

THE MEDICAL PROMISE OF CLIMATE SOLUTIONS

The Faster We Go, the Healthier We'll Be



A BACKGROUNDER FOR
HEALTH PROFESSIONALS

TABLE OF CONTENTS

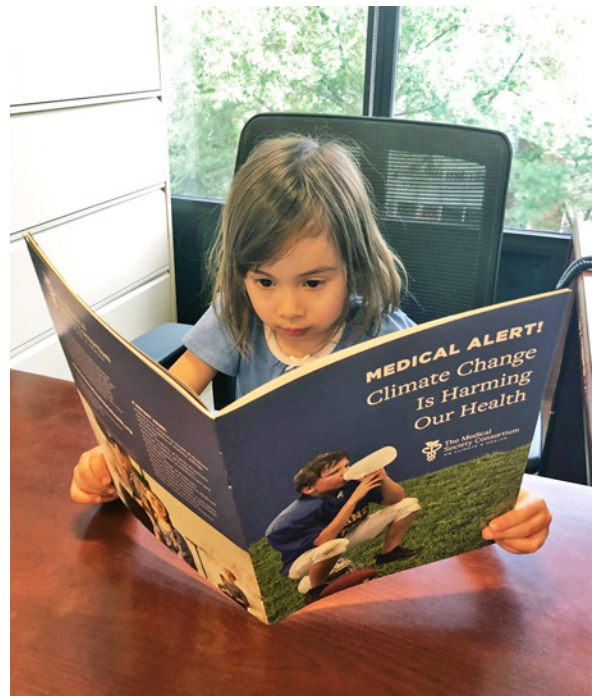
INTRODUCTION	3
THE HEALTH PROMISE OF CLEAN, RENEWABLE ELECTRICITY	8
THE HEALTH PROMISE OF CLEAN AND ACTIVE TRANSPORTATION	12
THE HEALTH PROMISE OF HEALTHY BUILDINGS AND HOMES	16
THE HEALTH PROMISE OF HEALTH-SUPPORTING COMMUNITY ENVIRONMENTS	20
THE HEALTH PROMISE OF CLIMATE-SMART FOOD AND FOOD SYSTEMS	24
DELIVERING A POWERFUL CASE FOR URGENT ACTION ON CLIMATE	28
ENDNOTES	31
MEDICAL PROMISES SUMMARY	33



INTRODUCTION

In 2017, the Medical Society Consortium on Climate and Health (the Consortium) issued “*Medical Alert! Climate Change is Harming our Health.*” As the title conveyed, the report was intended to sound the alarm that climate change was already threatening the health of everyone in America. Our alarm was based both on the scientific evidence documenting those harms and on our direct experience in the changes we — doctors and fellow health professionals — are seeing in our work.

Since then, the evidence of these “health harms” of climate change has grown more definitive and apparent and, in some cases, dramatically so. The extreme weather events of the past four years — from hurricanes, drenching storms, heat waves and damaging wildfires, along with growing visibility of climate-fueled health threats from air pollution, contaminated water and food and insect-borne diseases — has made the reality of climate as a public health emergency ever clearer and the need to take action more urgent.



The COVID-19 pandemic has increased our awareness of large collective public health threats. It puts into sharp focus the role of unequal opportunity and systemic racism that harm the health of Black, Indigenous and other people of color. Climate change is also a large collective challenge that will require education, prevention, and preparation to best protect human health.




BUILDING MOMENTUM FOR HEALTH AND CLIMATE SOLUTIONS

The Consortium is part of a broader climate and health movement that has grown dramatically over the past five years. Membership and affiliation with the Consortium has grown from seven founding medical societies to **39 members** and **over 50 affiliated health organizations** in 2022. Following the 2017 launch of the Virginia Clinicians for Climate Action (VCCA) and Ohio Clinicians for Climate Action, in 2022 there is a network of **18 Clinicians for Climate Action (CCA)** state affiliates across the United States and territories, including one in Puerto Rico.

We also released the *US Call to Action on Climate, Health and Equity: A Policy Action Agenda* (PAA) in 2019, which has been endorsed by **188 health organizations**.¹ Many also collectively endorsed

recommendations to the Biden Administration to bolster the U.S. Department of Health and Human Services (HHS) and ensure that health and health equity considerations are at the center of all executive actions and proposed legislation on climate change. Our voices were heard: In 2021, the U.S. Department of Health and Human Services (HHS) created the Office of Climate Change and Health Equity within the Office of the Assistant Secretary for Health.² We stood in coalition with many other trusted messengers — including meteorologists, faith leaders and young people — to move public engagement and support for climate action to its highest level ever. In a February 2021 ecoAmerica poll, 76% of respondents ranked health as a top motivator for supporting climate solutions compared to jobs (71%), community resilience (53%) and advancing justice and equity (48%).³ In the same poll, 84% of respondents agree that

A photograph showing a person's hands holding a small, round globe made of green grass. The person is wearing a blue shirt. The background is a blurred green field.

*Health is the strongest motivator
for climate solutions support.*

climate change harms some people more than others.⁴ As a result climate change was a central theme of the 2020 election cycle, despite living through a historic pandemic. Voters elected a new administration that has committed to climate action, rejoined the Paris Agreement and appointed a senior leadership team dedicated to taking a “whole of government” approach to climate solutions.

THE URGENCY OF ACTING NOW — AND THE IMMEDIATE HEALTH BENEFITS

It is clear from the science that we don’t have much time left to act. To avoid the worst consequences of climate change we must keep global warming to 1.5°C (2.7°F), as outlined by the Intergovernmental Panel on Climate Change (IPCC). Every nation must dramatically increase and then meet the ambitions of its Nationally Determined Contribution (NDC) to decarbonize its economy.⁵

Climate advocates are well positioned with abundant evidence to make the case that long-term, effective climate solutions also have immediate health benefits. A rapid transition to clean, renewable energy pays dividends for generations and immediately results in cleaner air and water and improved health. Poorer communities and communities of color that have traditionally received less investment should be prioritized to reduce short-term and long-term climate risks, pollution exposures and health disparities. In early 2021, the Consortium and partner organizations released a series of recommendations for the Biden-Harris Administration that outlined steps to achieve a just transition.⁶

In this report, we outline five *climate solutions* that research shows will deliver immediate, often localized, health and equity benefits. We offer key strategies to fulfill these promises. Our focus is on the *solutions* that proactively advance both health and health equity, recognizing that some of us face greater health risks than others. Awareness of these risks is key to effectively addressing climate change. The greater risk may be due to biological factors (e.g., our age, gender, or pre-existing health conditions), economic forces (e.g., where we live and work, or how much we earn), and social and structural forces (e.g., the impacts of policies rooted in unequal investment and purposeful divestment in communities of color — or rural areas or places that are home to people with low incomes). In order to fulfill the health promise of climate solutions, we must fulfill the promise for everyone.



THE HEALTH PROFESSIONAL'S IMPERATIVE: CLIMATE SOLUTIONS WITH EQUITABLE HEALTH BENEFITS

Over the past five years, the public, policy makers and business leaders have taken a greater interest in how medical providers and health experts view climate change and in our guidance in responding to it. In these conversations, three clear messages about climate change, health and equity have emerged:



1 **Climate change is real and is a health emergency.**

The scientific reality of climate change is beyond dispute. Over 97% of climate experts have concluded, based on evidence, that human-caused climate change is happening. From a health perspective, climate change is already harming our health and well-being. We must be prepared to protect people from the impacts of climate change that are harming our health now and will inevitably worsen in the future. We must invest in a public health infrastructure ready to meet the needs of a climate-changed world.

