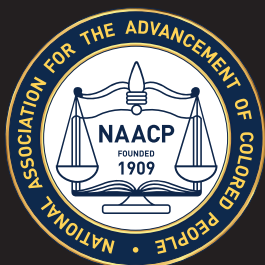


NOVEMBER 2017

Fumes Across the Fence-Line

The Health Impacts of Air Pollution from Oil & Gas Facilities on African American Communities



CLEANAIR
TASK FORCE

Fumes Across the Fence-Line:

The Health Impacts of Air Pollution
from Oil & Gas Facilities on African
American Communities



November 2017

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Executive Summary

The oil and gas industry dumps 9 million tons of methane and toxic pollutants like benzene into our air each year. Methane is a greenhouse gas 87 times more potent than carbon dioxide at driving climate change and the oil and gas industry is now the largest source of methane pollution in the U.S. But methane is just one harmful air pollutant from the oil and gas industry. This paper sheds light on the health impacts of air pollutants from oil and gas facilities that specifically threaten the health of African American communities living near oil and gas facilities and in areas far from oil and gas production.

The life-threatening burdens placed on communities of color near oil and gas facilities are the result of systemic oppression perpetuated by the traditional energy industry, which exposes communities to health, economic, and social hazards. Communities impacted by oil and gas facility operations remain affected due to energy companies' heavy polluting, low wages for dangerous work, and government lobbying against local interests. The nature of the vulnerability of African American and other person of color fence-line communities is intersectional—subject to connected systems of discrimination based on social categorizations such as race, gender, class, etc.

Health impacts from the natural gas supply chain (natural gas facilities as well as oil production facilities with associated gas) were quantified in two reports published by Clean Air Task Force (CATF). As demonstrated in the CATF's *Fossil Fumes* report, many of these toxic pollutants are linked to increased risk of cancer and respiratory disorders in dozens of counties that exceed U.S. EPA's level of concern. These pollutants from the natural gas supply chain also contribute to the



The life-threatening burdens placed on communities of color near oil and gas facilities are the result of systemic oppression perpetuated by the traditional energy industry, which exposes communities to health, economic, and social hazards.

ozone smog pollution that blankets the U.S. in the warmer months. The 2016 *Gasping for Breath* report, published by CATF, found that ozone smog from natural gas industry pollution is associated with 750,000 summertime asthma attacks in children and 500,000 missed school days. Among adults, this pollution results in 2,000 asthma related emergency room visits and 600 hospital admissions and 1.5 million reduced activity days. (Chapter 2)

This paper also shows the health impacts from petroleum refinery pollution. While we do



Air pollution is emitted from dozens of types of equipment and processes throughout the oil and gas sector. Many proven, low-cost technologies and practices are available to reduce these emissions, while also reducing emissions of methane, the main constituent of natural gas.

not quantify health impacts from oil refineries, as we did for impacts from natural gas facilities, we include case studies and stories from community members that have been impacted by pollution from these facilities. In this chapter, we focus solely on petroleum refineries, not the entire petroleum supply chain. (Chapter 3)

Many African American communities face serious health risks caused by air pollution. Higher poverty levels increase these health threats from air pollution translating into a bigger health burden on African American communities. And, companies often site high polluting facilities in or near communities of color, furthering the unequal distribution of health impacts. This paper for the first time quantifies the elevated health risk that millions of African Americans face due to pollution from oil and gas facilities. Specifically, the paper finds that:

- More than 1 million African Americans live within a half mile of existing natural gas facilities and the number is growing every year.
- As a result, many African American communities face an elevated risk of cancer due to air toxics emissions from natural gas development: Over 1 million African Americans live in counties that face a cancer risk above EPA's level of concern from toxics emitted by natural gas facilities.
- The air in many African American communities violates air quality standards for ozone smog. Rates of asthma are relatively high in African American communities. And, as a result of ozone increases due to natural gas emissions during the summer ozone season, African American children are burdened by 138,000 asthma attacks and 101,000 lost school days each year.
- More than 6.7 million African Americans live in the 91 counties with oil refineries.

The impacts described in this paper are just one layer of the many public health issues that these communities face. For example, this analysis only accounts for the risks associated with air pollution from oil and gas facilities—water and soil contamination may also harm communities living near oil and gas facilities. We also only included health impacts directly linked to oil and gas facilities—oil and gas development may also bring increased truck traffic, oil trains, and changes in land use, which can have significant public health impacts. In addition, many African American communities are located near other major sources of pollution, like power plants, chemical plants, hazardous waste facilities, and others. These communities already face high levels of pollution from various sources, and the added health threats from oil and gas development exacerbate their problems.

Air pollution is emitted from dozens of types of equipment and processes throughout the oil and gas sector, such as wells, completion equipment, storage tanks, compressors, and valves. Many proven, low-cost technologies and practices are available to reduce these emissions, while also reducing emissions of methane, the main constituent of natural gas. Thus, policies that

reduce pollution from the oil and gas industry can help protect the health of local communities while addressing global climate change. In the Waste Not report, Clean Air Task Force (CATF), the Natural Resources Defense Council (NRDC), and the Sierra Club called for EPA regulations to cut methane emissions from the oil and gas industry by half. These methane standards would also significantly cut toxic and ozone-causing air pollution, which could have important benefits for air quality and public health in and downwind of oil and gas producing areas. In addition, stringent standards specifically for toxic and ozone-causing pollutants emitted throughout the oil and gas supply chain are needed to ensure compliance with the Clean Air Act and protect public health.

Defending the safeguards finalized during the Obama administration and pushing for additional protections against pollution from the oil and gas industry will help improve the health of many African American communities while addressing global climate change. In June 2016, the EPA finalized strong methane standards covering new and modified oil and gas facilities. Although cutting methane from new oil and gas facilities is a step in the right direction, more important is cutting pollution from the nearly 1.3 million existing oil and gas facilities. These standards will reduce the risk from the air toxics and ozone smog-forming pollutants from this industry, but without a comprehensive standard, the vast majority, at least 75 percent, of all of the wells and oil and gas infrastructure in use today, will remain virtually unregulated and can continue to pollute without limit. Existing facilities spewed over 8 million metric tons of methane in 2015—equivalent in near-term warming potential to the greenhouse gas emissions from 200+ coal-fired power plants. To reduce the risk from air toxics and smog-forming pollution from this industry, EPA must require pollution reductions from all oil and gas facilities, and not roll back the protections that are already in place.

Environmental and energy justice issues are multilayered. Thus, the approach to tackling these issues must also be multilayered. People of color

and low-income communities are disproportionately affected by exposure to air pollution, and standards that protect communities from this pollution are critical. In addition, these communities have a lot to gain from the transition from the current fossil fuel energy economy to one based on equitable, affordable, and clean energy sources. African American and other fence-line communities, such as people who are low-income, can organize to fight the intentional polluting of their neighborhoods. The first step is to address the many ways fossil fuels taint our communities, including the air pollution from oil and gas development.



Equipment at a gas well.

Defending the safeguards finalized during the Obama administration and pushing for additional protections against pollution from the oil and gas industry will help improve the health of many African American communities while addressing global climate change.

CHAPTER 1

Environmental Pollution and the Health Impact in African American Communities

The racial disparities among communities impacted by environmental pollution in the United States are stark. African Americans are exposed to 38 percent more polluted air than Caucasian Americans, and they are 75 percent more likely to live in fence-line communities than the average American.¹ Fence-line communities are communities

that are next to a company, industrial, or service facility and are directly affected in some way by the facility's operation (e.g. noise, odor, traffic, and chemical emissions). Most fence-line communities in the United States are low-income individuals and communities of color who experience systemic oppression such as environmental racism.

It is not a coincidence that so many African Americans live near oil gas development. Historically, polluting facilities have often been sited in or near African American communities.

Many African Americans are exposed to high levels of pollution.

The air in many African American communities violates air quality standards intended to protect human health.

Over 1 million, or two percent of African Americans, live in areas where toxic air pollution from natural gas facilities is so high that the cancer risk due to this industry alone exceeds EPA's level of concern.² And, over 1 million African American individuals live within a half mile of an oil and gas facility—those within this half mile radius have

cause for concern about potential health impacts from oil and gas toxic air pollution.³ These figures only account for air pollution from wells and natural gas compressors and processors—the numbers would be much higher if pollution from oil refineries was factored.

It is not a coincidence that so many African Americans live near oil gas development. Historically, polluting facilities have often been sited in or near African American communities. Companies take advantage of communities that have low levels of political power.⁴ In these communities, companies may face lower transaction costs associated with getting needed permits, and they have more of an ability to influence local government in their favor.⁵

African Americans and other environmental justice communities face heavy burdens because of the millions of pounds of hazardous emissions released by the oil and gas industry each year. Many African American communities face serious health risks as a result of toxic pollution from industrial facilities that are often located blocks from their homes. These life-threatening burdens are the result of systemic oppression perpetuated by the traditional energy industry, which exposes communities to health, economic, and social hazards. Communities impacted by oil and gas facility operations remain affected due to energy companies' heavy polluting, low wages for dangerous work, and government lobbying against local interests.⁶ African American and other person of color living in fence-line communities experience connected systems of discrimination based on

social categorizations such as race, gender, class, disability, etc. These communities are impacted by the negative health impacts of oil and gas facility operations because of discrimination.

The impacts described in this paper are just one layer of the many public health issues that

African American and other communities of color face as a result of oil and gas operations. For example, this analysis only accounts for the risks associated with air pollution from oil and gas facilities—the exposure risks from water and soil contamination may also harm communities living near

CASE STUDY

Siting of natural gas infrastructure in environmental justice communities

The Atlantic Coast Pipeline (ACP), North Carolina, Virginia, and West Virginia

Set for completion in 2019, Duke Energy and Dominion Resources have begun steps to build a 600-mile transmission pipeline from West Virginia through eastern North Carolina. The Atlantic Coast Pipeline (ACP), being built to bring natural gas from hydraulic fracturing sites in West Virginia and Pennsylvania to power plants in North Carolina.¹⁰ This expansion of coastal infrastructure along the densely populated East Coast, will increase the likelihood of facilities being sited in heavily populated areas. Typically, areas with a high concentration of low-income and people of color, as well as other fence-line communities.

The North Carolinian coastline from the Outer Banks north to the Virginia line, is heavily populated by low-income, African American residents. The proposed route of the ACP directly impacts a number of African-American, and other vulnerable communities, in the state. In seven of the eight counties along the proposed route the African American population ranges from 24.3 to 58.4 percent, compared to the 21.3 percent at the state level. These counties also reflect income vulnerability, as seven of the eight counties have median household incomes below the statewide median of \$46,693. Seven of the eight counties along the proposed route have poverty levels higher than the state average (17.2 percent), ranging from 17.6 to 33.1 percent.¹¹ The expansion of the ACP and other natural gas infrastructure along the North Carolinian coast would have unavoidable adverse impacts on already vulnerable communities.

The pipeline is not the only piece of infrastructure to be established as a part of the project. As part of the plan for the Atlantic Coast Pipeline, Dominion intends to build a compressor station in Northampton County, North Carolina, a county that share's a border with Virginia. Northampton's African American population is 54.6 percent, and the median household income in \$31,453, nearly \$15,000 below the state average. Almost 32 percent of Northampton residents live in poverty, compared to 17.2 percent statewide.¹²

The overall cancer rate in Northampton County exceeds that for the state of North Carolina at 516.6 per 100,000 (the state average is 488.9 per 100,000 people). Lung and bronchial cancers, two forms of cancer caused by common air pollutant, are specifically elevated: 80.5 per 100,000 people compared to 70.1 per 100,000.¹³ Given the current state of vulnerable populations in the area of impact of the proposed pipeline, particularly in in North Hampton, a compressor station, pipeline, and other natural gas infrastructure, could exacerbate health problems from increased air pollution.

