Black-owned farmland in the U.S.⁸⁰ Today, 98% of private rural land is owned by white people while less than 1% is Black-owned.⁸¹ In addition, American farmers today struggle to hold onto their livelihoods with over half living with negative on-farm income⁸² and widespread tenant farming with a lack of autonomy in land management.⁸³ Opening access to beginning and disadvantaged farmers can help make agriculture more equitable and give farmers more autonomy over land and regenerative practices.

Political Landscape: Moderate

Recently, Senator Cory Booker introduced the Justice for Black Farmers Act to reform the USDA by creating an independent civil rights oversight board, provide debt relief to protect remaining black farmers from land loss, and provide land grants of up to 160 acres to existing and aspiring Black farmers.⁸⁴ Also, Senator Raphael Warnock introduced the Emergency Relief for Farmers of Color Act to provide \$5 billion to Black, Indigenous, Hispanic, and other farmers of color to help pay off outstanding USDA farm loan debts and help respond to pandemic related economic impacts.⁸⁵

⁷⁷ Feldman, M. (2020). *Regenerative Farming and the Green New Deal* (Green New Deal Policy Series: Food & Agriculture). Data for Progress. <https://www.filesforprogress.org/memos/regenerative-farming-and-the-green-new-deal.pdf>

⁷⁸ Figueroa, M., & Penniman, L. (2020). *Land Access for Beginning and Disadvantaged Farmers* [Green New Deal Policy Series: Food & Agriculture]. Data for Progress. https://www.filesforprogress.org/memos/land_access_for_beginning_disadvantaged_farmers.pdf

⁷⁹ Figueroa, M., & Penniman, L. (2020). *Land Access for Beginning and Disadvantaged Farmers* [Green New Deal Policy Series: Food & Agriculture]. Data for Progress. https://www.filesforprogress.org/memos/land_access_for_beginning_disadvantaged_farmers.pdf

⁸⁰ Newkirk II, V. R. (n.d.). *The Mississippi Delta's History of Black Land Theft—The Atlantic*. The Atlantic. Retrieved March 31, 2021, from <https://www.theatlantic.com/magazine/archive/2019/09/this-land-was-our-land/594742/>

⁸¹ Figueroa, M., & Penniman, L. (2020). *Land Access for Beginning and Disadvantaged Farmers* [Green New Deal Policy Series: Food & Agriculture]. Data for Progress. https://www.filesforprogress.org/memos/land_access_for_beginning_disadvantaged_farmers.pdf

⁸² *USDA ERS - Highlights From the Farm Income Forecast*. (n.d.). Retrieved March 31, 2021, from <https://www.ers.usda.gov/topics/farm-economy/farm-sector-income-finances/highlights-from-the-farm-income-forecast/>

⁸³ Calo, A., & Petersen-Rockney, M. (2018). *What Beginning Farmers Need Most in the Next Farm Bill: Land*.

⁸⁴ Justice for Black Farmers Act of 2021, S.300-, 117th Congress (2021-2022) (2021). <https://www.congress.gov/bill/117th-congress/senate-bill/300/text>

⁸⁵ Emergency Relief for Farmers of Color Act of 2021, S.278, 117th Congress (2021-2022) (2021). <https://www.congress.gov/bill/117th-congress/senate-bill/278/text>

Expanded Food Donation Policies

Policy Avenue: Legislation/Agency Action	Health Impact: +
Political Landscape: Moderate	Equity Impact: +

Food donation is a vital part of reducing food waste, especially in landfills. Expanding food donation can include reducing financial barriers of farmers donating food, clarifying guidance on food safety for donations, and strengthen liability protections for food donations.⁸⁶ This can reduce food waste and greenhouse gas emissions while also giving more nutritious food to those experiencing food insecurity and food deserts.

Health Impact: +

Expanding food donation not only increases availability of food in donation centers to feed more people, but also can provide more nutritious food to areas that are food insecure. Nutritious food, particularly for children and seniors, is essential for success in school, supplementation of medication, and prevention of disease.⁸⁷ In addition, expanding food donation redirects food that would otherwise be sent to landfills, helping to reduce methane emissions.