2 **For the sake of health and safety, we must accelerate all current solutions to climate change.**

If we fail to keep global warming to 1.5°C we risk abrupt, unpredictable and potentially irreversible changes with resultant devastating human suffering. Viewed another way, with great risk of harm comes great opportunity for health and safety benefits by accelerating climate solutions. The rapid acceleration of climate mitigating changes to our energy, transportation, agriculture, buildings and community design, represent a historic opportunity to create a new “health- and equity-supporting infrastructure” that will immediately and sustainably improve people’s health, increase their opportunities, and unleash our human potential.

3 **Those who are trying to slow down change are placing their own narrow interests, rather than our health and safety, first.**

Our message is simple: the sooner we adopt solutions for





*Climate action is not just about a future we **need** to create. It's about a future we **want** to create.*

our climate, the healthier and safer we will be. As the debate about solutions to rapidly decarbonize various systems unfolds, it will be the nearer-term benefits and burdens of rapid system change that will inevitably become a central focus of policy and public discussion. The longer-term health benefits of addressing climate change have been well documented: preventing roughly 4.5 million deaths, 3.5 million hospitalizations and emergency room visits and approximately 300 million lost workdays in the U.S. over the next 50 years⁷ premature deaths. Unfortunately, people often put a higher priority on what change means for them in the shorter run. Health providers are uniquely positioned to make the case to policy makers and the public that the health cost of doing too little is too great, and the near-term and localized health benefits and equity benefits of climate solutions can far outweigh the burdens of rapid change.

Please note that this backgrounder is meant to be

illustrative of evidence for health benefits of climate solutions. It is not intended to be a systematic review of the literature on health co-benefits of climate solutions, nor a comprehensive presentation of all areas where climate solutions are needed. For example, while much can be done to lower emissions in manufacturing and health systems, these are not covered here.

That said, this Medical Promise report makes the case that tackling climate change, quickly and ambitiously, presents us with a tremendous opportunity not only to protect our long-term health, but to improve our health now. Whether we are talking about adapting to the climate change that is already happening, or mitigating climate change by reducing heat-trapping pollution, climate action is not just about a future we **need** to create. It's about a future we **want** to create.

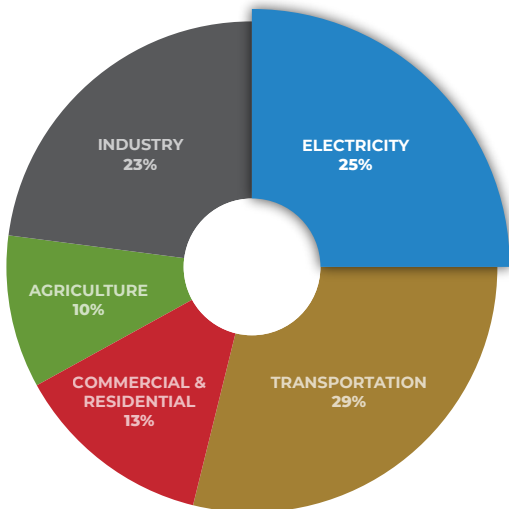


THE HEALTH PROMISE OF CLEAN, RENEWABLE ELECTRICITY

THE CLIMATE AND HEALTH PROBLEM

Burning fossil fuels to generate electricity is the source of more than a quarter (25%) of all heat-trapping pollution in the United States.⁸ In 2019, a total of 61% of electricity in the U.S. came from burning fossil fuels, mostly natural gas (38%) and coal (23%), which release pollution that traps heat and degrades air quality.

**TOTAL U.S. GREENHOUSE GAS EMISSIONS
BY ECONOMIC SECTOR IN 2019**



DATA: U.S. Environmental Protection Agency (2021).
Inventory of U.S. Greenhouse Gas Emission and Sinks: 1990-2019

Along with increasing heat-trapping emissions, the air pollution created by burning fossil fuels is a major contributor to suffering and early death from cardiovascular, respiratory and other diseases. Air and water pollution from burning fuel to generate electricity, power industry and move traffic is harmful to people's health, particularly to the health of those who live in densely populated regions.⁷

Moreover, recent research has also shown that air pollution and toxic chemicals released from burning fossil fuels can cause higher rates of neurodevelopmental delays, attention deficit disorders, learning difficulties, and is associated with autism in babies and children, even when the exposure occurs before birth.^{9,10,11}

Global warming makes air pollution even worse by increasing ground-level ozone, a harmful pollutant.

*Changing to clean, renewable energy
will clean our air and produce
immediate health benefits.*



THE HEALTH PROMISE OF CLEAN, RENEWABLE ELECTRICITY

In the 21st century, we should no longer accept the harms of breathing fossil-fuel pollution to generate the electricity to run the United States. We now have technology that can be scaled rapidly to meet all of America's electricity needs affordably with clean, renewable non-combustion energy. In addition to the long-term health benefits of avoiding the worst of climate change, the immediate benefits of switching to clean, renewable electricity will be profound.

1 **We will quickly be rewarded with improvements in our health.** Changing to clean, renewable energy will rapidly help us clean our air and water, and will produce immediate health benefits in the form of reduced illness, health care costs and early deaths. A clean energy standard (CES), which would outline an obligation to get 80% carbon-free power to consumers by 2030 would save an estimated 317,500 lives in the U.S. over the next 30 years because of a significant reduction in air pollution.

Black Americans, who are often exposed to more pollution due to highways and power plants situated in communities of color, would see the biggest air quality improvements. The standard would also help save \$1.13 trillion in health costs, according to a report by Clean Energy Futures.¹²

2 **We will have more affordable electricity and lower healthcare costs.** Switching to clean, renewable energy is already affordable, and the cost is dropping rapidly every year. **Over the last decade, the cost of renewable sources of solar and wind power has dramatically decreased.**¹³ The increased use of clean renewable energy and the decreased use of coal-fired power plants, the most polluting of the fossil fuels, has resulted in improved health and lower health care costs.

3 **We will create more secure, well-paying jobs and experience the health benefits of economic security.** While we all see good jobs as a positive thing for many reasons, a health lens provides a benefit of great value: Having a good job is good for our health.



FULFILLING THE PROMISE FOR EVERYONE

The path to fulfilling the health promise of producing clean, renewable electricity includes three key actions:

1 Stop investing in energy produced by fossil fuels. Climate change and pollution from fossil fuels are already harming people. We need to stop making the problem worse. We cannot meet our climate goals and reduce the current harms of fossil-fuel pollution if we fund or enable infrastructure and programs that accelerate climate change, worsen health harms and exacerbate health inequities.

2 Invest in and support clean, non-combustion renewable energy. We need a rapid transition to clean, safe, renewable energy if we want to reduce the health threats of catastrophic climate change and reduce the toll of asthma and lung disease, heart disease and harmful outcomes for babies and their mothers including the detrimental impacts on the brain development of children resulting from fossil fuel combustion.

3 Make the transition fair to everyone. We must put a priority on helping people who have been unfairly exposed to pollution, people who are not currently able to meet their energy needs (those with “energy insecurity”) and people who have depended on producing energy from fossil fuels as their livelihood.



VIRGINIA DOCTORS MAKING A DIFFERENCE ON THE HEALTH PROMISE OF CLEAN ENERGY

In 2020, Virginia passed the Virginia Clean Economy Act (VCEA), becoming the first southern state to commit to a 100% carbon-free electricity grid by 2050. This landmark legislation established a Renewable Portfolio Standard (RPS) which requires closure of nearly all coal-fired plants in the state by the end of 2024. The VCEA also removed barriers to increased investments in solar and off-shore wind generation, improved energy-efficiency standards, and, perhaps most importantly, set the stage for Virginia to join the Regional Greenhouse Gas Initiative (RGGI) in 2021. RGGI is an 11-state regional carbon cap and trade program.