For more on the communities affected by the ACP project visit the [Southern Environmental Law Center, Path of the Pipeline](#).¹⁴

oil and gas facilities.⁷ We also only included health impacts directly associated with oil and gas facilities—oil and gas development may also entail increased truck traffic, oil trains, and changes in land use, which can have significant public health impacts.⁸ In addition, many African American communities are located near other major sources of pollution, like power plants, chemical plants, hazardous waste facilities, and others.⁹ These communities already face high levels of pollution from various sources, and the added health threats from oil and gas development exacerbate their problems.

This paper sheds light on the health impacts many African American communities face from oil and natural gas production, processing, and transmission facilities. It also underscores both the need to implement commonsense standards that reduce pollution from these facilities, and the need to transform the current energy economy

into one that is based on clean energy sources and the principles of energy democracy (local energy choice) and energy sovereignty (local control of energy systems). This new energy economy will need to address the overlapping systems of oppression that allow whole communities to be poisoned.

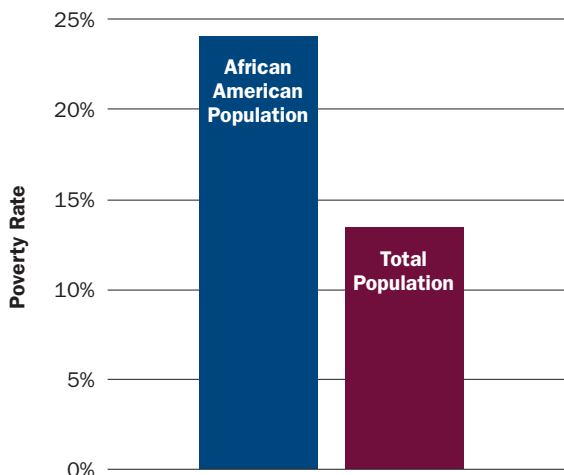
Asthma threatens the health of children in African American communities.

Approximately 13.4 percent of African American children have asthma (over 1.3 million children), compared to 7.3 percent for white children.¹⁵ The death rate for African American children with asthma is one per 1 million, while for white children it is one per 10 million.¹⁶

Many African Americans are particularly burdened with the health impacts from air pollution, due to high levels of poverty and relatively lower rates of health insurance.

Individuals living below the poverty level are particularly burdened by the effects of air pollution. In 2015, 24 percent of the African American population (including 32 percent of African American children) were living in poverty, compared to 14 percent for the overall US population (and 20 percent of US children).¹⁷ High poverty rates restrict housing options for African American families. African Americans are also somewhat less likely to have health insurance than the population as a whole. In 2015, 11.5 percent was the uninsured rate for African Americans under the age of 65, versus 10.8 percent for the population as a whole and 7.5 percent for the white population.¹⁸ The combination of higher poverty rates and lower prevalence of health insurance exacerbates the impact air pollution has on low-income African American families.

FIGURE 1
Poverty Rate



Source: U.S. Census Bureau, National Center for Health Statistics

“Common sense would suggest that a pipeline carrying a highly flammable substance and a massive polluting industrial facility should not be placed in any residential community, much less an environmental justice community.”

– Congressman Sanford D. Bishop, Jr. John Lewis, Hank Johnson Jr., and David Scott in a 2015 response to the Saber Trail Pipeline Project in Alabama, Southern Georgia, and Central Florida.¹⁹

COMMUNITY STORY

“My parents grew up on the Permian Basin where we have some of the largest frack fields and very old oil wells, as well. Thinking about the impacts of these chemicals and toxins that persist in the area, I realized that I never been out of this stuff. Even in the womb of my mother and her own sort of chemistry and biology that she grew up with having spent her whole life there.... The city of Houston did a study and identified 12 carcinogens and that research is available and some of the highest concentrations are in areas that I grew up in and spent majority of my childhood in. Some of the things that I experienced were frequent headaches, irritability, and nose bleeds, gastrointestinal problems, a lot of things that I said I can show and we have seen are the same symptoms are as a result from being exposed to some of these carcinogens.”

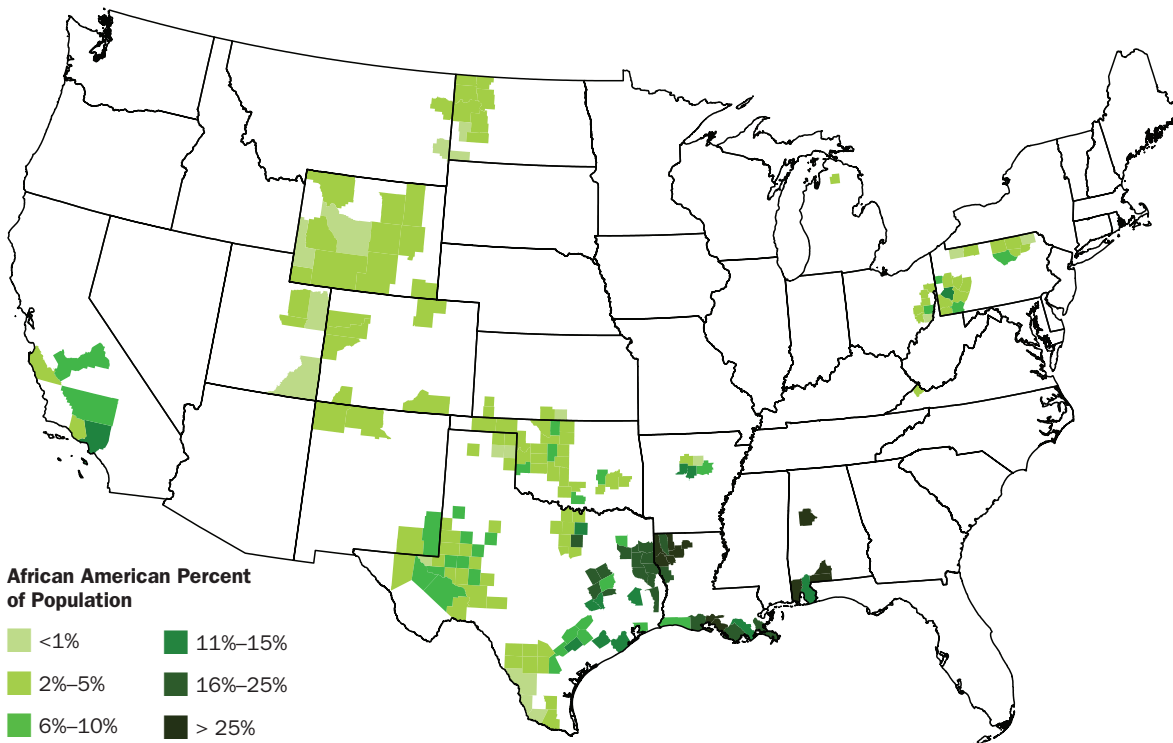
— Bryan Parras, Houston, TX

A large number of African Americans live in states with large numbers of polluting oil and gas facilities.

Many of the states with the highest amount of oil and gas development also have large African American populations. In three of the top ten oil and gas production states of 2015—Louisiana,

Texas, and Pennsylvania—African Americans made up more than 10 percent of the population. And, in two of the other top oil and gas states—North Dakota and Wyoming—the African American population has grown significantly since 2000, a time when oil and gas production in these states has also grown.²⁰

FIGURE 2
African American Percent of Population in 200 Counties with Highest Oil and Gas Production (2015)



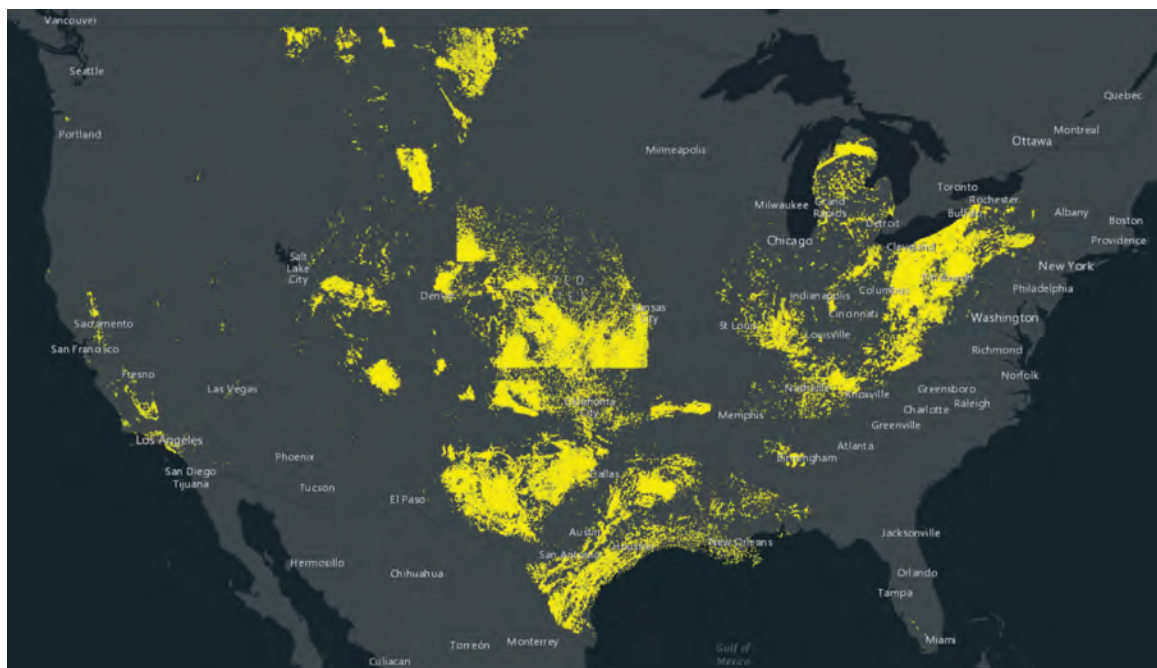
Source: U.S. Census Bureau, DI Desktop

Earthworks released the “Oil and Gas Threat Map,” an interactive map of the nearly 1.3 million active oil and gas wells, compressors and processors in the U.S.²¹ The map shows how many African Americans live within a half mile of oil and gas facilities, and it indicates that those within this radius have cause for concern about potential health impacts from oil and gas pollution. It is

not a declaration that those near oil and gas facilities will definitely have negative health impacts, and it also does not mean that people living further than a half mile are safe from health impacts. As we document later in this paper, there is ample evidence that the pollution from oil and gas operations impacts individuals and communities both close to and far from these facilities.

FIGURE 3

Threat Radius—The Area within a Half Mile of Active Oil and Gas Wells, Compressors, and Processing Plants



The oil and gas well data was downloaded directly from state government agencies, and it includes all active conventional and unconventional wells in 2016 and 2017. Gas compressor and processing plant data were primarily taken from a variety of state and federal databases. State and federal agencies do not monitor compressors and processing plants as closely as they do wells, so this data is not comprehensive in all states.