Equity Impact: +

An 37 million Americans (1 in 9) experienced food security in 2018, including 11 million children.⁸⁸ Food insecurity, a lack of available financial resources for food at the household level, is a symptom of other issues faced by low-income households such as lack of affordable housing, high medical costs, and low wages.⁸⁹ While expanding food donation itself does not address these underlying systemic challenges, it helps give those who are experiencing food insecurity and are in food deserts access to food that is nutritious and safe.

Political Landscape: Moderate

The Good Samaritan Food Donation Act of 1996 already provides liability protection for people who make good faith food donations to nonprofits that feed the hungry, however these protections are largely unknown by prospective donors and extend to nonprofits that give food for free and excludes nonprofits who supply food at a reduced price.⁹⁰ In 2019, Senator Pat Toomey introduced the Food Donation Improvement Act to clarify and expand food donation to include reduced prices and a broader definition of a qualified direct donor such a retail grocer, wholesaler, agricultural producer, among others.⁹¹

⁸⁶ ReFED. (n.d.). *Food Waste for Policymakers*. Retrieved March 30, 2021, from <https://refed.com/stakeholders/policymakers/>

⁸⁷ Feeding America. (n.d.). *Our Work Providing Healthy Foods*. Retrieved March 30, 2021, from <https://www.feedingamerica.org/our-work/our-approach/meet-nutritional-needs>

⁸⁸ Coleman-Jensen, A., Rabbitt, M. P., Gregory, C. A., & Singh, A. (2019). *Household Food Security in the United States in 2018* (Economic Research Report No. 270). Economic Research Service - USDA. <https://www.ers.usda.gov/webdocs/publications/94849/err-270.pdf?v=963.1>

⁸⁹ Feeding America. (n.d.). *What Is Food Insecurity in America?* Hunger and Health. Retrieved March 30, 2021, from <https://hungerandhealth.feedingamerica.org/understand-food-insecurity/>

⁹⁰ Broad Leib, E., & Rice, C. (2017). *Don't Waste, Donate: Enhancing Food Donations Through Federal Policy*. Harvard Food Law and Policy Clinic and Natrual Resources Defense Council. <https://www.nrdc.org/sites/default/files/dont-waste-donate-report.pdf>

⁹¹ Food Donation Improvement Act of 2019, S.3141, 116th Congress (2019-2020) (2019). <https://www.congress.gov/bill/116th-congress/senate-bill/3141/text>

Organic Waste Management and Food Waste Reduction Infrastructure

Policy Avenue: Legislation/Agency Action	Health Impact: +
Political Landscape: Moderate	Equity Impact: +

In the United States, food waste is estimated to be 30-40% of the food supply consistent with USDA estimates of 31% food loss at the retail and consumer levels.⁹² This organic waste ends up in landfills, emitting methane and contributing to greenhouse gas emissions. Better organic waste management, such as disincentivizing and banning disposal of food in landfills, increase landfill tipping fees, and incentivizing state and local-level organic waste bans,⁹³ will help reduce organic waste and greenhouse gas emissions. In addition, providing funding for food waste reduction initiatives and infrastructure such as food donation storage and capacity, temperature-controlled food distribution without chlorofluorocarbons (CFCs) and hydrofluorocarbons (HFCs), and composting and anaerobic digestion,⁹⁴ can further reduce both food waste and wider food-related greenhouse gas emissions.

Health Impact: +

Project Drawdown lists reducing food waste as the third most impactful action out of 80 in terms of emissions reductions, and estimates that this can lead to more than 90 gigatons of carbon reduction.⁹⁵ In terms of food waste reduction practices, using refrigerants without CFCs and HFCs, which have 1,000 to 9,000 times greater capacity to warm the atmosphere than CO₂, will also reduce greenhouse gas emissions and improve air quality.⁹⁶ Better organic waste management and food waste reduction infrastructure will also improve the built environment and make it easier to access healthy and safe food.