The proceeds generated from RGGI in Virginia are required to be reinvested with a focus on equity. Half the revenues are allocated for energy-efficiency programs for low-income communities. Another 45% will be spent on flood resilience for coastal communities, with at least 25% of that also allocated towards low-income communities.

While Virginia's public health benefits of the VCEA have yet to be quantified, a study found that RGGI states broadly have reduced carbon and other harmful pollutants resulting in \$5.7 billion in health benefits in just the first 5 years of the program.¹⁴

Virginia Clinicians for Climate Action (VCCA) was instrumental in bringing the public health voice to the coalition of organizations advocating in favor of this bill. Support for joining RGGI was one of VCCA's first advocacy goals beginning in 2018. Over the three years during which RGGI was considered in Virginia, VCCA members participated in hearings and forums, submitted public comments, wrote news opinion pieces, held educational conferences, and participated in direct education and advocacy with legislators.

VCCA was founded in 2017 to build a network of clinician leaders advocating for climate change solutions that protect the health of their patients and communities. From a group of ten passionate doctors, respiratory therapists and pharmacists, VCCA has grown to over 450 clinician and health trainee members across the state.



Members of VCCA advocate for climate solutions

In 2021, Virginia elected a new Governor who opposes RGGI. But one house of the legislature remains in the hands of those who support it. Despite the political change, it is not likely that Virginia will withdraw from RGGI.

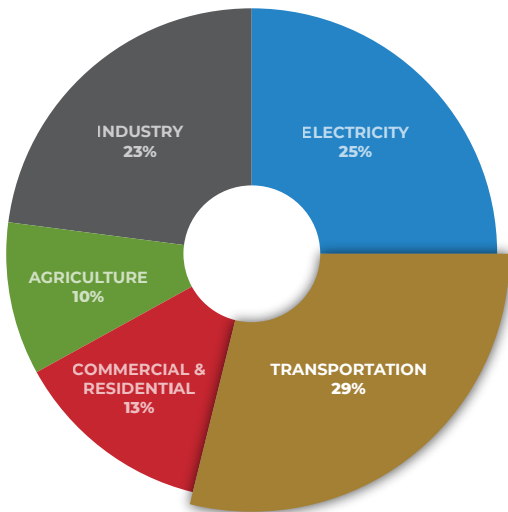


THE HEALTH PROMISE OF CLEAN AND ACTIVE TRANSPORTATION

THE CLIMATE AND HEALTH PROBLEM

In the United States, transportation is now the leading source of heat-trapping pollution, accounting for 28% of these emissions.¹⁵ In addition to causing climate change, air pollution from burning fossil fuels to power cars, buses, trucks, trains and airplanes is also seriously harming our health in other ways. It has long been known that exposure to air pollution created by burning fossil fuels can lead to or exacerbate heart disease and early death, lung disease, diabetes, cancer and even depression and osteoporosis.^{16,17}

TOTAL U.S. GREENHOUSE GAS EMISSIONS BY ECONOMIC SECTOR IN 2019



DATA: U.S. Environmental Protection Agency (2021). Inventory of U.S. Greenhouse Gas Emission and Sinks: 1990-2019

Recent studies have also found that air pollution and toxic chemicals released when fossil fuels are burned, primarily in electricity production and transportation, can cause delays in infant development, reduced IQ, attention deficits, learning

difficulties, behavioral problems and autism in children, even when the exposure occurs before birth. Research reveals that the exposure to heat and environmental pollutants exacerbated by climate change are also having an adverse impact on pregnancy outcomes (prematurity and low birth weight) in the United States.

Additional health harms associated with our current transportation system that depends largely on privately owned cars include sedentary lifestyles (which contribute to obesity, heart disease, diabetes and other illnesses) and the stress associated with traffic congestion and noise pollution.¹⁸

Reforming our transportation system in ways that reduce vehicle emissions and the length and frequency of trips is both a path to solving climate change and to improving health.

Making streets safe for biking, walking and wheeling improves health.



THE HEALTH PROMISE OF ACTIVE, LOW-CARBON TRANSPORTATION

Transportation is integral to our lives. It is how we get to work, to school, to essential services (including health services), to the places we enjoy and to the homes of our friends and family. Getting to these destinations is essential to our health and well-being. However, if we can get there in ways that dramatically reduce or even eliminate air pollution and heat-trapping gasses, fewer people will suffer poor health. Steps we can take include increasing the use of public and shared transportation, increasing fuel efficiency and thus burning less, switching to “low-/no-emissions vehicles” and encouraging and supporting active transportation (e.g., walking and cycling). The good news is that these steps will all be steps toward better health.

Creating better transportation habits starts with recognizing that everyone needs equitable access to healthier, low-carbon and physically-active choices. This requires making land use, urban design and zoning decisions to create vibrant, walkable communities that reduce sprawl and the need to travel long distances for day-to-day needs like shopping, school or work. It also includes investing in public transportation systems that are safe, affordable and accessible to all, and “complete streets” that ensure the safety of all who use them — whether they are driving, walking, biking or rolling to their destinations.

Some illustrative research includes:

- In a review of 148 United States cities, Frederick et al. (2018) found that providing a wider range of ways to get around reduces obesity and physical inactivity. Populations living in counties with more transportation options

beyond cars saw lower obesity rates (25.2% vs 30.8% in automobile-dependent counties), fewer physically inactive residents, and improved health outcomes compared to populations in automobile-dependent counties.¹⁹

- Investing in active travel infrastructure has been estimated to significantly improve active travel rates.²⁰ Along with providing more options, encouraging active transportation contributes to a more physically active lifestyle and lower body mass index (BMI).²¹

We can continue to take advantage of the technological innovations that have paved the way toward improving fuel efficiency and the electrification of vehicles for personal, public and commercial vehicles.

Increasing use of public and shared transportation will lower emissions and improve health.



The good news is that reducing heat-trapping pollution in these ways will not only help reduce the health harms and risks of climate change, but will rapidly improve our own health and the health of people in our communities.



FULFILLING THE PROMISE FOR EVERYONE

Responding to the challenge of creating a healthy transportation system for everyone begins with understanding the deep, historical and continuing inequities in exposure of ethnically diverse and socioeconomically deprived communities to traffic-related air pollution (TRAP).

- Black and Hispanic communities are exposed to more air pollution (PM_{2.5}) than they produce, while non-Hispanic Whites are exposed to less air pollution than they produce. These disparities are associated with minority neighborhoods being situated close to high traffic volume roads.²²
- A national study of public schools in the US found that students attending school environments that exposed them more to ambient neurotoxins were more likely to be Hispanic, Black or Asian/Pacific Islander than White or another race.²³

Inequitable exposure to the air pollution risks of our current transportation system is simply the one of the most visible of a long list of health-threatening inequities suffered by Black, Indigenous and People of Color (BIPOC) communities, including greater risk of pedestrian injury from dangerous roads, less access to green space, affordable public transit, recreational activities and more exposure to noise and heat — all created by unfair transportation decisions that reveal disregard for local residents.

Four key actions include:

1 Invest in increased active and public transportation and other non-polluting ways to get places — walking, bicycling and wheeling. Make streets safe for biking, walking and wheeling while reducing pedestrian and bicyclist injuries.

2 Make things easier for non-drivers. Make it easy for the millions of Americans who cannot drive or do not own cars to get to their jobs, health care and essential services critical for health by walking, bicycling, wheeling and using public transportation.