Source: <http://oilandgasthreatmap.com/threat-map>

COMMUNITY STORY

“Fortunately, no one was seriously injured as a result of the explosion, but nearby residents were concerned about what they might be exposed to as a result of the explosion [BP Amoco and Enterprise Products, LLC gas processing plant in Jackson County, MS]...Unlike oil and chemical plants, gas processing plants are not required to report the list and quantity of hazard pollutants they release to the Environmental Protection Agency’s Toxic Release Inventory (TRI) Program.”

— Steps Coalition, Biloxi, MS

More than 1 million African Americans nationally (2.4 percent of the total African American population) live within a half mile radius of oil and gas facilities (see Table 1).

- Ohio, Texas, and California have the most African Americans living within a half mile radius of oil and gas facilities.
- And, in Oklahoma, Ohio, and West Virginia, approximately one in five African Americans in the states live within the half mile radius of oil and gas facilities.

TABLE 1
Top 10 States by African American Population Living within a Half Mile Radius of Oil and Gas Facilities (2010 Census)

State	African American Population within a Half Mile Radius	Percent of African American Population in State within a Half Mile Radius
Texas	337,011	10%
Ohio	291,733	19%
California	103,713	4%
Louisiana	79,810	5%
Pennsylvania	79,352	5%
Oklahoma	73,303	22%
West Virginia	13,453	17%
Arkansas	10,477	2%
Mississippi	10,448	1%
Illinois	10,227	1%
TOTAL	1,052,680	2%

Source: <http://oilandgasthreatmap.com>



Equipment at a gas well.

© CATF

BOX 1**Air Pollutants & Associated Health Concerns from Oil and Gas**

Methane, the primary component of natural gas, is over 80 times more potent than carbon pollution's projected disruption to our climate over the coming decades. Methane also contributes to ozone smog formation.

Toxic and Hazardous Air Pollutants include a wide range of chemicals that are known or probable carcinogens and/or cause other serious health impacts. Among other chemicals of concern, oil and natural gas facilities are responsible for the following air pollutants, either emitted as a component of raw natural gas or a by-product of natural gas combustion that occurs at these sites. Exposure studies based on air measurements have identified levels of benzene, hydrogen sulfide, and formaldehyde near oil and gas sites that exceed health-based thresholds.

- **Benzene** has been linked to cancer, anemia, brain damage, and birth defects, and it is associated with respiratory tract irritation.²² Over time, benzene exposure can also lead to reproductive, developmental, blood, and neurological disorders. A 2012 study estimated a 1.0 in a million cancer risk—well over EPA's level of concern—for residents near a well pad, attributable primarily to benzene levels measured in the air near the well site.²³ The EPA's National Emissions Inventory (NEI) estimates that over 20,000 tons of benzene was emitted by oil and gas sources in 2011.²⁴ Benzene is a constituent of raw natural gas, so leaks and vents are the primary source of benzene pollution from the oil and gas industry.
- **Ethylbenzene** has been associated with respiratory and eye irritation, as well as blood and neurological disorders.²⁵ The NEI estimates that over 2,000 tons of ethylbenzene was emitted by oil and gas sources in 2011.²⁶ Like benzene, ethylbenzene is a constituent of raw natural gas and leaks and vents of gas are the primary sources of ethylbenzene.
- **Hydrogen sulfide** gas is primarily found near wells producing "sour gas." At high concentrations, it can cause severe respiratory irritation and death. At lower levels, it can lead to eye, nose, and throat irritation; asthma attacks; headaches, dizziness, nausea, and difficulty breathing.²⁷
- **Formaldehyde** has been linked to certain types of cancer, and chronic exposure is known to cause respiratory symptoms.²⁸ The NEI estimates that nearly 22,000 tons of formaldehyde was emitted by oil and gas sources in 2011.²⁹ Formaldehyde is primarily emitted from combustion sources such as flares and compressor engines.

Volatile Organic Compounds (VOCs) are precursors to ground level ozone smog. Ozone smog can impair lung function, trigger asthma attacks, and aggravate conditions of people with bronchitis and emphysema.³⁰ Children, the elderly, and people with existing respiratory conditions are the most at risk from ozone pollution.

BOX 2

Air Pollution Sources in the Oil and Gas Industry

The oil and gas industry includes a large number of industrial sites across the country. These include hundreds of thousands of wellpads where oil and gas are produced, thousands of compressor stations which move natural gas from wells to markets, and hundreds of processing plants which prepare gas for high-pressure pipelines that take it to markets.

Raw natural gas (i.e., gas as it is produced from underground formations, before significant processing is done) usually contains significant amounts of ozone-forming volatile organic compounds (VOCs) and often contains significant amounts of toxic hazardous air pollutants (HAPs), though gas varies in composition from source to source. The HAPs in raw gas include hexane, benzene, and other aromatic chemicals; poisonous gases like hydrogen sulfide can also be present. As such, natural gas wellpads and the natural gas gathering pipeline and compression systems that move gas from wells emit substantial amounts of VOCs and HAPs, as do the processing plants that separate natural gas liquids (VOC species that are valuable components of raw natural gas) from the natural gas that is sent through pipelines to customers. Some of those pollutants remain in the gas even after processing. Emissions from facilities further downstream in the natural gas supply chain, like transmission compressor stations and local distribution equipment, still include some of these pollutants.

Crude oil production operations also emit substantial amounts of VOCs and HAPs. Methane, as the main constituent of natural gas, is emitted from all types of oil and natural gas facilities, from wellpads to the natural gas distribution systems in urban areas.

- **Oil and Gas Production:** The oil and gas production segment includes many diverse activities, such as production of hydrocarbons from underground geologic formations; separation of natural gas, oil, and water; and collection of gas from multiple wells through natural gas gathering pipeline and compressor systems. These activities in turn involve processes such as well drilling, hydraulic fracturing or other well stimulation, and well workovers; and they require equipment such as tanks, piping, valves, meters, separators, dehydrators, pipelines, and gathering compressors.
- **Natural Gas Processing:** Gas processing plants separate raw natural gas into natural gas liquids and processed natural gas that meets specifications for transport in high-pressure pipelines and consumption in furnaces and power plants. Natural gas liquids are hydrocarbons such as propane, butane, etc., which are valuable products of gas processing. The processing removes most of the toxic components from the gas, but some toxins remain.
- **Natural Gas Transmission and Storage:** Natural gas transmission pipelines carry gas from production regions to markets. This segment also includes facilities where gas is stored, either underground or in tanks. Compressor stations along pipelines maintain pressure and provide the energy to move the gas.
- **Natural Gas Distribution:** Finally, natural gas is delivered to customers (residential, commercial, and light industrial) via low-pressure underground distribution pipelines.
- **Oil Refineries:** Refineries are large industrial plants that process crude oil into various petroleum products, such as gasoline, diesel fuel, jet fuel, and others. Emissions of toxic and hazardous pollution from these facilities are very high, while methane emissions are relatively small.

CHAPTER 2

Health Impacts from Natural Gas Facilities

Natural gas facilities emit toxic air pollution and pollution that forms ozone smog. In two previous reports, “Fossil Fumes” and “Gasping for Breath,” CATF presented the public health impact of toxic air

“Just because the oil company brings jobs and other benefits, doesn’t mean it can do it at the expense of my health and well-being.”

— Charles Zacharie, Baldwin Village resident, Los Angeles, CA³²

pollution and ozone smog, respectively, from the natural gas industry. Here, we break out and discuss the public health impacts of these pollutants specifically for African American communities.

The health impacts described in this chapter are the result of air pollution that is directly due to natural gas facilities and equipment (for impacts of

petroleum refineries, see Chapter 3).³¹ As noted above, we are not fully accounting for the public health impact of natural gas development: water pollution and soil contamination can also have a significant public health impact, as can ancillary activities such as increased truck traffic. As such, the impacts presented in this chapter should be understood as minimum amount of impact; the true public health impact of natural gas development is certainly much higher.

In this chapter, we discuss the following public health impacts of natural gas facilities:

- Excessive concentrations of ozone (smog)
- Increased risk of cancer due to toxic air emissions.

The air in many African American communities violates air quality standards for ozone.

High ozone levels are caused by emissions from a variety of industries, but it is possible to separate out the increase in ozone that can be directly attributed to emissions from natural gas facilities and its associated health impact.³³ CATF’s “Gasping for Breath” describes an ozone modeling analysis that compares ozone levels in a 2025 “Baseline” case and a 2025 “Zero Natural Gas Emissions” case. The difference in ozone levels between these two cases is the ozone that can be directly attributable to natural gas.³⁴

The increased level of ozone can be associated with an increase in a variety of health impacts. The EPA uses peer-reviewed literature to estimate how these changes in ozone will affect public health.³⁵ Using the same studies and methodology as the EPA used in its recent Ozone National Ambient Air Quality Standards (NAAQS) rulemaking process, CATF’s ozone modeling estimates the impact on public health that can be directly attributable to ozone caused by emissions from the natural gas sector. Nationally, CATF estimates that over 750,000 asthma attacks for children and over 500,000 lost school days during the summer ozone season are due to ozone increases resulting from natural gas emissions.³⁶ After adjusting these total incidence rates based on the county level African American population, the African American population is burdened by approximately 138,000 asthma attacks and 101,000 lost school days attributable to natural gas air pollution each year. The burden of these health impacts falls more heavily on populations that already

FIGURE 4
Number of Asthma Attacks Experienced by African American Children Caused by Ozone Attributable to Oil and Gas by Metropolitan Area

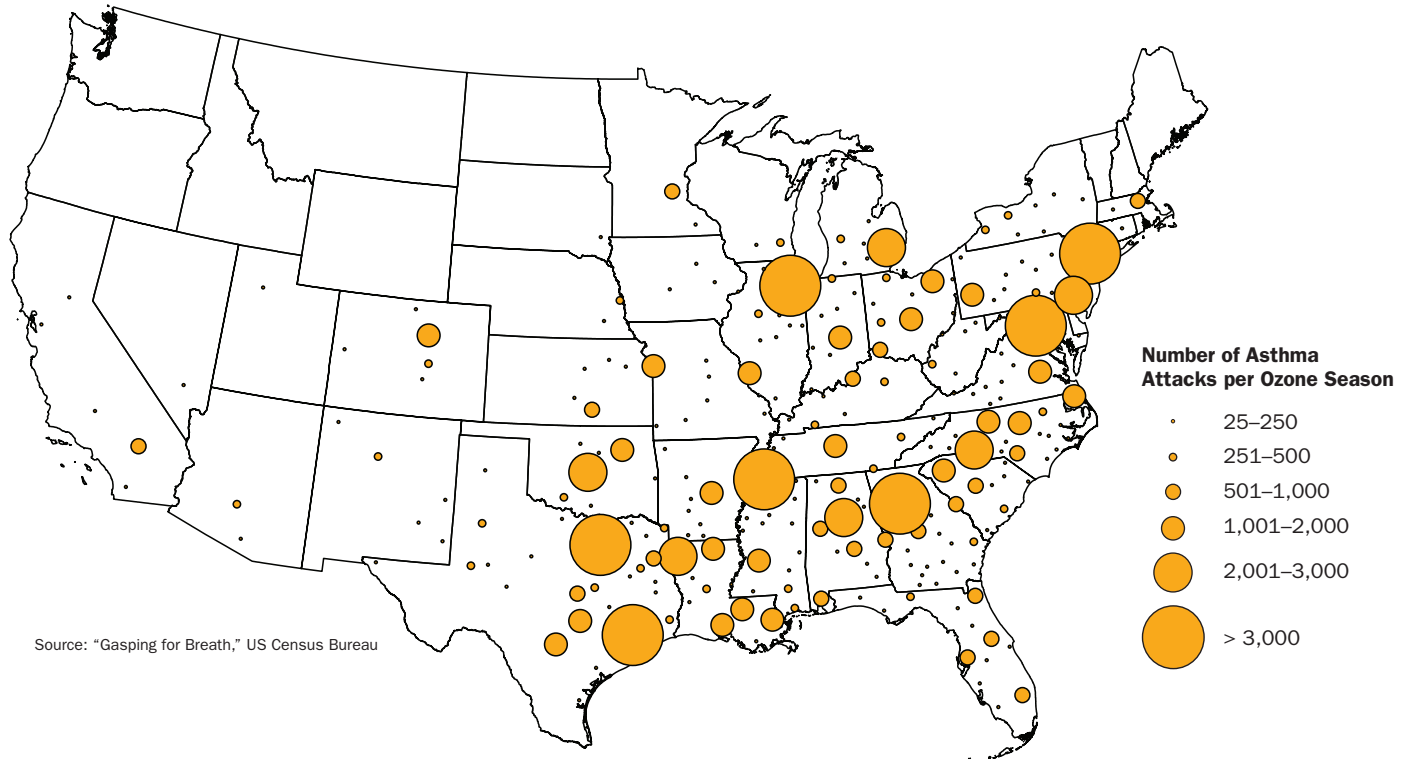


TABLE 2
Top 10 Metropolitan Areas by African American Health Impacts Attributable to Ozone caused by Natural Gas Pollution