Equity Impact: +

Organic waste is not only the waste itself, but also the wasted energy, labor, and water to produce and transport the food. The current food system exacerbates this waste, contributing to unused food that could otherwise combat food insecurity. Effective organic waste management allows healthy and safe food to be allocated to those who need it, especially in areas that experience food insecurity and food deserts.

Political Landscape: Moderate

In 2019, Representative Ilhan Omar introduced the Zeroing Excess, Reducing Organic Waste, and Sustaining Technical Expertise (ZERO WASTE) Act to require the EPA to establish grant programs for projects that reinforce zero-waste practices, including source reduction and waste prevention.⁹⁷ In 2019, Representative Julia Brownley introduced the Cultivating Organic Matter through the Promotion of Sustainable Techniques (COMPOST) Act to add composting as a conservation practice for USDA conservation programs such as the Conservation Stewardship Program (CSP) and the Environmental Quality Incentives Program (EQIP) to increase the use of composting by farmers nationwide.⁹⁸ In addition, five states- California, Connecticut, Massachusetts, Rhode Island, and Vermont – have passed laws to keep food out of landfills.⁹⁹

⁹² USDA. (n.d.). *Why should we care about food waste?* Retrieved March 29, 2021, from <https://www.usda.gov/foodlossandwaste/why>

⁹³ ReFED. (n.d.). *Food Waste for Policymakers*. Retrieved March 30, 2021, from <https://refed.com/stakeholders/policymakers/>

⁹⁴ ReFED. (n.d.). *Food Waste for Policymakers*. Retrieved March 30, 2021, from <https://refed.com/stakeholders/policymakers/>

⁹⁵ Project Drawdown. (2020, February 5). *Table of Solutions*. Project Drawdown. <https://www.drawdown.org/solutions/table-of-solutions>

⁹⁶ Project Drawdown. (2020, February 6). *Refrigerant Management*. Project Drawdown Climate Solutions. <https://drawdown.org/solutions/refrigerant-management>

⁹⁷ ZERO WASTE Act, H.R.4050, 116th Congress (2019-2020) (2019). <https://www.congress.gov/bill/116th-congress/house-bill/4050>

⁹⁸ COMPOST Act, H.R.6023, 116th Congress (2019-2020) (2020). <https://www.congress.gov/bill/116th-congress/house-bill/6023/text>

⁹⁹ National Conference of State Legislatures. (n.d.). *Fighting Food Waste*. Retrieved March 30, 2021, from <https://www.ncsl.org/research/agriculture-and-rural-development/fighting-food-waste.aspx>

Transportation

Invest in the Electrification of Public Transportation

Policy Avenue: Legislation	Health Impact: +
Political Landscape: Moderate	Equity Impact: +

Electrification of the transportation sector is vital for the U.S. to reach ambitious greenhouse gas emission reductions and the transition to a green economy. Transportation accounts for about 28% of U.S. greenhouse gas emissions, making it the largest source for emissions.¹⁰⁰ Transitioning to electric public transit give an opportunity to lower emissions while also investing in the built environment and creating less congested roads.

Health Impact: +

Gasoline-powered vehicles worsen air pollution which contributes to various health effects just as asthma, lung cancer, and shortness of breath. Electrifying vehicles can help lower air pollution and contribute to health co-benefits. The American Lung Association estimates if the US transitioned to an electrification transportation system there would be 6,300 premature deaths avoided, 93,000 asthma attacks avoided, and 416,000 lost workdays avoided.¹⁰¹

Equity Impact: +

Households in low-income communities are more likely to own fewer vehicles, have longer commutes, and have higher transportation costs compared to more affluent communities.¹⁰² Inadequate public transit and active transportation infrastructure exacerbates this issue. Investing specifically in public transit can help alleviate inequities in the transportation system.