3 Electrify everything. Electrify transportation by investing in the transition of transit vehicles, school buses and freight vehicles to domestically-produced zero-emissions vehicles. This requires also investing in an accessible electric vehicle charging infrastructure.

4 Address inequities. Communities of color and those home to people with lower incomes have unfairly lived with more traffic-related health threats. These include greater exposure to air pollution, greater risk of pedestrian injury from dangerous roads, less access to green space, unaffordable public transit, and more exposure to noise and heat. These deficiencies were largely created by unfair transportation policies and decisions.²²

BAY AREA AIR DISTRICT'S CLEAN CARS FOR ALL PROGRAM

The Bay Area Air District has relaunched its *Clean Cars for All* program, with more than \$8 million available for qualified residents to purchase a clean-air vehicle. *Clean Cars for All* is part of California Climate Investments, a statewide initiative that puts billions of cap-and-trade dollars to work reducing greenhouse gas emissions, strengthening the economy and improving public health and the environment — particularly in disadvantaged communities.



The program provides up to \$9,500 for income-qualified members of communities disproportionately affected by air pollution to retire older vehicles and replace them with a new or used hybrid, plug-in hybrid, electric, or fuel-cell vehicle — or get a transit card or e-bike. Additionally, up to \$2,000 in funding is available for home-charging equipment and installation for purchasing a plug-in hybrid or electric vehicle.

The Bay Area Air District launched the program in March of 2019 as part of a broad effort to make clean-air vehicles affordable options for residents across the Bay Area. Equitable access to clean-air vehicles also ensures that all residents benefit from lower fuel and maintenance costs as well as the improved driving experience. The California Air Resources Board (CARB) has recently awarded the Air District an additional \$8.33 million to continue support for this program.

As of October 30, 2021, the Bay Area Air District's *Clean Cars for All* program has provided nearly \$15.7 million in funding to retire 1,832 vehicles and replace them with cleaner vehicles or mobility options (public transit and electric bicycles). These projects are expected to reduce carbon monoxide, lead, nitrogen dioxide, ozone, particulate matter (PM), and sulfur dioxide (SO₂) emissions — known as criteria pollutants — by an estimated 17.18 tons per year, including 6.74 tons of reactive organic gasses, 10.37 tons of nitrogen oxides, and .065 tons of particulate matter (PM₁₀). It also reduces emissions of carbon dioxide (CO₂) by 4,308 tons per year.



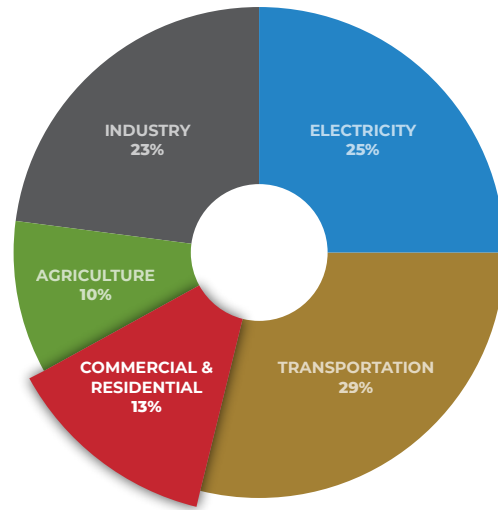


THE HEALTH PROMISE OF HEALTHY BUILDINGS AND HOMES

THE CLIMATE AND HEALTH PROBLEM

We live much of our lives indoors: in our homes, office buildings, restaurants and stores. In fact, on average we spend 87% of our time indoors.²⁴ Our homes and commercial buildings contribute 13% of our heat-trapping pollution (greenhouse gas emissions). This comes from the fuel we use indoors through heating and cooking, air conditioning and refrigeration, and the waste we send to landfills and wastewater treatment (both are sources of methane) outside our homes.²⁵ When we look at the total greenhouse gas emissions that result from buildings, including the materials that went into building them, those structures are responsible for nearly one third (32%) of all heat-trapping emissions.²⁶

TOTAL U.S. GREENHOUSE GAS EMISSIONS
BY ECONOMIC SECTOR IN 2019



DATA: U.S. Environmental Protection Agency (2021).
Inventory of U.S. Greenhouse Gas Emission and Sinks: 1990-2019

*Replacing gas stoves with
induction stoves eliminates
indoor air pollution from
natural gas.*

THE HEALTH PROMISE OF CLIMATE-SMART BUILDINGS AND HOMES

Using affordable methods that are available today, buildings can be designed and built — or retrofitted — in ways that save energy, reduce emissions of heat-trapping pollution, improve the health of people who use the buildings and reduce costs.^{27,28}

Some proven ways to achieve a triple bottom line of reducing energy waste, saving money, and improving health include:

- Switching to energy-efficient indoor appliances and lighting, such as those that qualify as part of the EPA's Energy Star program; this reduces outdoor air pollution.
- Properly insulating buildings and using modern HVAC (heating, ventilation and air conditioning) systems to improve ventilation, air filtering and indoor air quality.
- Using landscaping that creates shade to cool buildings and roofs that either reflect more sunlight or are green rooftops to reduce energy used for air conditioning and “heat island” effects.²⁹
- Designing buildings so that they use natural light to the extent possible, rather than artificial lighting, which reduces energy waste.
- Replacing gas stoves with induction stoves to eliminate indoor air pollution from natural gas, and reduces outdoor air pollution too.
- Creating better stairways which encourage people to be physically active and use the elevator less.
- Building with sustainable materials that reduce outdoor air pollution.
- Providing parking places for bicycles and EV charging stations at commercial buildings and creating better links to public transportation

systems to help people to be physically active and reduce air pollution from vehicles.³⁰

In addition to health benefits, many approaches to energy efficiency save money:

- Air conditioning costs can be decreased up to 20% annually by planting deciduous trees along the south-facing sides of buildings.
- Winter heating expenses can be reduced by planting conifer trees to block northern winds.
- Green roofs, which are partially or completely covered with vegetation, can decrease the cost of cooling buildings in summer, insulate buildings better during the winter and reduce air pollution.³⁰

Through better health and reducing illness, research shows that improving indoor air quality could result in annual savings of:

- \$6–14 billion from reduced respiratory disease.
- \$1–4 billion from reduced allergies and asthmatic symptoms.
- \$10–30 billion from reduced syndromes associated with discomfort and acute health effects from time spent inside unhealthy buildings (broadly known as “sick-building syndrome”).³⁰

Additionally, improved worker productivity that results from the healthier indoor environment is estimated to yield \$20–160 billion.³⁰



FULFILLING THE PROMISE FOR EVERYONE

We can deliver the promise of healthy buildings by making investments that reduce greenhouse gas emissions, help communities prepare for and be more resilient in the face of the impacts of climate change, and ensure that homes, schools, hospitals, and community buildings will provide safe and healthy environments in a rapidly changing climate. Key actions we can take include:

1 Reduce the energy-cost burden for low-income households. Programs like the Low Income Home Energy Assistance Program (LIHEAP) and the Weatherization Assistance Program (WAP) can help with weatherization, energy retrofits, energy efficiency and targeted energy assistance, especially in communities of color, multi-family housing and low-income households.^{31,32} The programs to make buildings more energy efficient also provide proper ventilation so as to avoid harming health through effects like “sick-building syndrome.”

2 Support community resilience hubs. These are buildings that protect against the health impacts of climate-related extreme weather such as heat and wildfire smoke events, and can coordinate services and resources after natural hazard events.

3 Invest in clean energy for homes and invest in “cool” buildings. Provide tax incentives or rebates to homeowners, landlords and businesses to purchase appliances that can be powered without burning fossil fuels. Invest in cool and green roofs, cool pavements and greening to reduce risks from the urban heat island, while quickly relieving the pressing need for intensive use of air conditioning.