Metropolitan Area	Asthma Attacks (per year)	Lost School Days (per year)
Dallas-Fort Worth (TX, OK)	8,059	5,896
Atlanta (GA)	7,499	5,469
Washington-Baltimore (DC, MD, VA, WV, PA)	7,216	5,269
New York-Newark (NY, NJ, CT, PA)	5,235	3,821
Houston (TX)	4,256	3,111
Chicago (IL, IN, WI)	3,777	2,760
Memphis (TN, MS, AR)	3,674	2,692
Philadelphia (PA, NJ, DE, MD)	2,887	2,104
Shreveport-Bossier City (LA)	2,536	1,871
Detroit (MI)	2,402	1,751
National African American Total	137,688	100,564

Source: "Gasping for Breath," US Census Bureau

have high levels of asthma or who are already systemically oppressed. Figure 4 on page 15 shows the number of asthma attacks due to natural gas air pollution among African American children in metropolitan areas across the county each year.³⁷

Two of the ten metropolitan areas with the most asthma attacks attributable to natural gas ozone pollution are located in Texas: the areas in

and around Dallas and Houston. The Shreveport, Louisiana metropolitan area is located near natural gas production. In addition, the air pollution from natural gas facilities has a large impact on some metropolitan areas that are located far from natural gas producing regions, like in Atlanta, Washington DC, New York, Chicago, Memphis, Philadelphia, and Detroit.

CASE STUDY

Downwind Air Pollution in the Mid-Atlantic Baltimore, MD

While health risks are greatest near the original sources of pollution, airborne pollution from oil and gas facilities can have health impacts far downwind. The air pollution from natural gas facilities in Pennsylvania and West Virginia has had significant impacts on air quality in Maryland, particularly in the Baltimore—District of Columbia (D.C.) corridor where there is a high concentration of African Americans and other people of color.

A 2015 study from the University of Maryland evaluated the longer-term and long-range effects of hydraulic fracturing on regional air pollution. The study analyzed hourly measurements of air pollutants, including ethane—gases found in natural gas mixtures—in Baltimore and Washington, D.C. between 2010 and 2013. It found that ethane measurements increased by 25 percent between 2010 and 2013 in the region. Ethane is the second-most abundant compound in natural gas, which when inhaled can cause nausea, headaches, and dizziness. While there has been an overall decline in non-methane organic carbons and improvement in air quality since 1996, the atmospheric concentration of ethane in the region managed to rise between 2010 and 2013.³⁸

Maryland officially banned the practice of hydraulic fracturing in 2017, although even before the ban, hydraulic fracturing was a rare practice. After comparing the rise in ethane to natural gas extraction in neighboring states, the researchers found a correlation. After tracking the wind direction, distribution, and speed in the Marcellus shale play region, researchers determined that Baltimore and other areas in Maryland and Washington DC were on the tail end of natural gas emissions originating from sites in Pennsylvania, West Virginia, and Ohio.

In 2015, people in Baltimore experienced 89 days of elevated smog, and on 20 days it was at unhealthy levels, increasing the risk of premature death, asthma attacks, and other adverse health impacts.³⁹ Baltimore is a predominately African American city, with African Americans accounting for 63 percent of the city's population. The city's fence-line neighborhoods have a history steeped in toxic fumes, industry dumping, and hazardous air pollutants. The impacts of methane and other gases from out of state have further worsened of air quality in these communities and the entire region. With poor air quality already, residents of Baltimore should not also be exposed to pollution from oil and gas development in other states.

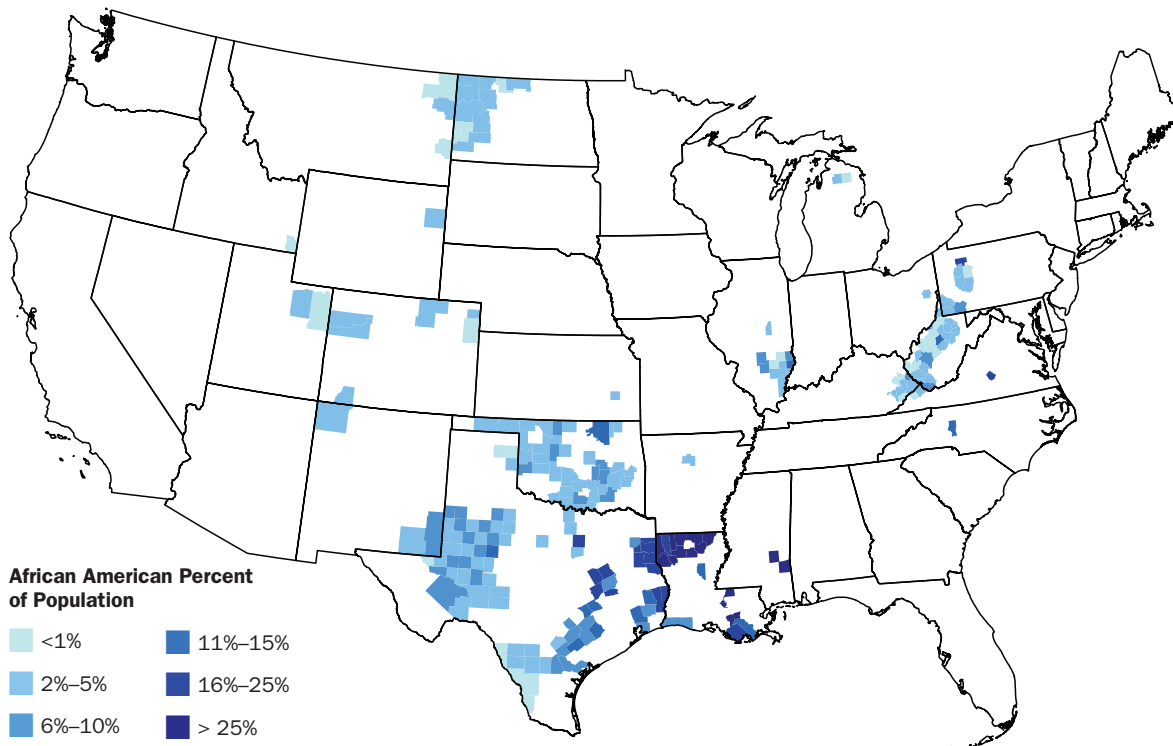
COMMUNITY STORY

“Over 200 cities in Texas have local ordinances regulating oil and gas activity where people are living with these consequences. Cities all over Texas have ordinances regulating things like reasonable distances for drilling away from neighborhoods. They have rules to protect fresh water to decide where pipelines can be constructed. They even regulate where trucks can drive and the hours in which facilities can operate and these are all locally regulated... Ordinances like Dallas’s and any of the other ordinances across Texas could be overturned as soon as the company sues the city and future ordinances have to move industry standards.... This is a human rights violation because people pass these laws to protect their health and safety from explosions and to prevent water and air pollution and the state agencies and the federal government will not. It was a power grab and it weakens our most democratic institution.”

— Melanie Scruggs, TX

FIGURE 5

African American Percent of Population in Counties above EPA's Level of Concern for Cancer Risk from Oil and Gas Emissions



Source: “Fossil Fumes,” U.S. Census Bureau

Many African American communities face an elevated risk of cancer due to toxic air emissions from natural gas development.

In the EPA’s National Air Toxics Assessment (NATA), the EPA identifies and prioritizes air toxics, emission source types, and locations that are of greatest potential concern when looking at health

risk from air emissions in populations. NATA estimates cancer risk that can result from toxic air emissions. The metric for cancer risk is the number of cancer cases per million people exposed; areas with cancer risk above one-in-a-million are considered to be above EPA’s level of concern. In CATF’s *Fossil Fumes* report, 238 counties in

21 states faced a cancer risk above EPA's one-in-a-million level of concern due to toxic emissions from natural gas operations.⁴⁰ In 2015, over 9 million people lived in these counties, of whom 1.1 million were African American.

Of the African Americans living in counties above EPA's level of concern for cancer risk, most live in Texas, Louisiana, and Oklahoma.

The inventory that our analysis relied on, the National Emissions Inventory, may underestimate the total emissions of toxics from natural gas.⁴¹ Many peer-reviewed studies based on independent measurements conducted in both natural gas producing basins and urban areas consuming natural gas have concluded that official emissions

inventories such as the National Emissions Inventory (NEI) underestimate actual emissions from natural gas.

While the cancer risk estimates are based on the EPA's most recent NEI projections, there is still a degree of uncertainty regarding emissions levels reported to the NEI. For example, in 2015, an expert review analysis in California identified the need to update emissions estimates, particularly in relation to understanding health threats for communities in the Los Angeles Basin. Thus, while no counties in California are above EPA's level of concern in the current analysis, this may be a result of underestimated emissions reported to EPA, not an actual indication of low risk levels.

TABLE 3

Top 10 States with African American Population Living in Counties Above EPA's Level of Concern for Cancer Risk (2015 Population Data)

State	Number of Counties Above EPA's Level of Concern for Cancer Risk	Total Population in High Risk Counties	Total African American Population in High Risk Counties	Percent of Population in High Risk Counties that is African American
Texas	82	4,189,179	528,357	13%
Louisiana	19	1,027,556	354,952	35%
Oklahoma	40	796,695	37,130	5%
West Virginia	28	804,850	30,589	4%
Pennsylvania	8	624,764	25,071	4%
North Carolina	1	169,866	22,682	13%
Mississippi	2	37,135	17,039	46%
Colorado	6	419,023	7,458	2%
Illinois	13	205,829	7,417	4%
New Mexico	3	247,495	7,093	3%
Total	238	9,086,228	1,050,372	12%

Source: "Fossil Fumes," US Census Bureau

COMMUNITY STORY

"Oil and gas development poses more elevated health risks when conducted in areas of high population density, such as the Los Angeles Basin, because it results in larger population exposures to toxic air contaminants."