Political Landscape: Moderate

There seems to be general support for investing in electric vehicles, with public transportation being a key component. The BUILD GREEN Infrastructure introduced by Senators Warren and Markey and Representatives Levin and Ocasio-Cortez BUILD GREEN Infrastructure and Jobs Act provides grant funding to electrify public transit systems including buses, school buses, railcars, and fleet vehicles, and modernizing roads, bridges, and rail.¹⁰³ The CLEAN Future Act, which was recently introduced in the House Committee on Energy and Commerce, also invests in transportation with specific attention to zero-emissions school buses.¹⁰⁴

¹⁰⁰ US EPA, O. (2015, December 29). *Sources of Greenhouse Gas Emissions* [Overviews and Factsheets]. US EPA. <https://www.epa.gov/ghgemissions/sources-greenhouse-gas-emissions>

¹⁰¹ *Road to Clean Air: Benefits of a Nationwide Transition to Electric Vehicles*. (n.d.). The American Lung Cancer Association. Retrieved March 24, 2021, from [/clean-air/electric-vehicle-report](https://www.amlung.org/clean-air/electric-vehicle-report)

¹⁰² U.S. Department of Transportation. (n.d.). *Equity in Transportation* [Overviews and Factsheets]. U.S. Department of Transportation. <https://www.transportation.gov/mission/health/equity>

¹⁰³ To establish a green transportation infrastructure grant program, and for other purposes., H.R.2038, 117th Congress (2021-2022) (2021). <https://www.congress.gov/bills/117/congress/house-bills/2038>

¹⁰⁴ *E&C Leaders Introduce the CLEAN Future Act, Comprehensive Legislation to Combat the Climate Crisis*. (2021, March 2). Democrats, Energy and Commerce Committee. <https://energycommerce.house.gov/newsroom/press-releases/ec-leaders-introduce-the-clean-future-act-comprehensive-legislation-to>

Complete Streets Infrastructure

Policy Avenue: Legislation	Health Impact: +
Political Landscape: Moderate-High	Equity Impact: +

Complete streets are intentionally designed and operated for safe and equitable mobility for all users regardless of age, abilities, and mode of transportation.¹⁰⁵ Streets centered on pedestrians, walking, and public transit can include wider sidewalks, bicycle lanes, bus lanes, crosswalks, curb extensions, and public transportation stops. Transforming the U.S. transportation infrastructure from one focused on gas-powered vehicles to one centered on active transportation has benefits towards greenhouse gas emissions and physical activity.

Health Impact: +

Only 53% of adults in the U.S. met national physical activity guidelines for aerobic physical activity and only 23% met recommended physical activity levels for both aerobic and muscle-strengthening activity.¹⁰⁶ Increasing physical activity can have health benefits including reducing risk of depression and anxiety, managing weight, and reducing risk of cardiovascular disease, type 2 diabetes, and some commonly occurring cancers.¹⁰⁷ One study found that if 50% of children would exercise, the number of obese and overweight youth would decrease by 4.18%, averting \$8.1 billion in direct medical costs and \$13.8 billion in lost productivity.¹⁰⁸ In addition, complete streets specifically reduce vehicle-related crashes and risk to pedestrians and bicyclists when bicycle-specific infrastructure is included.¹⁰⁹ Reducing the use of gas-powered vehicles and congestion levels will also contribute to greenhouse gas emissions reductions.

Equity Impact: +

Poor transportation planning produces incomplete streets, making streets particularly dangerous for BIPOC, older adults, children, and low-income communities as they suffer disproportionately from illness, injury, and death.¹¹⁰ Ensuring that low-income and frontline communities have complete streets and safe active transportation infrastructure is vital to improve the health and well-being of these communities.

Political Landscape: Moderate-High

In 2019 and again in 2021, Senator Ed Markey introduced the Complete Streets Act to establish a competitive program that provides technical assistance and grants for the design and construction of complete streets and would require 5% of state's federal highway money to implement a complete streets program.¹¹¹ Also in 2019, Representative Adriano Espaillat introduced the Transportation Alternatives Enhancements Act to increase funding for pedestrian infrastructure projects.¹¹² Most recently, Representative Julia Brownley introduced the Safety and Friendly for the Environment (SAFE) Streets Act to require state and local transportation agencies to direct additional resources from the Federal Highway Administration (FHWA) Highway Safety Improvement Program (HSIP) to areas with a need for pedestrian bicycle infrastructure.¹¹³

¹⁰⁵ *Complete Streets*. (2015). U.S. Department of Transportation. <https://www.transportation.gov/mission/health/complete-streets>

¹⁰⁶ Centers for Disease Control and Prevention. (2021, March 1). *FastStats*. National Center for Health Statistics. <https://www.cdc.gov/nchs/fastats/exercise.htm>

¹⁰⁷ CDC. (2021, January 22). *Benefits of Physical Activity*. Centers for Disease Control and Prevention.