4 Address the big picture on housing. All efforts to reduce the role of emissions from housing must be done in ways that fully align with efforts to provide more affordable housing and reduce energy poverty.



PUSH BUFFALO: CONNECTING PEOPLE TO ENERGY AND POWER

In Buffalo, New York, both long-time residents and more recent immigrants who have resettled to the city over the past two decades now call the city home. They have raised families, launched new businesses and celebrated Buffalo's long and rich history. The city's housing, among the oldest stock in the country, reflects a range of architectural styles and is built around parks and neighborhoods designed by Frederick Law Olmsted, the famed landscape architect behind Central Park.

Like many Rust Belt cities, Buffalo experienced significant economic decline when industries left over the course of several decades at the end of the 20th century. Much of the housing fell into disrepair as incomes and investments declined over the years.

The community and the team at **People United for Sustainable Housing** (PUSH) are working to mobilize residents to improve access to quality, affordable housing, increase employment opportunities and advance equity.

PUSH Green

Among many programs, PUSH Buffalo runs PUSH Green, an initiative in partnership with the New York State Energy and Research Development Authority (NYSERDA) that focuses on the homes of residents with low-incomes. PUSH works with homeowners and renters to help them make their homes healthier and more affordable to maintain through reduced heating and electric bills. The program provides energy-efficiency

audits, education to homeowners on how homes work and energy saving strategies, and provides home improvements — like better insulation, air sealing to prevent heat loss and upgrades to create energy-efficient HVACs.

The result is lower heating and cooling bills, and healthier homes with more comfortable indoor temperatures and less mold, dust, and lead exposure. Given the critical role that our homes play in our health, the benefits are clear. Additionally, the program hires local contractors and helps connect residents with job training in these skills to create an employment pipeline in green improvements.

To date, PUSH Green has reached more than 700 homes.



PUSH Buffalo's Climate Carnival

This work is not just about housing; it is also a climate and health solution. Reducing demand for energy reduces greenhouse gas emissions and air pollution from burning fossil fuels that harms the health of all. And as climate change increases more extreme heat waves, cold snaps, rainfall and storms, the importance of safe, secure homes grows even greater.



THE HEALTH PROMISE OF HEALTH-SUPPORTING COMMUNITY ENVIRONMENTS

THE CLIMATE AND HEALTH PROBLEM

The opportunities to live a healthy life is shaped by where we live. Whether we have access to stores, healthy and affordable food, safe places to relax and exercise, determines our opportunities to maximize our physical and mental health. Our outdoor public spaces also help us maintain the social bonds that facilitate personal and community empowerment and resilience in the face of crises that threaten our health and safety.

Climate change makes it riskier to be outdoors in our communities. We are experiencing — and will continue to experience — more days of record-breaking heat, high humidity and more extreme weather events. Extreme heat causes air quality to deteriorate and can lead to heat-related illness and death. Some chronic diseases, like asthma, lung and heart and kidney conditions can get worse. These harms are especially great for those mentioned in previous sections — older adults and children, people of color, people with lower incomes and those who are pregnant³³ — as well as people experiencing homelessness, outdoor workers, city dwellers, people who lack air conditioning and student athletes. In addition to more extreme heat and heat waves, many communities will face increased risk of flooding due to heavy downpours, major storms and, in coastal areas, rising sea levels.²⁴

Considering these ongoing threats to our health, we need to design our outdoor spaces to protect our health and safety from the warming effect we can no longer avoid, help reduce emissions and make nature our ally in sequestering carbon from our atmosphere. Nature as an ally can also help us withstand the increasing number of heavy rainstorms.

Planting trees can combat the “urban heat island” effect.




THE PROMISE OF “COMMUNITY GREENING” — CREATING A HEALTH-SUPPORTING COMMUNITY ENVIRONMENT

Responding to climate change by creating healthy neighborhoods is a triple-win health promise. First, it will help us be more resilient to the health risks of the warming we can not avoid. Moisture from trees, bushes, and other greenery evaporates and cools the air adding to the benefit of the shade. Greenery helps us reduce emissions because less energy will be required for air conditioning and growing plants sequester carbon that reduces future warming — and lower the health risks that go with it. Community greening delivers immediate benefits to our health, economic and social well-being. Here are some examples:

- Planting trees, turning concrete surfaces back to greenspace and landscaping can combat the “urban heat island” effect. Areas with fewer trees and more pavement and concrete end up trapping and warming communities more significantly than other nearby greener neighborhoods.

This can be improved by planting trees and creating green spaces around buildings and parking lots. Shaded surfaces may be 20°-45°F cooler than unshaded surfaces.³⁴

- Creating green infrastructure, such as retention ponds, permeable pavements and rain barrels, can reduce the risk of stormwater runoff, flooding and water shortages by improving stormwater retention.³⁵
- Ensuring our communities provide spaces for recreation, relaxation and social engagement can improve mental health and increase physical activity.^{36,37,38}



Communities with green spaces for recreation and relaxation can improve mental health and increase physical activity.

FULFILLING THE PROMISE FOR EVERYONE

We can deliver the promise of healthy outdoor environments by making investments in parks and greenspace, trees and urban forestry, and green infrastructure to improve air and water quality, dramatically reduce heat exposure, encourage physical activity and provide benefits to community cohesion and mental health. Water management through improved green and built infrastructure can contribute. Three key actions include:



1 Improve access to community greenspace. Right now over 100 million Americans do not have access to a quality park or greenspace within 10 minutes of their home.³⁹ We should target investments in tree- and park-poor communities, low-income communities, and communities suffering from heat islands. We can expand funding for tree canopy and urban forestry, parks, green school yards and green infrastructure.

2 Ensure access to clean and affordable drinking water for all. We should ensure that our wastewater and stormwater infrastructure are adequate to meet the rising threats of climate change. Our aging water infrastructure leaves many communities vulnerable to climate-related drought and to flooding and associated infectious disease threats. Three priorities are to: 1) Ensure access to clean and affordable water for everyone and protections for communities vulnerable to drought; 2) Ensure that wastewater and stormwater infrastructure is adequate to protect people from the rising risk of floods; and 3) Prioritize the use and inclusion of green infrastructure.

3 Focus on addressing inequities. The hottest neighborhoods, those most likely to suffer the heat-island effect, are those where “redlining” and other discriminatory housing policies segregated communities along racial lines. We should prioritize investing in and empowering those who have experienced the impacts of intentional disinvestment. We should also protect them against “green gentrification,” which often occurs when improvements to a neighborhood attract new residents with higher incomes and displace residents with lower-income and those who have lived there for years. The first principle of creating climate-smart, healthy neighborhood environments that are home to majority people of color is to ensure that the efforts are driven by the residents who live there and that the residents are the ones who benefit from the change.^{40,41}



ALL KIDS NEED GREEN SCHOOLYARDS

In 2019, researchers with the UTHealth School of Public Health and Austin Parks & Recreation partnered on the **Green Schoolyards Project** to better understand how heat and schoolyard design impacted opportunities for children in Austin, Texas, to be active outside. They set out to determine how green features like trees, gardens and nature trails at three elementary school parks in Austin impacted ambient temperatures within parks and patterns in physical activity. The children attending these schools, who are mostly Latinx and from lower-income households, often have less access to nature than children at other Austin schools who are more likely to be White or economically advantaged.^{42,43} They are also likely to live in areas characterized by urban heat islands due to discriminatory policies (e.g., redlining) and ongoing disinvestment.⁴⁴ As Austin sees more days with extreme temperatures, unequal access to cool parks to engage in physical activity outdoors and reap the physical, mental and social health benefits may deepen existing health disparities.

