Air Quality and Climate Change Policy Briefs

February 2022

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Achieving justice related to air quality means that all communities can breathe clean and healthy air, no matter where they live, work, or play. To realize clean air for all, the disproportionate burden of dirty and toxic air for low-income communities of color must be addressed, and we must fundamentally change how we generate energy and move people and goods. Furthermore, as our country transitions to clean energy and prepares for climate change, policies must also minimize dangerous pollution for all communities, starting with those already burdened with dirty air, which also significantly overlaps with those who will be most impacted by climate change.

Even though tackling climate change and air quality together maximizes many benefits for all—such as cleaner communities, fewer health risks and premature deaths, and improved climate mitigation, to name a few—the current policy landscape presents several barriers. In this brief, we provide an overview on injustices today, major policy challenges, and key frameworks to consider when crafting equitable air quality and climate policies together.

THE Climate + Clean Energy EQUITY FUND

Snapshot of air quality issues and injustices today

Despite significant improvements in air quality across the country, air pollution remains a serious issue in the United States. The American Lung Association's 2021 annual State of the Air report shares the following facts:[19]

- **More than four in 10 Americans, over 135 million people, are living in places with unhealthy air pollution, particularly ozone (smog) and/or particle (soot) pollution.**

- **Three out of every eight Americans live in counties with the worst levels of ozone, including 28.1 million children and 18.2 million people age 65 or older, who are more vulnerable to increased risk of harm.**

- **The three years covered by State of the Air 2021 ranked among the six hottest years on record globally.**

- **New research shows that exposure to elevated levels of air pollution is linked to worse health outcomes from COVID-19, including higher death rates.**

- **Many cities increased the number of days when particle pollution rose to record-breaking levels and year-round levels increased. Los Angeles remains the city with the worst ozone pollution in the nation.**

- **Certain climate impacts, such as wildfires and increased heat, will exacerbate air quality issues (see Box 2A). Because both climate impacts and air quality issues are inequitably distributed, the cumulative risk to at-risk communities should ring alarm bells.**

19 https://www.lung.org/assets/documents/healthy-air/state-of-the-air/sota-2019-full.pdf

Box 2A:
The effect of climate change on air pollution

Climate disasters can increase poor air quality. The 2021 State of the Air report documented spikes in high ozone days and unhealthy particle pollution episodes related to wildfires and extreme heat, which are exacerbated by the climate crisis.[20] How to adequately plan for and reduce the harm of air pollution from more frequent and unpredictable extreme weather events will be a major question for the coming decades. The effects will not only be alarming, but wildly uneven. For example, farmworkers in rural areas may not have access to inside shelter during increased incidences of poor air quality and heat waves. Climate adaptation measures and air quality policies must work hand in hand to protect our communities adequately.

Increased temperatures—particularly in urban heat islands (areas with dense concentrations of pavement, buildings, and other surfaces that and retain heat, like industrial and commercial areas)—combined with a steady stream of tailpipe emissions from a nearby highway can multiply the threat of smog. Studies show that breathing smog in urban heat islands is several times more harmful than tailpipe emissions alone.[21] Unsurprisingly, low-income communities of color are most likely to live or work near these areas. Addressing this issue requires a holistic look at plans and policies that can both mediate the heat island effect and clean the air, but this issue may not be a priority when policymakers separate air quality and climate change.