— The California Council on Science & Technology

CASE STUDY

A History of Urban Drilling

Inglewood Oilfield, Inglewood, CA

Los Angeles has a long history of urban oil drilling. Across Los Angeles, drilling pumps can be found in and near public parks, as well as throughout commercial and residential areas. The 1000-acre Inglewood Oil Field, operated by Freeport-McMoRan Oil and Gas, is one of the largest urban oil fields in the United States. The field contains 959 wells that extract over three million barrels of oil a year. The environmental hazards of this urban drilling have caused countless environmental and public health issues, lawsuits, and community actions.

Inglewood oil field, located in the north-western area of the Los Angeles Basin, has more than one million residents within five miles of the oil field. 50,000 households sit immediately next to the field.⁴² Many of these fence-line communities are predominately communities of color. The neighborhoods surrounding the oilfield include Baldwin Hills, Inglewood, and Culver City neighborhoods, which together are 50 percent African American. Residents and local organizations surrounding the Inglewood Oil Fields have expressed concerns about the environmental, health, and seismic effects of drilling in their community. Given the proximity of the oil field to residential areas, emissions from the site result in continuous human exposure.

People have detailed smelling diesel or industrial smells, as well as soapy smelling odor suppressants. A number of advocacy groups in Los Angeles, including the coalition Stand Together Against Neighborhood Drilling (STAND L.A.), have called for a 2,500 foot setback requirement for oil facilities to protect the health and safety of nearby residents. This distance is on the lower end of the range researchers have recommended as necessary to protect human health and quality of life from the impacts of toxic emissions and exposures.⁴³ Although community groups and members have come forward about the toxic nature of the fumes and other air pollutants coming from the Inglewood oilfield, local decision makers have not addressed these concerns, claiming that the public health impacts of this air pollution are still unknown.⁴⁴



Oil wells in a residential neighborhood in Los Angeles.

© CATF



Oil wells in a residential neighborhood in Los Angeles.

© CATF

CASE STUDY

Uneven Responses to Community Oil and Gas Air Pollution

Los Angeles, CA

Not only are the rates of health impacts from oil and gas facilities drastically different between communities, so is local and state responses to air pollution from these facilities. Low-income and communities of color seldom receive the same amount of attention as higher income, white communities when faced with major pollution related events. From October 2015 to February 2016, the affluent, suburban Los Angeles neighborhood of Porter Ranch experienced the worst reported methane leak in the United States. The \$400,000 plus homes inside gated communities are located a mile away from the Aliso Canyon natural gas storage facility, which leaked a total of 96,000 metric tons of methane as well as other air pollutants over the course of five months.⁴⁵ This pollution caused many to experience symptoms including vomiting, rashes, headaches, dizziness, and bloody noses.⁴⁶

With the declaration of a state of emergency from Governor Jerry Brown, came an overwhelming response. Over 4,000 households in Porter Ranch were evacuated. Alongside community and state insistence for the shut-down of the facility, the city ordered the gas company to provide temporary housing for residents. As the largest methane leak in U.S. history, the Porter Ranch disaster, unique in its size and suddenness, deserved a substantial response. However, Los Angeles residents who live right next to some of the 5,000 active drilling sites in the city—disproportionately low-income communities of color—have dealt with similar issues for years and deserve a similar response to their plight.⁴⁷

Oil operations look a lot different in low-income communities of color, where drilling sites are often adjacent to residential areas. Jefferson Park, a South L.A. neighborhood impacted by drilling, is 90 percent African American or Latinx. This is in stark contrast to Porter Ranch, where the majority of the population is white and median household income is more than triple that of Jefferson Park and other neighborhoods.⁴⁸

The AllenCo drilling site in Jefferson Park—now closed but pending reopening—was 30 feet away from the nearest home. Residents filed hundreds of complaints about odors, nausea, body spasms, and respiratory illnesses, before the site was finally closed in 2013.⁴⁹ Despite the efforts of community members, the site was only closed after EPA officials became sick while investigating the site. Communities across Los Angeles have faced the same burdens from urban oil and gas drilling faced by the residents of Porter Ranch. The major difference is the amount of time and the nature of the response. Other communities have faced these health impacts for decades, with no evacuations or government response.

CHAPTER 3

Health Impacts from Oil Refineries

In this chapter, we include case studies and stories of community members that have been impacted by pollution from oil refineries. We do not quantify health impacts from oil refineries, as we did for impacts from natural gas facilities, but the case studies demonstrate the range of impacts that are felt by fence-line communities around the country. In addition, in this chapter, we focus solely on petroleum refineries, not the entire petroleum supply chain.

Refineries release toxic air pollution in communities in 32 states. This toxic mix of carcinogens, neurotoxins, and hazardous metals—such as benzene, hydrogen cyanide, and lead—can cause cancer, birth defects, and chronic conditions like asthma. While about 90 million Americans live within 30 miles of at least one refinery, 6.1 million Americans live within three miles of one refinery or more.⁵⁰ There are even cases, similar to natural gas and other oil facilities, where houses are a mere few feet away from refinery property lines.

There are 142 large refineries in the United States, the majority of which are sited in low-income areas and communities of color. In 2010, oil refineries reported approximately 22,000 tons of hazardous air pollution to the U.S. Environmental Protection Agency (EPA).⁵¹ However, this number fails to take into account unreported emissions from refinery sources, like flares, tanks, and cooling towers, as well as accidents, which can release 10 or even 100 times more pollution than what is reported.⁵² Proximity to oil refineries and other oil and gas facilities also poses serious risk during natural disasters. Air pollution from refineries during and after extreme weather events severely impacts fence-line communities. As during Hurricane

Harvey in August 2017, refineries in the Houston, TX metro area released thousands of pounds of toxic air pollutants, resulting in further evacuations and curfews for local residents. The full impact of these chemical released during natural disasters and other events are often immeasurable.

While about 90 million Americans live within 30 miles of at least one refinery, 6.1 million Americans live within three miles of one refinery or more.

Oil refineries are one of numerous plights for African American and other fence-line communities, who are subject to the environmental burdens of the fossil fuel industry. People of color, including African Americans and Hispanic Americans, have a higher cancer risk from toxic air emissions from refineries than the average person. Risk factors are increased when also looking at adults living in poverty.

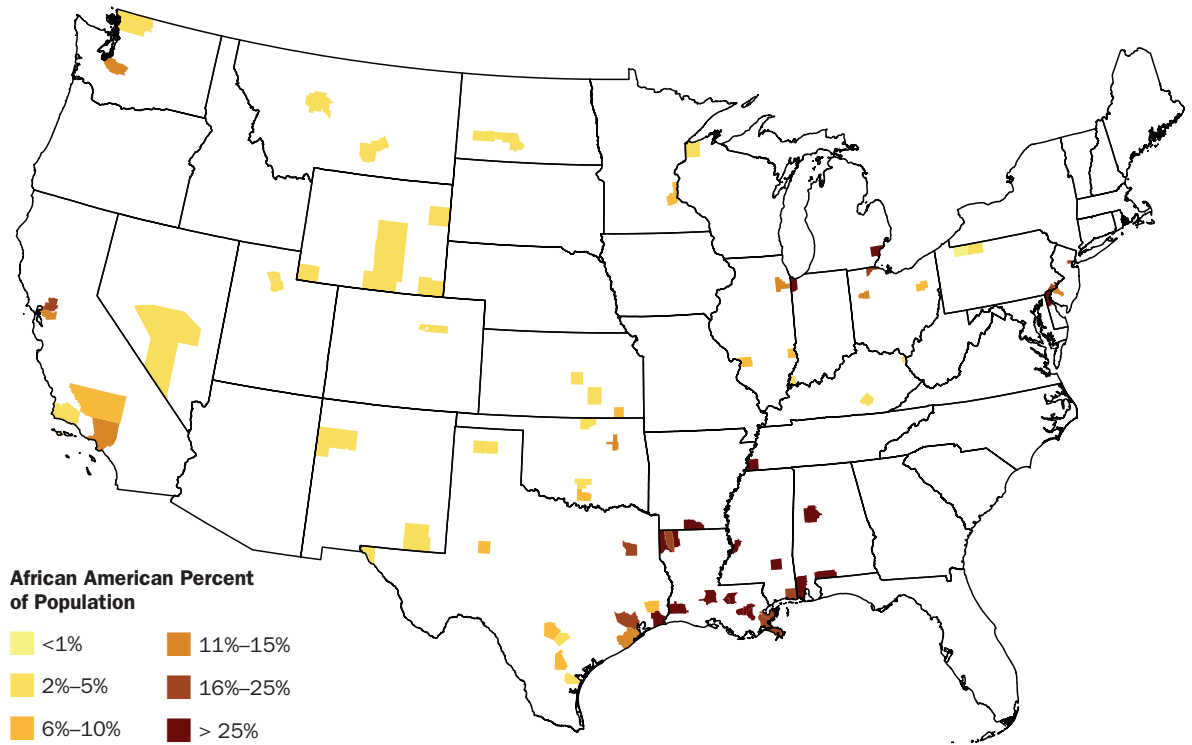
- Most counties with oil refineries and higher percentages of African American residents are concentrated in the Gulf Coast Basin (Texas, Louisiana, Alabama, and Mississippi).
- Texas, California, and Pennsylvania have the most African American residents living in counties with oil refineries.
- Michigan, Louisiana, and Tennessee have the highest percent of African American residents living in oil refinery counties.

Figure 6 (p. 22) shows the percent of African Americans in U.S. counties with oil refineries.

This chapter highlights the health impacts of oil refinery air pollution on predominately African American fence-line communities—communities that sit adjacent to polluting facilities and sources. We do not quantify health impacts using atmospheric models, as we did for air pollution from

natural gas facilities, as we did in Chapter 2. However, through case studies in Port Arthur, Texas; Baton Rouge, Louisiana; East Bay, California; and South Philadelphia, Pennsylvania we explore the various impacts oil refinery operation and related events impact African American and fence-line communities.

FIGURE 6
African American Percent of Population in Counties with Oil Refineries



Source: U.S. Census, Energy Information Administration Form 820

TABLE 4
Top 10 States by African American Population Living Counties with Oil Refineries

State	Total Population in Refinery Counties	African American Population in Refinery Counties	Percent African American in Refinery Counties
Texas	8,973,679	1,397,018	16%
California	13,060,074	1,302,860	10%
Pennsylvania	2,214,144	848,064	38%
Michigan	1,759,335	712,290	40%
Louisiana	1,358,443	540,435	40%
Tennessee	938,069	509,942	54%
Alabama	657,160	228,846	35%
New Jersey	847,265	173,852	21%
Delaware	556,779	148,994	27%
Ohio	913,279	146,192	16%
Total	39,793,311	6,709,206	17%

Source: U.S. Census, Energy Information Administration Form 820

CASE STUDY

East Bay Refinery Corridor

East Bay, CA

The burden placed on communities of color in the north coast of the East Bay region, which is home to a variety of petrochemical industry sites, cannot be ignored. The five petroleum refineries in this region emit a unique cocktail of toxic and carcinogenic compounds that impact cardiovascular health of surrounding communities. This region, nicknamed the “refinery corridor,” has a petroleum refining capacity of roughly 800,000 barrels per day of crude oil.⁵³ While there have been many strides to clean up these major sources of air pollution, health impacts in the region, including cancer rates, are still disproportionately high. The City of Richmond’s residents of color disproportionately live near the refineries and chemical plants.