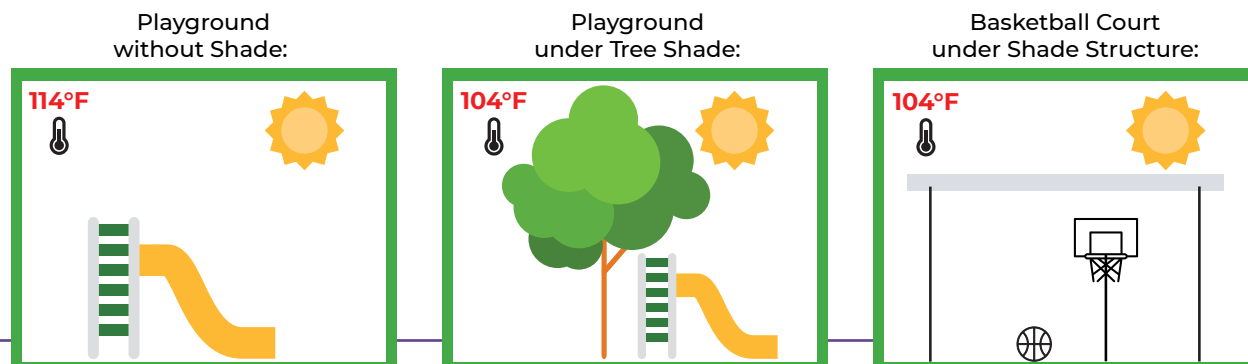
Data collection for the Green Schoolyards Project occurred over six total school weeks: two warm weeks in September and one cooler week in November, first in 2019 and again in 2020. Researchers installed 10 weather stations evenly throughout each park to record heat index (i.e., combination term of air temperature and relative

humidity that captures how it really feels), and measured green features by processing aerial imagery within GIS. Researchers systematically observed children's park use four times per day and tasked approximately 40 third-graders and 40 fourth-graders per school to wear an elastic belt equipped with an accelerometer and GPS unit during recess.

In 2019, maximum heat index at one of the parks ranged from 103°F at a playground under tree canopy to 114°F on an unshaded playground — two sites less than 50 meters apart. Researchers observed 10% more girls and 25% more boys under tree canopy in September than November (average daily maximum temperature: 96°F versus 75°F), potentially seeking shade as refuge from heat. As temperatures increase, the percentage of time during recess being sedentary increases and engaging in moderate and vigorous physical activity decreases, yet at times, shade at playgrounds, fields, and basketball courts resulted in less time being sedentary and more time engaging in physical activity during high temperatures compared to cooler temperatures.

The Green Schoolyards Project findings can provide the needed evidence to make the case that, in a warming world, greening schoolyards (e.g., tree planting) and changing school policy (e.g., scheduling recess for thermal comfort) can be important health, equity, and climate solutions.

Maximum heat index reached at sites within Barrington School Park, September 16-30 2019



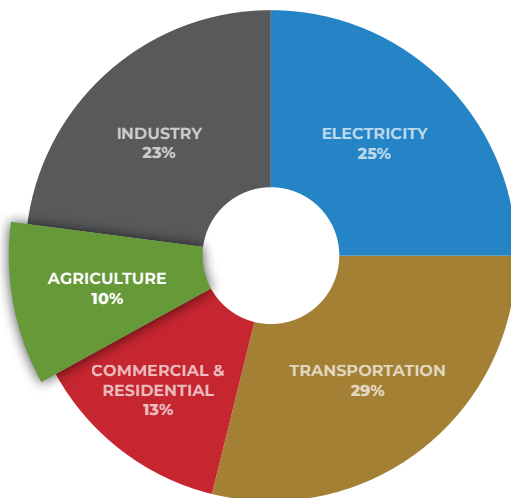


THE HEALTH PROMISE OF CLIMATE-SMART FOOD AND FOOD SYSTEMS

THE CLIMATE AND HEALTH PROBLEM

As climate change reshapes our communities and our health, it is also changing how we grow and consume food. Climate change warms rivers, lakes and oceans, leading to heavier downpours, rising sea levels, and flooding, which can contaminate the water we use to drink, fish and recreate. The harvests that come from these waters, including fish and shellfish are threatened, leading to lost economic security, contaminated food and poorer health.⁴⁵

TOTAL U.S. GREENHOUSE GAS EMISSIONS BY ECONOMIC SECTOR IN 2019



DATA: U.S. Environmental Protection Agency (2021).
Inventory of U.S. Greenhouse Gas Emission and Sinks: 1990-2019

These increased floods and droughts and changing temperatures also threaten livestock and ground crops and may lead to contamination of plants that make up our food supply.⁴⁵

Finally, rising levels of carbon dioxide in the air and related environmental changes can also make the food we grow less nutritious, making it harder to feed people here and around the world.⁴⁵

As climate change threatens our food system's ability to make and provide access to nutritious food, the food system — how we grow, transport and store foods — is also contributing to emissions. Excluding greenhouse gas emissions (GHG) from transporting our food, the way we grow our food is itself responsible for 10% of heat-trapping pollution in the United States, with the bulk originating from soil handling and meat growing. What we eat and how we grow our food is, in turn, influenced by the trends and policies that influence farmers' decisions about what crops to grow (e.g. subsidies and incentives) and how to grow them (e.g., regulations, and promotion of inputs). Trends and policies also influence what foods we consume (e.g., educational programs, marketing practices, access and affordability).

Climate change is harming the ability of our food system to keep us healthy. And, our food systems are contributing to climate change. As described in the EAT-Lancet report (Healthy Diets From Sustainable Food Systems) our goal in the age of global warming should be to achieve healthy diets from sustainable food systems.⁴⁶

THE PROMISE OF HEALTHY FOOD AND FOOD SYSTEMS

Moving toward healthy diets and healthy food systems both benefit health and reduce heat-trapping pollution. Here's how three key climate strategies can improve health:

1 Plant-forward diets reduce emissions and promote health. If we increase consumption of plant-based food, we will be eating a healthier diet and contributing less to global warming. This can be achieved by making these foods more available, accessible and affordable in place of less healthy alternatives. Research shows that GHG emissions associated with food consumption are currently expected to increase by 51%, globally, from the baseline measure in 2005/2007 to the year 2050. A move toward consuming less animal-based foods could reduce that increase in GHG emissions from 51% to 7%.⁴⁷ The same research review projected that adoption of healthy dietary guidelines incorporating these changes would result in 5.1 million avoided deaths per year globally and 79 million years of life saved due to reductions in coronary heart disease, stroke, cancer and Type 2 diabetes.⁴⁷ Shifting diets is one of the most easily accessible and high impact measures individuals and countries can take.

2 Climate-smart agricultural practices reduce emissions and promote health. Shifting agricultural priorities toward producing a diversity of foods that nurture human health can also reduce GHG emissions. One example of this shift is known as regenerative agriculture, which includes such practices as growing more than one type of crop on a farm, rotating what is grown where, reducing use of nitrogen-based synthetic

fertilizer and pesticides, restoring soil and land health, and using water more efficiently. These practices have been shown to reduce emissions while making the soil more productive, less prone to erosion and more capable of storing the carbon that would otherwise stay in the atmosphere and warm our atmosphere.⁴⁸ Reducing nitrogen based fertilizers is beneficial because the nitrogen combines with the oxygen in the air and forms nitrous oxide — a potent greenhouse gas — and the fertilizer washes into waterways and nurtures algae growth which reduces dissolved oxygen in the water that should support fish.