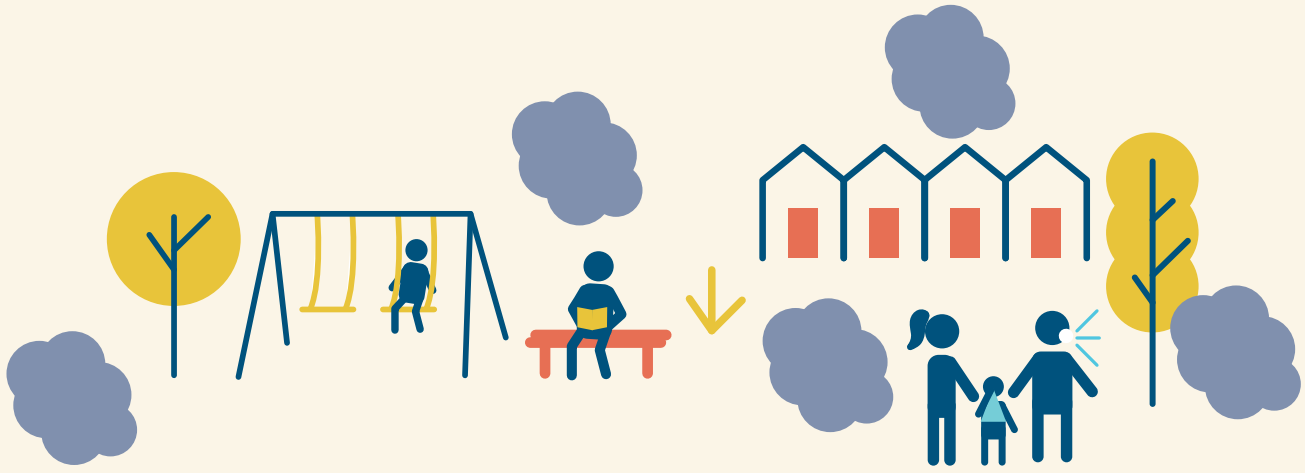
20 https://www.lung.org/research/sota/key-findings

21 https://www.epa.gov/heatislands/heat-island-impacts#emissions

Inequitable pollution burden and health risks

Exposure to air pollution is not distributed equally across geographies, race, or income. Throughout the United States, numerous studies have established the disproportionate burden of pollution that impacts low-income communities and communities of color.

- **People of color are more than three times more likely to be breathing the most polluted air than white people.**[22]
- **Almost 70 million people of color live in counties that received at least one failing grade for ozone and/or particle pollution by the American Lung Association. Nearly 14 million people of color live in counties that received failing grades on all three measures, including 9.7 million Hispanic/Latinx people.**[23]
- **More than 15.8 million people experiencing poverty (according to the federal definition) live in counties that received a failing grade for at least one pollutant.**[24]
- **A 2018 study showed how people experiencing poverty have a 1.35 times higher exposure burden to particulate matter than the overall population and people of color had 1.28 times higher burden. Black populations faced the highest burden: 1.54 times higher than the overall population.**[25]
- **People of color are 2.5 times more likely than white populations to live in an area with dangerous concentrations of nitrogen dioxide (NO_2), which comes from traffic exhaust.**[26]
- **Nearly 30.6 million children under age 18 and 20.1 million adults age 65 and over live in counties that received a failing grade for at least one pollutant.**[27]



22 https://www.lung.org/research/sota/key-findings/people-at-risk

23 https://www.lung.org/research/sota/key-findings/people-at-risk

24 https://www.lung.org/research/sota/key-findings/people-at-risk

25 https://ajph.aphapublications.org/doi/abs/10.2105/AJPH.2017.304297

26 https://ehp.niehs.nih.gov/doi/10.1289/EHP959

27 https://www.lung.org/research/sota/key-findings/people-at-risk

Impacts from poor air quality

Air pollution is a serious health threat. Particles in air pollution can be smaller than $^{1}/_{30}^{th}$ the diameter of a human hair. When inhaled, these particles are small enough to get past the body's natural defenses. Air pollution can trigger asthma attacks, harm lung development in children, and even be deadly.

- **Breathing ozone can irritate the lungs, resulting in inflammation.**
- **Breathing in particle pollution can increase the risk of lung cancer.**
- **Ozone and particle pollution are both linked to increased risk of lower birth weight in newborns.**
- **Overall, exposure to air pollution leads to a range of health impacts, including increased respiratory issues, premature death, impaired lung development, cancer, and cardiovascular disease.**

These health impacts in turn have a range of economic and quality of life impacts, such as lost school- and work-days and increased healthcare costs.[28] Given the disproportionate exposure of communities of color and low-income communities to air pollution, combined with socioeconomic pressures, such as lack of access to health care, negative health impacts consistently show up in alarmingly higher rates among people of color and those with lower incomes.[29]

28 http://www.dnrec.delaware.gov/dwhs/Info/Regs/Documents/alac_impacts_fs.pdf

29 https://www.lung.org/our-initiatives/healthy-air/outdoor/air-pollution/disparities.html

Approaching air quality and climate change separately exacerbates inequities

For communities already bearing the brunt of air pollution, the distinction between climate and local air pollutants is irrelevant: both are causing harm to health and quality of life. Whether these communities are on the fenceline of large stationary sources (like power plants) or alongside freeways clogged with vehicles, the same machinery is releasing both greenhouse gases (GHGs) and air pollutants. At-risk communities often live in pollution "hot spots" where there are high concentrations of both GHGs and health-damaging emissions.