<https://www.cdc.gov/physicalactivity/basics/pa-health/index.htm>

¹⁰⁸ Lee, B. Y., Adam, A., Zenkov, E., Hertenstein, D., Ferguson, M. C., Wang, P. I., Wong, M. S., Wedlock, P., Nyathi, S., Gittelsohn, J., Falah-Fini, S., Bartsch, S. M., Cheskin, L. J., & Brown, S. T. (2017). Modeling The Economic And Health Impact Of Increasing Children's Physical Activity In The United States. *Health Affairs (Project Hope)*, 36(5), 902–908. <https://doi.org/10.1377/hlthaff.2016.1315>

¹⁰⁹ Reynolds, C. C., Harris, M. A., Teschke, K., Cripton, P. A., & Winters, M. (2009). The impact of transportation infrastructure on bicycling injuries and crashes: a review of the literature. *Environmental health : a global access science source*, 8, 47. <https://doi.org/10.1186/1476-069X-8-47>

¹¹⁰ Smart Growth America & National Complete Streets Coalition. (n.d.). *Benefits of Complete Streets: Complete Streets Mean Equitable Streets* [Fact Sheet].

<https://smartgrowthamerica.org/wp-content/uploads/2016/08/cs-equity.pdf>

¹¹¹ Complete Streets Act of 2019, S.2077, 116th Congress (2019-2020) (2019). <https://www.congress.gov/bill/116th-congress/senate-bill/2077>

¹¹² Transportation Alternatives Enhancements Act, H.R.5231, 116th Congress (2019-2020) (2019).

<https://www.congress.gov/bill/116th-congress/house-bill/5231/text>

¹¹³ Brownley and Espaillat Introduce Bill to Make Streets Safer and Encourage Environmentally Friendly Transportation. (2019, May 30). *Congresswoman Julia Brownley*. <https://juliabrownley.house.gov/brownley-and-espaillat-introduce-bill-to-make-streets-safer-and-encourage-environmentally-friendly-transportation/>

Bike Sharing for Active Transit

Policy Avenue: Legislation	Health Impact: +
Political Landscape: Moderate	Equity Impact: +

Bike sharing allows individuals to share the use of bicycles through a service for a fee on a short-term basis. These programs incentivize locals and tourists to use bicycles instead of gas-powered vehicles as they offer an easy, low-cost and efficient way to travel around cities. Incentivizing more bike sharing programs in the U.S. by treating them as a form of public transit and thus receiving federal funding, will give more people access to bikes and decrease traffic and greenhouse gas emissions from driving less gas-powered vehicles.

Health Impact: +

Giving more options and access to cycling can help increase physical activity which can improve sleep, reduce the risk of depression and anxiety, and strengthen bones and muscles to slow the loss of bone density and reduce the risk of falling.¹¹⁴ Cycling especially can help improve physical health as an aerobic workout that is easy on the joints.¹¹⁵ Also, incentivizing more active transportation options can help reduce the use of gasoline-powered vehicles to improve air pollution and living environments.

Equity Impact: +

Bike sharing as public transportation presents an opportunity for federal funding to low-income and frontline communities to improve access to active transportation. Along with infrastructure for complete streets, bike sharing is a safe and low-cost option to improve the health of low-income and frontline communities' health by increasing physical activity and reducing air pollution.