3 Reducing food loss and food waste reduces emissions and improves access to food. In 2011, the Food and Agriculture Organization of the United Nations estimated that globally 31% of food is “lost” or “wasted.” “Food loss” occurs before the food reaches the consumer and is related to problems in food production, storage, processing and distribution. “Food waste” refers to good quality food fit for consumption that is consciously discarded by retailers and consumers. Reducing food waste and food loss would reduce the cost of food and the emissions associated with food production, processing, distribution and disposal. Remedial actions include improving how we harvest, store, transport, sell food — and compost wasted food — as well as how consumers use the food they buy.⁴⁹



FULFILLING THE PROMISE FOR EVERYONE

We can deliver the promise of healthy and sustainable food and agricultural systems by embracing these three climate strategies for growing and harvesting our food. We need to implement these changes in ways that address the health impacts felt by those working in or living near agricultural production. Our priorities can include:

1 Reduce the health harms from inequitable exposure to toxic emissions and pollution.

People with low incomes and people of color are more likely to live or go to school near concentrated animal feeding operations. This practice, a part of large-scale industrial farming for meat, eggs, or milk, releases toxic emissions and pollution and contributes to antibiotic resistance in local communities, making them more susceptible to health harms.⁵⁰

2 Reduce the health harms to agricultural workers. Agricultural workers' increased health risks associated with agricultural work include lung diseases, skin diseases, and cancer. Their families are also at risk of illness from "take home pesticides."⁵¹ Switching to regenerative agriculture decreases exposure to these toxic chemicals for agricultural workers. It also improves soil health and produce quality, reduces climate change, makes farms more resilient to flood and drought, and decreases pollution of water for drinking and fishing.⁵²

3 Increase access to affordable, healthy foods. A shift in the food that is produced, along with intentional policies from the government can also address a number of problems related to affordability and access to food. We can:

- **Eliminate "food deserts" — places where healthy, affordable food isn't readily available.** The communities facing these food deserts are more likely to be home to people with low incomes and disproportionately people of color due to a history of policies that disinvested in communities of color. Changing practices and public-private efforts to augment retail food outlets can create more opportunities to access affordable, healthy food options that are often lacking.
- **Eliminate food insecurity. Food insecurity is more common in people of color.** In 2016, 12.3% of U.S. households were food insecure — but this includes 22.5% of Black households and 18.5% of Hispanic households versus 9.3% of White households.⁵² Government investments in food security and nutrition can be crafted in ways that advance equity. For example, investments in healthier school lunch programs that are climate-friendly will benefit students from low-income households and students of color.
- **Support adaptation efforts.** Indigenous communities that practice traditional hunting, subsistence farming and fishing are vulnerable to climate change impacts on game, farming and aquatic habitats, particularly in coastal communities where rising sea levels threaten fishing habitats. They will continue to experience these changes and we must support their efforts to adapt to them.

SWINOMISH HEALTHY AGRICULTURE AND FOOD SYSTEMS

The Swinomish Reservation, home to the Swinomish Indian Tribal Community, is located on Fidalgo Island in Western Washington State. The Swinomish Tribe is descended from and is a successor to tribes that inhabited the Skagit and Puget Sound islands for thousands of years before non-Indian settlement.

The Swinomish has been and continues to be a fishing tribe, with salmon, mussels and clams at the heart of both its economic and cultural life. The lands, waters and the food sources they provide are their wealth and their ongoing legacy.

With a culture intensely tuned to the connection between environment, health and well-being and values that prioritized far-sighted decision-making, the Swinomish recognized that, of all the many challenges they have endured in their long history of economic, social and health inequity, climate change now looms as perhaps the most dire and enduring threat they have faced.

Beginning in 2007, the Swinomish initiated a long-term and comprehensive effort to gauge the multiple effects of climate change on their community and develop an action plan. These effects included assessments of long-term impacts on transportation and vital infrastructure, natural resources and habitat and human and environmental health. Notably, their approach to planning took the established climate resilience planning process — CDC’s Building Resistance Against Climate Change (BRACE) framework — and augmented or, as they say, “indigenized” it.

What resulted is an action plan aimed at preserving a way of life, sustenance and culture of a community that has thrived on hunting, gathering and fishing for hundreds of generations. The focus is on protecting the salmon, mussels and clams that are central elements of their health, wealth, history and culture. The plan’s core strategy, again consistent with a Swinomish culture that places the highest priority on the intergenerational transfer of its knowledge, history and culture, focuses on educating the next generation of tribal members on achieving climate resilience.

The lesson of the Swinomish is that fulfilling the health promise of a climate-sustainable food system must be guided by a process that authentically engages a community to identify its own values and priorities in planning its response to the challenge of climate change.



Swinomish Indian Tribal Community

DELIVERING A POWERFUL CASE FOR URGENT ACTION ON CLIMATE

The Medical Promise Report highlights five key areas where rapid and ambitious changes are needed, with the actions we need to take for our climate. These actions will deliver immediate, often localized, health benefits. Done right, they will also ensure equitable benefits across society. Taken together, these evidence-based recommendations show climate change is both a challenge to protect *AND an opportunity to enhance* the health and safety of our families, our communities and our country. That is the medical promise of climate action.

Health professionals can provide sober warning combined with hopeful promise using their patient encounters combined with their understanding of the evidence for action.

Health professionals' key messages — to elected officials, civic and business leaders and the public — are:

1

As health professionals, we all care deeply about the health and safety of our family, our patients and our community, and we all work hard to ensure their health and safety.

2

We are already seeing the health harms of climate change in our practices and in our communities. Failing to act, delaying action or acting with too little ambition will only ensure these health harms get worse.

3

There are many actions we can take now that will not only be good for our climate but will also make us healthier and safer — almost immediately.

4

Those who stand in the way of us taking rapid and ambitious action on climate are not putting Americans' health and safety first.



We believe that health professions need to feel confident in two factors to engage in the public discussion about climate change:

First, they need to be assured that their message is based on both their own clinical experience and is grounded in science. The evidence of the health and safety harms of climate change we are already seeing in our patients and communities is well-documented and, with each new climate-fueled extreme weather event, more obvious. This report illustrates the substantial evidence for the health benefits of climate solutions.

Second, health professionals need assurance that speaking out on climate will make a difference — that it will influence others. Recent research confirms that this is indeed the case.⁵³ When climate change was framed from the lens of health harms and health solutions in messaging, audiences were moved toward greater willingness to call on elected officials to take action. And, when asked about who they would trust to deliver these messages, health professionals were the most highly rated.