Policy measures targeted at direct emission reductions often hold the most potential to improve localized conditions in low-income communities and communities of color, achieve air quality benefits, and reduce GHGs. But these actions may have higher upfront costs (both economically and politically), and polluters, developers, and even mainstream climate advocates will instead back indirect or compromised solutions that negotiate away air quality gains. Moreover, as covered in **Brief 1**, the tendency to look at all GHG emissions together and seek solutions with the lowest short-term costs can undermine efforts to achieve reductions at direct emission sources. This approach will overlook "hot spots" when GHGs are only tracked at the sector, state, national, or global level.

Overall, carbon reduction as the primary measure of success can be problematic. "Carbon-centric" climate policies[30] will often regard "co-benefits"—such as cleaner air and/or water or public health benefits—as an optional bonus. Or worse, advocates for such policies will argue that carbon reduction must come first, and other long-standing inequities can be dealt with elsewhere or later. This approach leads to increases in local air pollution and health risks in already-burdened communities.

For example, climate policies that allow trading (such as "cap-and-trade" programs) or "net-zero" commitments can result in increased local pollution in areas with poor air quality, despite lowering total emissions in a larger region (see Box 2B). This strategy is particularly devastating to communities living near polluting facilities—they shoulder most of the costs and receive very few climate benefits. This trend is a common consequence of market-based mechanisms, which rely on pricing signals to create incentives to reduce climate pollution, such as a carbon tax. While status-quo advocates might characterize this solution as a mere "trade-off," environmental justice communities have long fought against such inequitable policies.

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30 Policies that use carbon reduction as the primary measure.

Major challenges to crafting policy solutions to address air quality and GHGs

The following points summarize major policy challenges to addressing air quality and climate change:

Local impacts overlooked or negotiated away by mainstream climate policies

- **Many proposed GHG regulations do not look at local emission impacts from specific facilities** that might be driving poor health and air quality issues in communities.
- **Many climate policies include mechanisms like offsets that are designed to keep global carbon emissions below a certain level but may create opportunities for localized emissions to increase.** This strategy can increase air pollution burdens on already-overburdened communities that, most of the time, lack strong political power.
- **Many mainstream climate advocates and economists do not advocate for inclusion of air quality regulations in climate policies**, and sometimes they argue that it is easier to deal with air quality separately from climate change.
- **Industry, state agencies, and even mainstream climate advocates often oppose direct emission reductions**—such as pollution-control equipment, changing fuel sources, and/or changing production levels—as being too costly and complicated to implement. Instead, they may favor market-based approaches. Both traditional climate advocates and industry often argue that market-based mechanisms are more effective and flexible, ignoring the cost to disenfranchised communities that continue to bear the brunt of pollution.

No "across-the-board" solutions for air pollutants

- **GHGs and co-pollutants may require different control technologies.** Control of GHGs are better suited to a fairly straightforward and limited set of options: limiting production, increasing efficiency, changing fuels, or changing how energy is produced. On the other hand, a much wider range of emission-control technologies exists for various air contaminants, but they can be more difficult to install, varying across contaminants and type of operation. As a result, applying across-the-board solutions, particularly for air contaminants, is more difficult.
- **Establishing the target for both localized GHG and contaminant reduction can be a technically complicated process** that often varies from facility to facility and pollutant to pollutant, and this complexity can be used as an argument against enacting across-the-board regulations.
- **Some mobile source emissions can vary depending on the pollutant.** For example, locomotives have fewer GHG emissions but higher nitrous oxide and particulate matter emissions, creating a greater health risk. The reverse is true for liquified natural gas vehicles, which have lower particulate matter emissions but higher methane emissions.