CASE STUDY

Burdens of a Fence-Line Community: Valero Oil and Gas Refinery

West Port Arthur, TX

On the border of Texas and Louisiana lies the city of Port Arthur, Texas, which houses two notorious oil refineries: a 3,600-acre Motiva Enterprises plant, to the northeast, and a 4,000-acre plant owned by Texas-based Valero to the west. The two facilities refine more than 900,000 barrels of crude per day. Like many Gulf Coast cities and towns, Port Arthur is not only exposed to the hazards of neighboring oil and gas infrastructure, it is also downwind of nearly every coastal refinery in Texas, as well as other industrial facilities.⁵⁴

The western Valero refinery—one of the largest in the world—borders West Port Arthur, a predominately African American community (95 percent African American in 2013) with several complexes of low-income public housing that exist directly on the refineries’ fence. For decades, West Port Arthur’s enormous refineries have released and leaked benzene, carbon monoxide, sulfur dioxide, and other pollutants. The U.S. Environmental Protection Agency’s Toxics Release Inventory ranks Jefferson County, Texas among the worst nationally for chemical emissions known to cause cancer, birth defects, and reproductive disorders. Port Arthur is near the top of the list of offending cities.⁵⁵ According to the Texas Cancer Registry, cancer rates among African Americans in Jefferson County are 15 percent higher than for the average Texan. The mortality



The Carver Terrace housing project sits next to an oil refinery in West Port Arthur, Texas.

© AP Photo/LM Otero



**Valero Refinery
in West Port Arthur,
Texas**

© Eugene Richards, OnEarth

rate from cancer is more than 40 percent higher.⁵⁶ In addition to higher cancer rates, residents of Port Arthur were found to be four times more likely than people approximately 100 miles upwind to report suffering from heart and respiratory conditions; nervous system and skin disorders; headaches and muscle aches; and ear, nose, and throat ailments.⁵⁷

Community activists in Port Arthur have been fighting against the refineries polluting their communities' air for more than a decade. Organizations, such as the Community in-Power Development Association (CIDA, Inc.), work with community members in Port Arthur to collect and analyze air, water, and soil samples, conduct direct action events, lobby local and state legislatures, and hold large industries accountable for the pollution they create. CIDA has won many victories alongside other local groups in Port Arthur. In 2007, CIDA Inc. was able to negotiate an agreement for the Valero oil refinery to assist with health care cost for residents West Port Arthur residents and for the construction of a health clinic in the community.⁵⁸

The organization, with other major environmental groups, helped establish the national Start-up Shut-down and Malfunction (SSM) Law for refineries. SSM removes exemptions for large industrial pollution sources from meeting protective standards during facility start up, shutdown, or malfunction and bars the use of the "affirmative defense" by industrial facilities—the defense allowed facilities to avoid paying penalties if violations occurred because of malfunctions.⁵⁹

— CONTINUED —

COMMUNITY STORY

“Our communities have had to work hard to force the EPA to do something about the hazardous pollution from these refineries that we live with every day and we will keep fighting to protect our families’ and our children’s health. We refuse to just stand by while the petroleum industry tries to undo important progress to finally reduce the toxic air coming from oil refineries.”

— **Hilton Kelley, executive director of Community In-Power & Development Association, Port Arthur, TX**

Challenges to SSM were denied by the Supreme Court in the summer of 2017.⁶⁰ The role of community organizations, like CIDA Inc., as well as community members themselves was critical and preserving this law.

In addition to air pollution from refinery operations, those from accidents and natural disasters must also be acknowledged. Air pollution from refineries during and after extreme weather events severely impacts fence-line communities. During Hurricane Harvey, in September 2017, many oil refineries along the Gulf Coast of Texas and Louisiana shutdown due to severe flooding. Refinery shutdowns, even under normal circumstances, are a major cause of abnormal emission events. Sudden shutdown events can release large plumes of sulfur dioxide or toxic chemicals in a matter of hours, worsening already life-threatening situations, exposing downwind communities to peak levels of pollution that increase the prevalence of negative health conditions.⁶¹ The Port Arthur community was not spared these extra pollutants in the wake of this storm.

The ills brought onto the West Port Arthur community violate basic human rights to a clean and livable environment. Air pollution from oil and gas facilities, permitted or otherwise, is a continued violation of this basic right.

A video by Hilton Kelley, a local Port Arthur environmental and community activist, and Executive Director of CIDA Inc., shows Valero refinery towers spewing huge flags of orange fire and thick, black smoke into over West Port Arthur.

CASE STUDY

Toxic Emission in South Philadelphia Pennsylvania, PA

Impacts are also severely felt by communities in South Philadelphia that share a neighborhood with the Philadelphia Energy Solutions (PES), the largest fossil fuel refinery on the East Coast and one of the oldest in the world. The refinery is responsible for 72 percent of the toxic air emissions in Philadelphia, which contributes largely to a citywide childhood asthma rate that is more than two times the national average.⁶² Toxics released from the refinery include ammonia, hydrogen cyanide, benzene, and sulfuric acid, which cause effects ranging from headaches to cancer.⁶³



Philadelphia Energy Solutions (PES) fossil fuel refinery in South Philadelphia.

© Grid Magazine

CASE STUDY**Accidents at Oil and Gas Facilities:
ExxonMobil Refinery****Baton Rouge, LA**

In 2010, there was significant increase in air pollution released due to accidents at oil and gas refineries in Louisiana. That year, facilities released 950,750 pounds of toxic pollution to the air. Between 2005 and 2014, Louisiana's refineries experienced 3,339 accidents that released 24 million pounds of air pollution. According to the Louisiana Bucket Brigade, from January to April 2017 there have been 647 petrochemical accidents. 117 of these accidents were reported from oil and gas facilities in April 2017 alone.⁶⁴ These accidents are common for the majority of oil and gas facilities nationwide. Leaks, holes, ruptures in pipelines and other infrastructure are common and often unreported. Over 200,000 people live within two miles of most of Louisiana's refineries. The potential public health impacts of oil and gas accidents is considerable.

In an effort to document the impact of petrochemical accidents on local communities, a number of community and labor groups in Louisiana—including the Louisiana Bucket Brigade, United Steelworkers, Standard Heights Community Association, and Residents for Air Neutralization—have produced a series of reports entitled, *Common Ground*, since 2009. The fourth publication, released in 2012, found that Louisiana's 17 oil and gas refineries reported 301 accidents that leaked over a million pounds of toxic chemicals into the air. Among these air pollutants were large quantities of benzene, a chemical known to cause cancer, and sulfur dioxide, which triggers asthma attacks. These types of accidents are an ongoing burden for Louisiana's vulnerable populations.

ExxonMobil, one of the many petrochemical companies present in Louisiana, reported the most accidents of any refiner in the state, in 2011. The company reported 138 accidents between two of its facilities in Chalmette and Baton Rouge. The 1,800-acre ExxonMobil Standard Heights plant in Baton Rouge, like many refineries, sits adjacent to a number of low-income and communities of color. The city of Baton Rouge is 50 percent African American and the child

— CONTINUED —

A mostly abandoned square of the Standard Heights neighborhood tucks into a corner of the Exxon Mobile plant in North Baton Rouge.



poverty rate in the Standard Heights neighborhood next to Exxon Mobil refinery is 45 percent. The Baton Rouge refinery is the second largest in the country and is part of a 67 million square foot (6.25 million m²) industrial complex. Tens of thousands of people live within two miles of the complex, which produces gasoline for much of the East Coast.⁶⁵

The state permits Exxon to release millions of pounds of air pollution each year from its Baton Rouge complex. However, air pollution exceeds allowed levels due to accidents and leaks. From 2008 to 2011 the Exxon Mobil Baton Rouge complex released four million pounds of unpermitted volatile organic compounds (VOCs).⁶⁶ VOCs contribute to increases in ozone concentration and smog. East Baton Rouge and adjacent parishes have teetered between normal and hazardous levels of ozone.

In 2016, the EPA finally indicated that the air quality in Baton Rouge was compliant with EPA standards. Despite this declaration, concerned community members still report accidents or otherwise unhealthy conditions. One citizen complaint received by the Louisiana Bucket Brigade in April 2017, detailed air contaminants from Exxon's Baton Rouge Refinery. One individual who lives close to the Exxon Refinery in north Baton Rouge, made 11 calls reporting:⁶⁷

- “foul gassy odor”
- “a strong odor of sulfur”
- “a smell that makes me sick of the stomach nauseous”
- “a flame that is burning real high and there’s a foul odor in the air”
- “a really strong odor that is like burning your nose.”

The constant release of air pollutants from oil and gas facilities, whether legal or illegal, intentional or accidental, contributes to the health problems plaguing African American and vulnerable communities. The efforts of local organizations in Louisiana to document accidents and make that information transparent to citizens has greatly benefited community action. Information gathered by community groups has been critical in the many actions against the construction of the Bayou Bridge Pipeline that will cut through more low income and communities of color in 11 South Louisiana parishes. To learn more about this pipeline and the impacts potential accidents may have visit the Louisiana Bucket Brigade website [here](#).

COMMUNITY STORY

“It’s often not worth risking a dangerous encounter in a small southern town to stop and record pollution. What we’re recording is another form of violence—this kind the long, steady attack of carcinogens and neurotoxins that ruin the health and the lives of those in Louisiana, usually African Americans, who are unfortunate enough to live cheek to cheek with Big Oil’s refineries.”

— **Anna Rolfes, Founding Director, Louisiana Bucket Brigade**

CHAPTER 4

Call to Action

Air pollution that affects many African American communities is emitted throughout the oil and gas sector. In the current regulatory environment, the disproportionate burden of pollution will only increase for low-income communities and communities of color. That means more “code red” air quality days, more trips to the emergency

Oil and gas infrastructure including drilling sites, pipelines, and refineries are typically located in low-income communities and communities of color. These are also the areas where drilling is likely to expand and new pipelines will likely be built.

room for asthma sufferers, and more instances of cancer and respiratory disease. It is critical to remember that:

- More than 1 million African Americans live within ½ mile of existing oil and gas facilities and the number is growing every year.
- Many African Americans are particularly burdened with health impacts from this air pollution due to high levels of poverty.
- The air in many African Americans communities violates air quality standards for ozone smog. Rates of asthma are relatively high in African American communities. And, due to ozone increases resulting from natural gas emissions, African American children are burdened by 138,000 asthma attacks and 101,000 lost school days each year.

- Many African American communities face an elevated risk of cancer due to air toxics emissions from natural gas development. Over one million Americans live in counties that face a cancer risk above EPA’s level of concern from toxics emitted by oil and gas facilities.
- 6.7 million African Americans live in counties with petroleum refineries.

Oil and gas infrastructure including drilling sites, pipelines, and refineries are typically located in low-income communities and communities of color. These are also the areas where drilling is likely to expand and new pipelines will likely be built. The energy industry has and continues to commit the same oppressive behaviors that have ravaged communities of color for centuries. In order to create an energy economy that upholds communities’ rights to a healthy environment, communities must demand changes in the oil and gas industry, and regulators and companies must be held accountable for the continued suffering of fence-line communities.

We must reform the energy and industrial sectors into cleaner, sustainable, and vibrant economies, that work for the communities they serve.

This means more than shifting to clean energy sources; it requires also giving local communities control over their energy sources and promoting local economic growth through stable employment opportunities. Intersectional issues demand intersectional solutions that uphold social, economic, and ecological justice. The just energy future will serve to reduce both the poverty and the pollution plaguing communities throughout the United States.