Thankfully, health professionals engaged in climate advocacy is growing rapidly. The stakes of our climate and health require continued mobilization, and as more health professionals join⁵⁴ we encourage the following:

GET INFORMED

While health professionals have traditionally been trained to focus on the treatment and management of illnesses, the tide in medical education is changing, with more medical schools requiring instruction on social determinants of health. The five Medical Promises focus on several of the social

determinants of health — where we live, the food we have access to, how we move around and the air we breathe — that promote health and prevent those illnesses. Every health professional can use the connections between climate solutions, health, and racial justice to talk to others — patients, peers, families and friends — about why climate solutions are critical for improving opportunities for health and justice today and far into the future. The Consortium provides resources on its website that provide more information, as well as links to member societies and allied organizations.⁵⁵

GET ENGAGED

Physicians, nurses and other health providers, along with public health experts, play many roles as family members, friends, members of a faith community, professionals and members of their community. When we take action personally, such as committing to “decarbonizing” our personal lives in the many ways illustrated in this report, many others will learn from our example. Research shows that taking personal action increases our own commitment and leading by example exerts a powerful social influence on all of these audiences.⁵⁶ In their work settings — offices, clinics, hospitals and hospital systems — health professionals can advocate for policy changes to increase energy efficiency, adopt renewable energy sources and low-carbon-footprint supplies and equipment. The health sector employs a large workforce and its operations are energy-intensive: such actions will make a difference in their own right. Its considerable market power will influence practices both within the health industry and among other businesses as well.⁵⁷


ADVOCATE

The Consortium's efforts to organize the medical and health community to influence critical policies at every level (county, city, state, regional and national) are ramping up. We now have the tools in place to help health professionals — individually and collectively — advocate with the public and policymakers for policies aligned with these promises to stabilize the climate and improve health equity. Health professionals are uniquely positioned to communicate that climate solutions promise immediate, localized improvements in health and economic resilience. We can explain the benefits of policies across the wide spectrum of needed changes and advocate persuasively for their adoption. Our roadmap for advocacy — *The U.S. Call to Action on Climate, Health and Equity: A Policy Action Agenda* — can be found at climatehealthaction.org.¹

CLOSING THOUGHT

The goal of climate action should be to limit global warming to 1.5°C (2.7°F) or lower. We know that every fraction of a degree difference in either direction will have enormous consequences for health. We also know that we can make a difference and that now is the time to “go big” to meet that moment. We can and must raise our voices to influence the decisions that will affect health now and for generations to come. We need to make clear to the public and policymakers that, with every step we take, we will be rewarded with better health and a more just society.

Let's fulfill that promise.



Health Professionals' voices can influence decisions that will affect health now and in the future.

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MEDICAL PROMISES SUMMARY

ELECTRICITY PRODUCTION

CLIMATE HARMS

25% of heat-trapping pollution and 61% of electricity come from fossil fuels, mostly from the use of natural gas and coal.

HEALTH HARMS

Burning fossil fuels for electricity exposes people to air pollution and toxic chemicals leading to:

- Cardiovascular, respiratory and other causes of early death.
- Neurodevelopment delay, prematurity, low birth weight, attention deficit disorders and autism in babies and children.

HEALTH BENEFITS

Switching to renewable energy will:

- Rapidly help clean our air and water.
- Reduce illness, health care costs and early deaths.
- Produce more affordable electricity.
- Create more secure, well-paying jobs, which is an important determinant of health.

HEALTH AND EQUITY RECOMMENDATIONS

- Stop investing in electricity produced by fossil fuels.
- Invest in and support clean, non-combustion renewable energy.
- Make the transition fair to everyone – including those who have been harmed most and those whose livelihoods depend on fossil fuel production.

TRANSPORTATION

CLIMATE HARMS

29% of heat-trapping pollution.

HEALTH HARMS

Burning fossil fuels for transportation exposes people to air pollution and toxic chemicals leading to:

- Cardiovascular, respiratory and other causes of early death.
- Neurodevelopmental delay, prematurity, low birth weight, attention deficit disorders and autism in babies and children.

Car-centered transportation leads to sedentary lifestyles which contribute to obesity, diabetes and heart disease and increased stress from noise and traffic congestion.

HEALTH BENEFITS

Switching to “low and no” emission vehicles and supporting active transportation alternatives will lead to improved health by:

- Reducing exposure to air pollution;
- Increasing physical activity and reducing obesity;
- Decreasing stress.

HEALTH AND EQUITY RECOMMENDATIONS

- Invest in increased active and public transportation and other non-polluting ways to get places – walking, cycling and wheeling.
- Make things easier for non-drivers.
- Electrify all possible sources of transportation, including cars, trucks, buses, trains and ships.
- Address inequities of those who have lived with unfair exposure to the pollution, such as from roads and highways.

BUILDINGS AND HOMES

CLIMATE HARMS

Commercial and residential buildings are responsible for **13%** of heat-trapping pollution.

HEALTH HARMS

Energy-inefficient building materials and designs and use of fossil-fuels for cooking, heating and air-conditioning increase indoor and outdoor air pollution, harming health.

HEALTH BENEFITS

Available, affordable approaches to designing, building and retrofitting homes and commercial buildings improve health by reducing exposure to indoor and outdoor air pollution.

HEALTH AND EQUITY RECOMMENDATIONS

- Expand programs like the Low Income Home Energy Assistance Program (LIHEAP) and the Weatherization Assistance Program (WAP) to reduce the cost of energy for low-income households.
- Support community resilience hubs that coordinate services and increase social cohesion in response to extreme weather events.
- Provide tax incentives to support switching to appliances that don't depend on fossil fuels. Invest in "cool" buildings that reduce the "heat island" effect.
- Address the "big picture" issue of the overall lack of affordable housing.

COMMUNITY ENVIRONMENTS

CLIMATE HARMS

Climate change increases health harms in communities and neighborhoods due to:

- Increased exposure to extreme heat and humidity, both directly (heat exposure) and by exacerbating chronic illnesses (e.g., asthma, lung and heart conditions);
- Increased exposure to health and safety harms of flooding from heavy downpours, extreme weather events and sea-level rise.

HEALTH BENEFITS

- Planting trees, and increasing greenspace combats the "urban heat island" effect and the health harms of exposure to extreme heat.
- Creating green infrastructure (e.g., retention ponds, permeable pavements) reduces health and safety risks of stormwater runoff, flooding and water shortages.
- Providing spaces for recreation, relaxation and social engagement can improve mental health, increase physical activity.

HEALTH AND EQUITY RECOMMENDATIONS

- Create more community greenspaces in communities that lack them. Over 100 million Americans do not have greenspace within 10 minutes of their homes.
- Assure that everyone has access to clean and affordable drinking water and sanitation services.
- Ensure that our drinking water, wastewater and stormwater infrastructure are adequate to meet the rising threats of climate change.
- Focus on addressing inequities. For example, the hottest neighborhoods with the greatest "heat island" effects are those which suffered from discriminatory "redlining" practices.

FOOD AND FOOD SYSTEMS

CLIMATE HARMS

Food production is responsible for **10%** of heat-trapping pollution (GHG emissions).

HEALTH HARMS

Climate change threatens the safety, nutritional value and adequacy of the food supply due to:

- Increased flooding which leads to increased food and water contamination.
- Increased droughts, heat and floods leading to reduced livestock and ground crops.
- Increased runoff of fertilizers leading to reduced harvests of fish and shellfish.

HEALTH BENEFITS

- Policies promoting more plant-based diets can reduce emissions and improve health.
- Climate-smart “regenerative” agricultural practices reduce emissions, runoff of fertilizer, and can improve nutrition.
- Reducing food waste and food loss will reduce emissions and make food more affordable.

HEALTH AND EQUITY RECOMMENDATIONS

- Reduce the exposure to toxic emissions and pollution of families living or going to school near industrial farming operations.
- Reduce the exposure of agricultural workers and their families to pesticides.
- Take steps to protect fish habitats and support adaptation efforts of indigenous communities that traditionally rely on hunting, fishing and subsistence farming.
- Increase access to affordable, healthy foods by eliminating “food deserts”, eliminating food insecurity and supporting adaptation efforts of indigenous communities.



The mission of the Medical Society Consortium on Climate and Health is to mobilize and amplify the voices of U.S. doctors, in partnership with public health experts and fellow health professionals, to successfully advocate for equitable climate solutions that protect and promote the health of all people.

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This report was prepared for the Consortium by Robert J. Gould, Mona Sarfaty, Edward W. Maibach, the communications firm Burness, and graphic designer Wendy Cook. The Consortium would also like to thank the Consortium team and Howard Frumkin, Jonathan Patz and Linda Rudolph for their ideas and guidance.