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Poor implementation, due to bureaucratic roadblocks and/or industry pressure

- **Even when there is strong language requiring air quality co-benefits and protections in low-income communities**, the implementation can be inadequate due to bureaucratic roadblocks or industry pressure. For example, in California language in policy protects environmental justice communities, but implementation has been stalled by recalcitrant state agencies and industry lobbying.[31] In addition, the language related to protections can be vague and hard to enforce.
- **Similarly for direct emission reductions, many state or local agencies are often susceptible to industry pressure or are under-resourced and will often fail to enforce a policy**, sometimes intentionally. In other cases, despite long-standing violations of air quality standards, no action has been taken by regulatory agencies.
- **Direct emission reductions can also be susceptible to weakening provisions that prioritize cost over public health or environmental benefits**. Policies often include a cost–benefit analysis or language that allows an agency to determine what is considered "financially feasible" for regulated entities. If the cost is determined to be too high (in other words, not financially feasible), pollution limits will be set higher to accommodate polluters that lobby hard for weakened standards and inflate potential costs of any regulation. These analyses often fail to comprehensively consider the many benefits of reducing harmful pollution.

Limited scope of CAA authority

- **While the Clean Air Act (described in Brief 1) can be used to regulate GHGs, there are ongoing legal questions about what the law actually covers and how effective it is.** Some lawyers argue that the CAA's authority is limited,[32] while other argue that its authority is broad enough to regulate GHGs.[33]

Shortcomings in data and monitoring

- **State and national agencies often have separate databases and systems for tracking air contaminants and GHGs.** This situation creates a technical barrier to monitoring and understanding the link between contaminants and GHGs and to implementing policies that regulate both categories.
- **Air pollution can be locally specific, with different contaminants in different communities impacting relatively small geographic areas.** Understand the levels and sources of different contaminants can require a range of monitoring systems, which can also be expensive.
- **Air contaminants are traditionally regulated on a contaminant-by-contaminant basis**. This fragmented process overlooks the total amount of pollution released as well as spikes in a particular contaminant's emission levels that may have acute health impacts. For example, the EPA examines pollution by type of facilities and equipment separately. A 2021 Propublica report found that a narrow focus on point source pollution vastly underestimates fenceline communities' exposure. When the risk from all the nearby polluting sources is considered together, estimated excess risk of cancer can be three to six times higher.[34]

Silos across relevant sectors and agencies

- **Many mobile source air quality and climate solutions require changes to and better coordination across land-use planning regulations** and agencies, which can be difficult.
- **Rapidly expanding clean mass transit is a key piece of reducing mobile source air quality and GHG emissions but is often "siloed" or kept separate from climate and clean energy policy discussions**, which can lead to an overemphasis on electrification of personal vehicles and low-carbon fuel regulations.

31 https://www.eastbaytimes.com/2021/10/24/how-a-landmark-environmental-justice-bill-is-failing-to-protect-richmonds-air/?utm_id=40735&sfmc_id=4509553

32 https://niskanencenter.org/blog/section-115-not-a-viable-climate-policy-option/

33 https://www.law.georgetown.edu/environmental-law-review/wp-content/uploads/sites/18/2019/04/GT-GELR190001.pdf

34 https://www.propublica.org/article/toxmap-poison-in-the-air?s=09

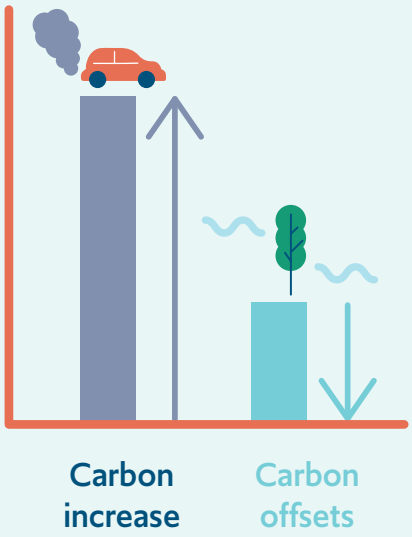
Box 2B:
Net-zero vs. zero-emission targets: A cautionary tale

Net-zero targets frequently appear in mainstream media as the "solution" to today's climate crisis. Large multinational companies—such as BP, Shell, Nestle, Boeing, and others—have pledged net-zero targets. But what does this promise really mean? And is it enough?