In order to combat the often overlooked, life-threatening actions of oil and gas operations, we must both implement commonsense standards that reduce pollution from these facilities, and transform the current energy economy.

It will take the combined effort of community members, decision-makers, industry, and others to create meaningful change, which is grounded in principles of energy democracy (local energy choice), energy sovereignty (local control over energy systems), and the right to live free from pollution. Before the transition to a clean energy economy can be achieved, it is first necessary to eliminate the injustices that are taking human life now. In the short term, more needs to be done to address the air pollution resulting from the oil and gas sector that harms the health of our families and our communities:

1. We must all learn about the oil and gas facilities that are located in our communities, and advocate for their decommissioning or removal.

Companies disproportionately build polluting facilities in or near communities of color, leading to unequal health impacts. In order to change this, we need to make more communities aware that their safety, health, and longevity are at stake. Go to www.oilandgasthreatmap.com to learn more about the oil and gas facilities that are located in your community. Be sure to learn about the impacts these facilities have in your community. The NAACP's Environmental and Climate Justice Program's publication, *Just Energy Policies and Practices Action Toolkit*, can be used to help guide community groups through energy justice campaigns. The toolkit provides resources and guidance for communities to organize around energy justice issues and execute community projects that move power back to communities and improve local quality of life. It is crucial to remember that any community can change, that every community can be healthy, and that every community has power.

It is now more important than ever for communities to become informed about and remove nearby polluting facilities. If the current administration has its way, the EPA's Office of Environmental



Completion equipment at a gas well.

Justice will be dismantled. The purpose of this office has been to ensure that all communities, regardless of race, national origin, or income, have the same degree of protection from environmental and health hazards. The loss of this office means one fewer safeguard from the unequal impacts of all types of air pollution.

2. We must support technology that cuts air pollution.

Many proven, low-cost technologies and practices are available to reduce methane pollution and toxic chemicals released along with it. In fact, dozens of companies in the methane mitigation industry are providing technologies and services to the oil and gas industry to help reduce methane and other air polluting emissions. These companies employ people at 531 locations in 46 states and are often offering well-paying and secure manufacturing jobs.⁶⁸ The companies that do this work can create jobs that should be targeted to local communities.



3. We must urge national leaders to address the pollution from the oil and gas sector.

Defending the methane pollution safeguards finalized during the Obama administration and pushing for additional protections against pollution from the oil and gas industry will help improve the health of many African American communities while also addressing global climate change. In June 2016, the EPA finalized strong methane standards covering new and modified oil and gas facilities. The rule will cut 510,000 tons of methane pollution from new and modified oil and gas facilities—the equivalent of 11 coal-fired power plants, or taking 8.5 million cars off the road every year. In addition, the rule is also expected to reduce 210,000 tons of volatile organic compounds and 3,900 tons of air toxics annually by 2025. These EPA standards must be enforced, and more also needs to be done to address the nearly 1.3 million existing oil and gas facilities across the country. Without government intervention, the vast majority, at least 75 percent, of all of the wells and oil and gas infrastructure in use today, will remain virtually unregulated and can continue to pollute methane without limit.⁶⁹

Existing facilities spewed over 8 million metric tons of methane in 2014—equivalent to 200+ coal-fired power plants.⁷⁰ Common sense, low-cost standards can both cut methane pollution by at least half and also significantly cut toxic and ozone smog-forming air pollution, which would have important benefits for air quality and public health in and downwind of oil and gas producing areas.

4. We must urge our states to reduce oil and gas air pollution.

Several states have stepped up to work on cleaning up the existing infrastructure within their borders, including California, Colorado, and Wyoming, and we call on additional states to follow their lead and protect the health of communities.

Please visit www.methanefacts.org to learn more and connect with organizations involved in the campaign.

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Environmental and energy justice issues are multilayered. Thus, the approach to tackling these issues must also be multilayered. People of color and low-income communities are disproportionately affected by exposure to air pollution, and standards that protect communities from this pollution are critical. In addition, these communities have a lot to gain from the transition from the current fossil fuel energy economy to one based on equitable, affordable, and clean energy sources. The first step is to address the many ways fossil fuels taint our communities, including the air pollution from oil and gas development.

The fight against the oil and gas air pollution is not about making things better for fence-line communities; it is about eliminating poverty, racism, and other social and structural inequities that render communities vulnerable. The air pollution that plagues communities across the country does not have to and should not exist. It is time to ask ourselves, what are we willing to do to ensure a clean and healthy future?

ENDNOTES

- 1 Clark LP, Millet DB, Marshall JD (2014) "National Patterns in Environmental Injustice and Inequality: Outdoor NO₂ Air Pollution in the United States." *PLoS ONE* 9(4): e94431. Available at: <https://doi.org/10.1371/journal.pone.0094431>.
- 2 Fleischman, Lesley et al. (June 2016), "Fossil Fumes: A public health analysis of toxic air pollution from the oil and gas industry." Clean Air Task Force. Available at: <http://www.catf.us/resources/publications/view/221>. Note: This paper only accounts for pollution from natural gas facilities and oil production facilities with associated natural gas. It does not include pollution from petroleum refineries. If these were included, the health impacts would be much greater.
- 3 <http://oilandgasthreatmap.com>
- 4 Badger, Emily. (2016) "The nation's housing recovery is leaving blacks behind." *The Washington Post*. <https://www.washingtonpost.com/graphics/business/work/housing/atlanta>.
- 5 Horowitz, D. A., & Benander, L. (2017). *Energy Democracy: Advancing Equity in Clean Energy Solutions*. Island Press.
- 6 Patterson, Jacqui, et al. (2014) "Just Energy Policies and Practices Compendium A State by State Guide to Energy Efficiency and Renewable Energy Policies." NAACP. Available at <http://www.naacp.org/wp-content/uploads/2016/04/JustEnergyPolicies%20Compendium%20FINAL%20DECEMBER%202013%20UPDATED%20%28Corrected%20ToC%29.pdf>
- 7 Hildenbrand, Zacariah, et al. (2015) "A Comprehensive Analysis of Groundwater Quality in The Barnett Shale Region." *Environ. Sci. Technol.*, 2015, 49 (13), pp 8254–8262. Available at: <http://pubs.acs.org/doi/abs/10.1021/acs.est.5b01526>.

Colborn, Theo, et al. (2011). "Natural gas operations from a public health perspective." *Human and Ecological Risk Assessment: An International Journal*. 17(5):1039–1056. Available at: <http://www2.cce.cornell.edu/naturalgasdev/documents/pdfs/fracking%20chemicals%20from%20a%20public%20health%20perspective.pdf>.

Harrison, S.S. (1983). "Evaluating system for ground-water contamination hazards due to gas-well drilling on the glaciated Appalachian Plateau." *Groundwater* 21(6):689–700. Available at: <http://onlinelibrary.wiley.com/doi/10.1111/j.1745-6584.1983.tb01940.x/abstract>.
- 8 Goodman, Samuel S. (2016). "Investigating the traffic-related environmental impacts of hydraulic-fracturing (fracking) operations." *Environment International*. 89-90: 248-260. Available at: <http://www.sciencedirect.com/science/article/pii/S0160412016300277>.
- Fractracker Alliance. (2015) "Pipelines vs Oil Trains." Available at: <https://www.fractracker.org/2015/05/pipelines-vs-oil-trains>.
- 9 "Toxic Wastes and Race at Twenty: 1987-2007." (2007). Available at: <https://www.nrdc.org/sites/default/files/toxic-wastes-and-race-at-twenty-1987-2007.pdf>.

"Coal Blooded: Putting Profits Before People." (2016). Available at: <http://www.naacp.org/wp-content/uploads/2016/04/CoalBlooded.pdf>.

"Air of Injustice" (2002). Available at: http://www.energyjustice.net/files/coal/Air_of_Injustice.pdf.
- 10 Clean Water for North Carolina. "Dangerous Neighbors: Pipelines, Compressor Stations, and Environmental Injustice." Available at: <http://www.cwfnc.org/documents/Dangerous-Neighbors-Final-6-8-2016.pdf>
- 11 <https://www.census.gov>
- 12 Id.
- 13 <http://www.schs.state.nc.us/data/databook>
- 14 Id.
- 15 <https://www.minorityhealth.hhs.gov/omh/browse.aspx?vl=4&vlid=15>.
- 16 Source: CDC 2017. CDC Wonder. <http://wonder.cdc.gov>.
- 17 Table 3 and Table B-2. <https://www.census.gov/content/dam/Census/library/publications/2016/demo/p60-256.pdf>.
- 18 ftp://ftp.cdc.gov/pub/Health_Statistics/NCHS/NHIS/SHS/2015_SHS_Table_P-11.pdf.
- 19 <http://bishop.house.gov/sites/bishop.house.gov/files/SabalTrailEnvironmentalJusticeLetter102315.pdf>
- 20 DI Desktop for 2015 production by county, US Census for 2015 population estimate by county.
- 21 <http://oilandgasthreatmap.com>
- 22 U.S. Environmental Protection Agency (EPA). Benzene Hazard Summary. Available at: <http://www3.epa.gov/ttn/atw/hlthef/benzene.html>.
- 23 McKenzie LM, Witter RZ, Newman LS, et al. (2012) "Human health risk assessment of air emissions from development of unconventional natural gas resources." *Sci Total Environ* 424: 79-87. Available: <http://www.ncbi.nlm.nih.gov/pubmed/22444058>.
- 24 U.S. EPA. 2011 National Emissions Inventory (NEI) Data. Available at: <https://www.epa.gov/air-emissionsinventories/2011-national-emissions-inventory-nei-data>.