Political Landscape: Moderate

Many cities in the U.S. have already implemented bike sharing programs including Houston, Texas¹¹⁶, Minneapolis, Minnesota¹¹⁷, and Atlanta, Georgia.¹¹⁸ In 2019, Representative Earl Blumenauer introduced the Bikeshare Transit Act to make bikeshare projects eligible as associated transit improvement projects and thus for federal funding.¹¹⁹ Bike sharing programs have also been increasing in popularity. During the past decade, using American Community Survey data, bike-sharing programs increased the average rate of bike-commuting to and from work in urban communities by about 20%.¹²⁰

¹¹⁴ CDC. (2021, January 22). *Benefits of Physical Activity*. Centers for Disease Control and Prevention. <https://www.cdc.gov/physicalactivity/basics/pa-health/index.htm>

¹¹⁵ Harvard Health Publishing. (n.d.). *The top 5 benefits of cycling*. Harvard Health. Retrieved March 28, 2021, from <https://www.health.harvard.edu/staying-healthy/the-top-5-benefits-of-cycling>

¹¹⁶ *Houston BCycle*. (n.d.). Houston BCycle. Retrieved March 28, 2021, from <https://www.houstonbicycle.com>

¹¹⁷ *How It Works*. (n.d.). Nice Ride Minnesota. Retrieved March 28, 2021, from <http://www.niceridemn.com/how-it-works>

¹¹⁸ *Bike Share Atlanta | Atlanta, GA*. (n.d.). Retrieved March 28, 2021, from <https://www.atlantaga.gov/government/departments/transportation/strategy-and-planning/office-of-mobility-planning/bicycles/bike-share>

¹¹⁹ Bikeshare Transit Act of 2019, H.R.4001, 116th Congress (2019-2020) (2019). <https://www.congress.gov/bill/116th-congress/house-bill/4001>

¹²⁰ Xu, D. (2020). Free Wheel, Free Will! The Effects of Bikeshare Systems on Urban Commuting Patterns in the U.S. *Journal of Policy Analysis and Management*, 39(3), 664–685. <https://doi.org/10.1002/pam.22216>

Connecting America’s Active Transportation System

Policy Avenue: Legislation	Health Impact: +
Political Landscape: Moderate	Equity Impact: +

While there are many active transportation systems locally, there is a need to connect them across communities, cities, and states. This can enable active transport to go beyond cities and allow people to walk and bike across the country on designated paths and trails. This is possible through a federal active transportation infrastructure investment plan where states, state agencies, Indian tribes, and others can apply and construct active transport connections. Nearly half of all trips Americans take are within a 20-minute bicycle ride and more than 20 percent of all trips are within a 20-minute walk.¹²¹ Focusing on active transportation, as opposed to extending highways and railways, can reduce the use of gas-powered vehicles and greenhouse gas emissions while also improving physical activity and enhance mobility for people with disabilities.

Health Impact: +

Expanding active transportation makes it easier to get the recommended amount of physical activity a day and makes the built environment healthier and safer for all users. In addition, increasing the amount of active transportation decreases the need for gas-powered vehicles for transportation, reducing greenhouse gas emissions that contribute to air pollution and other lung-related illnesses.

Equity Impact: +

Connecting active transportation systems can provide routes between buildings, workspaces, schools, residences, and other community activity centers. This in turn can improve the built environment in communities disproportionately burdened with incomplete streets and crumbling infrastructure, such as low-income and frontline communities. In addition, improving infrastructure for walking and bicycling will improve these communities’ health and wellbeing by making healthy active transportation the easy choice.

Political Landscape: Moderate

In 2019, Senator Ed Markey and then Senator Kamala Harris introduced and cosponsored the Connecting America’s Active Transportation System Act to direct the Department of Transportation to implement an active transportation grant program for states, Indian tribes, multi-county special districts, and others to construct projects to provide safe and connected active transportation facilities. It also required at least 30% of funds to be allocated to projects that connect people with public transit, businesses, and other community activity centers.¹²²

¹²¹ Conservancy, R.-T. (n.d.). *Support for the Connecting America’s Active Transportation System Act*. Rails-to-Trails Conservancy. Retrieved March 28, 2021, from <http://www.railstotrails.org/policy/trailstransform/caats/>

¹²² Connecting America’s Active Transportation System Act, S.3391, 116th Congress (2019-2020) (2020). <https://www.congress.gov/bill/116th-congress/senate-bill/3391>