The short answers are "not much" and "not really." For these targets to be achieved, many companies purchase "offset credits" if they cannot reduce the carbon emissions they are capped at. These offset credits allow one company to continue to emit carbon, while they pay for offset credits that ensure another company reduces their own emissions or sequesters CO_2 to "compensate" for the other companies' emissions. However, with one entity continuing to emit emissions, there may be no overall emission reductions from an offset.[35] Companies that can buy offsets are not obligated to reduce the criteria and/or toxic air pollutants they release locally.

Furthermore, net-zero targets often encourage a pace of climate mitigation that is far too slow for what is needed today. If the balance between emissions and removals is only achieved by mid-century, a huge amount of additional GHGs will be added every year until the balance is reached. By then, it will be too late to prevent the worst climate impacts.

Many climate advocates argue that net-zero targets are distractions from working for zero-emission targets, which are what we really need to keep global average temperature rise below 1.5 degrees Celsius. **Zero-emission targets** ensure that no carbon emissions are being produced by a service or product. This approach incentivizes a transition to systems powered entirely by renewable energy, which also entails a drastic reduction in air pollution—a huge win for low-income communities and communities of color most burdened with dirty air.[36]



"If the balance between emissions and removals is only achieved by mid-century, a huge amount of additional GHGs will be added every year until the balance is reached. By then, it will be too late to prevent the worst climate impacts."

35 https://www.foei.org/resources/publications/chasing-carbon-unicorns-carbon-markets-net-zero-report

36 Major reductions in air pollution would come from clean energy and transit systems. However, given our current pace of global warming, it is important to note that it is unknown how more wildfires will increase air pollution and in what areas.

Key frameworks to consider when crafting air quality and climate policies

We have the tools today to build zero-emission systems with minimal pollution that keep our communities safe, healthy, and equitable. When developing policies, it is important to understand the different sources of both air quality contaminants and greenhouse gases. Different sources often require different policy solutions, but there are also ways to address both issues at once. Within each framework, we prioritize strategies that will most clearly achieve direct emission reductions from each source and, therefore, have the most immediate improvement on localized conditions in low-income communities and communities of color. Thus, this policy brief focuses on the two largest categorical sources: mobile and stationary.

1. Prioritize the most polluted communities.

The most effective climate policies address air quality issues in low-income communities and communities of color together. Integrated, equity-based climate and air quality policy solutions often focus on the places where impacts are the worst and where the win–win benefits of reducing GHGs and air contaminants can be maximized. Policymakers can tackle multiple issues at once: better public health, cleaner air and water, proactive investments in historically under-resourced communities, climate mitigation, and a broader base for future climate wins.

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2. Target the dirtiest sources.

Policies tailored for stationary sources—such as power plants, refineries, and manufacturing facilities that emit air pollutants and GHGs—are the most effective way to improve air quality for "hot spots" and reduce GHG emissions at the root source. Nationwide, these facilities include 144 refineries and 1,369 power plants, among many other sources.[37] Ultimately, these fossil fuel sources must be phased out as the long-term solution to both climate change and improving air quality, but regulating their current emissions is critical to reducing GHGs and improving air quality. This strategy also applies to area sources and smaller stationary sources, especially near where people live.

3. Clean up how we move.

Since mobile sources are the largest contributor to GHGs in the United States and a major contributor to poor air quality, it is critically important to prioritize equitable policies that clean up how we move people and goods. Mobile sources include automobiles, motorcycles, trucks, off-road vehicles, boats, and airplanes. Reducing mobile source emissions presents significant opportunities to improve both air quality and GHG emissions and is critical to improving the health of environmental justice communities. In the long term, solutions for mobile source pollution should also include massive investments in public transit and overall shifts to make land-use planning more sustainable and the electrification of vehicles more equitable.

37 https://www.epa.gov/ghgreporting/ghgrp-reported-data