- Note: Many peer-reviewed studies based on independent measurements conducted in both oil and gas producing basins and urban areas consuming natural gas have concluded that official emissions inventories such as NEI underestimate actual emissions from oil and gas. E.g. Petron et al. "Estimation of Emissions from Oil and Natural Gas Operations in Northeastern Colorado." Available at: <https://www3.epa.gov/ttnchie1/conference/ei20/session6/gpetron.pdf>.
- 25 U.S. EPA. Ethylbenzene Hazard Summary. Available at: <https://www3.epa.gov/airtoxics/hlthef/ethylben.html>.
- 26 2011 NEI.
- 27 Simonton, Scott (Oct 2007), "Human Health Effects from Exposure to Low-Level Concentrations of Hydrogen Sulfide." Occupational Health & Safety. Available at: <http://ohsonline.com/articles/2007/10/human-health-effects-from-exposure-to-lowlevel-concentrations-of-hydrogen-sulfide.aspx>.
- 28 U.S. EPA. Formaldehyde Hazard Summary. Available at: <http://www3.epa.gov/ttn/atw/hlthef/formalde.html>.
- 29 2011 NEI.
- 30 U.S. EPA. Ozone Basics. Available at: <https://www.epa.gov/ozone-pollution/ozone-basics>.
- 31 This chapter does not account for pollution from petroleum refineries. See Chapter 4 for information about those facilities.
- 32 Stand L.A. "The Inglewood Oil Field." Available at: <http://www.stand.la/inglewood.html>.
- 33 Note: This only accounts for pollution from natural gas facilities and oil production facilities with associated natural gas. It does not include pollution from petroleum refineries. If these were included, the health impacts would be much greater.
- 34 Baseline is EPA's 2025 NEI projection, with additional reductions from CO and WY oil and gas regulations that EPA did not account for in its model. See Fleischman et al. (August 2016), "Gasping for Breath: An analysis of the health effects from ozone pollution from the oil and gas industry." CATF. Available at: <http://www.catf.us/resources/publications/view/226>.
- 35 U.S. EPA (Sept 2015), "Regulatory Impact Analysis of the Final Revisions to the National Ambient Air Quality Standards for Ground-Level Ozone." Available at: <https://www3.epa.gov/ttn/naaqs/standards/ozone/data/20151001ria.pdf>.
- Studies cited include:
- Asthma exacerbations:
 - Mortimer, KM; Neas, LM; Dockery, DW; Redline, S; Tager, IB. 2002. "The effect of air pollution on innercity children with asthma." *Eur Respir J* 19: 699-705. Available at: <http://www.ncbi.nlm.nih.gov/pubmed/11999000>.
 - Schildcrout, J. S., Sheppard, L., Lumley, T., Slaughter, J. C., Koenig, J. Q., & Shapiro, G. G. (2006). "Ambient air pollution and asthma exacerbations in children: an eight-city analysis." *Am J Epidemiol*, 164(6), 505-517. Available at: <http://www.ncbi.nlm.nih.gov/pubmed/16798793>.
 - School Loss Days:
 - Chen L, Jennison BL, Yang W, and Omaye ST. 2000. "Elementary school absenteeism and air pollution." *Inhalation Toxicology* 12(11):997-1016. Available at: <http://www.ncbi.nlm.nih.gov/pubmed/11015140>.
 - Gilliland FD, Berhane K, Rappaport EB, Thomas DC, Avol E, Gauderman WJ, et al. 2001. "The effects of ambient air pollution on school absenteeism due to respiratory illnesses." *Epidemiology* 12(1):43-54. Available at: <http://www.ncbi.nlm.nih.gov/pubmed/11138819>.
- 36 Fleischman et al. (August 2016), "Gasping for Breath: An analysis of the health effects from ozone pollution from the oil and gas industry." CATF. Available at: <http://www.catf.us/resources/publications/view/226>.
- 37 Metropolitan areas defined by US Census Bureau. See: U.S. Census Bureau. "Metropolitan and Micropolitan Delineation Files," Core based statistical areas (CBSAs), metropolitan divisions, and combined statistical areas (CSAs). Available at: <http://www.census.gov/population/metro/data/def.html>
- 38 Vinciguerra, Timothy, Simon Yao, Joseph Dadzie, Alexa Chittams, Thomas Deskins, Sheryl Ehrman, and Russell R. Dickerson. "Regional air quality impacts of hydraulic fracturing and shale natural gas activity: Evidence from ambient VOC observations." *Atmospheric Environment* 110 (2015): 144-150.
- 39 American Lung Association. "State of the Air 2017." Maryland: Baltimore. Available at: <http://www.lung.org/our-initiatives/healthy-air/sota/city-rankings/states/maryland/baltimore.html>.
- Environment Maryland. (2017) "Our Health At Risk Why Are Millions of Americans Still Breathing Unhealthy Air?" Available at: <http://environmentmaryland.org/sites/environment/files/reports/Our%20Health%20at%20Risk%20vMD%20web.pdf>.
- 40 Fleischman, Lesley et al. (June 2016), "Fossil Fumes: A public health analysis of toxic air pollution from the oil and gas industry." Clean Air Task Force. Available at: <http://www.catf.us/resources/publications/view/221>. Note: This only accounts for pollution from natural gas facilities and oil production facilities with associated natural gas. It does not include pollution from petroleum refineries. If these were included, the health impacts would be much greater.
- 41 See Waste Not, pp. 9–11. More recent work, including work carried out in cooperation with the industry, has come to similar conclusions. See Harriss, R., et al., (2015) "Using Multi-Scale Measurements to Improve Methane Emission Estimates from Oil and Gas Operations in the Barnett Shale Region, Texas," *Environ. Sci. Technol.* 49, 7524–7526, and references therein. Recent work to update and improve emissions inventories, particularly for methane, is improving this situation. EPA Office of Inspector General (2013), "Report: EPA Needs to Improve Air Emissions Data for the Oil and Natural Gas Production Sector." Available at: <https://www.epa.gov/office-inspector-general/report-epa-needs-improve-air-emissions-data-oil-and-natural-gas-production>. Although the methane inventory and the NEI, which NATA and our analysis are based on, are developed separately, it is likely that the NEI underestimates HAP from oil and gas just as the GHG inventory

- underestimates methane from oil and gas, for similar reasons (underestimated emissions factors and undercounts of equipment).
- 42 Stand L.A. "The Inglewood Oil Field." Available at: <http://www.stand.la/inglewood.html>.
 - 43 Stand L.A. "Existing scientific literature on setback distances from oil and gas development sites" (June 2017). Available at: http://www.stand.la/uploads/5/3/9/0/53904099/2500_literature_review_report-final_jul13.pdf.
 - 44 Stand L.A. "The Inglewood Oil Field." Available at: <http://www.stand.la/inglewood.html>.
 - 45 Rode, Erin. (March 2016) "After Porter Ranch, Los Angeles' Low-Income Communities Want Environmental Justice Too." *Generation Progress*. Available at: <http://genprogress.org/voices/2016/03/23/42591/after-porter-ranch-los-angeles-low-income-communities-want-environmental-justice-too>.
- Environmental Defense Fund. "Aliso Canyon leak sheds light on national problem." Available at: https://www.edf.org/climate/aliso-canyon-leak-sheds-light-national-problem?utm_source=methane-counter&utm_campaign=edf_meth_upd_dmt&utm_medium=referral&utm_id=1450381973.
- 46 Bliss, Lara. "L.A.'s Slow-Moving Oil and Gas Disaster." Citylab (February 2016) Available at: <https://www.citylab.com/equity/2016/02/california-porter-ranch-gas-leak-oil-environmental-justice/425052>.
 - 47 Rode, Erin (March 2016).
 - 48 Bliss, Lara (February 2016).
 - 49 Sahagun, Louis. (November 2013) "EPA officers sickened by fumes at South L.A. oil field." *L.A. Times*. Available at: <http://www.latimes.com/local/la-me-1109-fumes-20131109-story.html>.
 - 50 Earthjustice. "Fact Sheet: Oil Refineries And Toxic Air Pollution." Available at: http://earthjustice.org/sites/default/files/files/Refineries-Fact-Sheet_04-08.pdf.
 - 51 Earthjustice. (February 2016) "Community Groups Intervene To Defend Air Pollution Controls On Oil Refineries." Available at: <https://earthjustice.org/news/press/2016/community-groups-intervene-to-defend-air-pollution-controls-on-oil-refineries>.
 - 52 Earthjustice. "Fact Sheet: Oil Refineries And Toxic Air Pollution."
 - 53 Fracktracker. (May 2017) "Tracking Refinery Emissions in California's Bay Area Refinery Corridor." Available at: <https://www.fracktracker.org/2017/05/tracking-refinery-emissions-in-californias-bay-area-refinery-corridor>.
 - 54 <http://archive.earth.org/articles/2013/08/if-built-the-keystone-xl-pipeline-will-end-in-one-toxic-town>
 - 55 Genoways, Ted. (August 2013) "Port Arthur, Texas: American Sacrifice Zone." Onearth. Available at: https://iaspub.epa.gov/triexplorer/tri_factsheet.factsheet?&pstate=TX&pcounty=jefferson&pyear=2015&pParent=TRI&pDataSet=TRIQ1.
 - 56 *Age-Adjusted Invasive Cancer Incidence Rates by County in Texas, 2010 - 2014*. Cancer Incidence File, March 2017. Cancer-Rates.info. Texas Cancer Registry. Available at: <http://cancer-rates.info/tx>.
 - 57 Morris, D. L., Barker, P. J., & Legato, M. S. (2004). Symptoms of adverse health effects among residents from communities surrounding chemical-industrial complexes in southeast Texas. *Archives of Environmental Health: An International Journal*, 59(3), 160-165.
 - 58 Community In-Powr and Development Association. <http://www.cidainc.org>.
 - 59 Earthjustice. (May 2015) "EPA Releases Rule To Close Clean Air Act Loopholes For Industrial Polluters." Available at: <https://earthjustice.org/news/press/2015/epa-releases-rule-to-close-clean-air-act-loopholes-for-industrial-polluters>.
 - 60 Earthjustice. (June 2017) "Supreme Court Won't Hear Case That Could Have Opened Dangerous Clean Air Act Loophole." Available at: <https://earthjustice.org/news/press/2017/supreme-court-won-t-hear-case-that-could-have-opened-dangerous-clean-air-act-loophole>.
 - 61 Democracy Now. (August 31, 2017) "Surrounded by Oil Refineries, Port Arthur, TX Faces New Environmental Crisis Following Harvey Floods." Available at: https://www.democracynow.org/2017/8/31/surrounded_by_oil_refineries_port_arthur.
 - 62 Pennsylvania Department of Health. "2015 Asthma Prevalence Report." Available at: <http://www.health.pa.gov/My%20Health/Diseases%20and%20Conditions/A-D/Asthma/Documents/2015%20PENNSYLVANIA%20ASTHMA%20PREVALENCE%20REPORT%20UPDATED%20FEB%2023%202016.pdf>.
- Centers for Disease Control and Prevention. "Most Recent Asthma Data." Accessed 9/19/2017. Available at: https://www.cdc.gov/asthma/most_recent_data.htm.
- 63 Philly Thrive. "A City Divided: Philadelphia's Energy Hub." Available at: <http://www.phillythrive.org/issue>.
 - 64 LA Bucket Brigade. Petrochemical Industry Accidents. Available at: http://labucketbrigade.org/sites/default/files/PetrochemicalAccidentsReport_April2017.pdf.
 - 65 Sturgis, Sue. (December 2012) "Pollution from oil refinery accidents on the rise in Louisiana." *Facing South*. Available at: <https://www.facingsouth.org/2012/12/pollution-from-oil-refinery-accidents-on-the-rise-in-louisiana.html>.
 - 66 NPR. (May 2013) "Baton Rouge's Corroded, Overpolluting Neighbor: Exxon Mobil." Available at: <http://www.npr.org/2013/05/30/187044721/baton-rouge-s-corroded-overpolluting-neighbor-exxon>.
 - 67 LA Bucket Brigade. Petrochemical Industry Accidents.
 - 68 Stokes et al. (Oct 2014) "The emerging U.S. Methane Mitigation Industry." Datu Research, prepared on behalf of Environmental Defense Fund (EDF). Available at: https://www.edf.org/sites/default/files/us_methane_mitigation_industry_report.pdf.
 - 69 The only existing facilities that may be regulated are those covered by the BLM rules (finalized in November 2016) and the Control Technique Guideline Standards.
 - 70 U.S. EPA. (2017), "U.S. Greenhouse Gas Inventory Report: 1990-2015." Available at: <https://www3.epa.gov/climatechange/ghgemissions/usinventoryreport.html>.

Fumes Across the Fence-Line

The Health Impacts of Air Pollution from Oil & Gas Facilities on African American Communities



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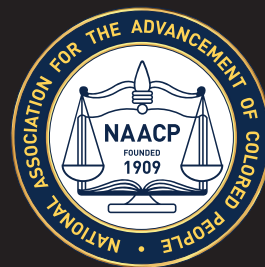


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