



# Now We're Fracked: Fracking's Public Health Crisis

Frontline communities plagued by fracking (hydraulic fracturing) and its labyrinth of infrastructure have endured well-documented, severe public health and safety impacts with few signs of slowing down. This research highlights the dangers of fracking and provides a roadmap of information, distilling some of the most salient impacts fracking has had on U.S. communities.

The entire fracking process is toxic, dangerous and poorly regulated. There are contaminants released, a concoction of chemicals used that infiltrate drinking water, radioactive fluid that flows back up wells, and potential explosions and leaks. The supporting infrastructure that props up fracked gas has its own set of risks. Pipelines leak, compressor stations discharge air pollution by design, storage wells and petrochemical plants explode, and greenhouse gases, particulate matter and more spew from gas-fired power plants.

People who live closest to oil and gas operations are at a higher risk of experiencing negative health outcomes.<sup>1</sup> Most often, frontline communities are

rural, lower income and/or communities of color. Oil and gas workers are also exploited and endangered. Their work is inherently riddled with safety hazards, and they are frequently exposed to toxic pollutants and radioactive material. These conditions put workers at risk for lung diseases, cancer, nervous system disruption, various injuries and death.

## Key findings:

- **Fracking is linked to a range of health issues including lung disease, respiratory illness and reproductive harms. Increasingly, fracking is linked to cancer:** Companies refuse to disclose about 11 percent of the chemicals used during fracking. Up to 55 identified fracking chemicals

and byproducts are known or suspected carcinogens. Studies find that proximity to oil and gas wells raises a person's cancer risk. Due to long incubation periods, medical professionals suspect cancer cases will increase over time. In one of the most heavily-fracked regions of Pennsylvania, children are developing a rare form of cancer called Ewing Sarcoma.

- **Fracking worsens communities' quality of life:** It often takes place in lower-income rural areas where industry exploits people with less political power to resist. This forces residents to carry disproportionate health and safety burdens. Shale production has diminished quality of life for rural communities due to drilling, the labyrinth of fracked gas pipelines, compressor stations, traffic, heavy truck accidents, public health problems, crime spikes and more. People also experience increased anxiety and depression due to fracking-related disruptions and uncertainty.
- **Oil and gas extraction is more dangerous than the average job:** Oil and gas laborers are victims of their employment. On the job, workers have faced health risks from exposure to radiation and other harmful substances. They face injuries and death from onsite blowouts and explosions, and from traffic accidents en route to well sites. According to recent Bureau of Labor Statistics data, the death rate for oil and gas extraction workers is quadruple that of all U.S. workers.
- **Fracking infrastructure, which is disproportionately located near vulnerable populations, harms human health:** Harmful pollutants spew from pipelines, storage facilities, gas-fired power plants and petrochemical facilities. This puts communities at risk for cancer, respiratory and reproductive issues, abdominal pain and death. Pipelines like the now-defunct Atlantic Coast and Dakota Access are dangerous, leaky and often run through land near marginalized populations. In the Gulf Coast, petrochemical plants that rely on fossil fuels are largely sited near communities of lower-income people of color.

The only real solution for our climate and public

health is to ban fracking and shift to 100 percent clean, renewable energy. Technology exists to create this transition with storage and transmission at prices lower than current energy costs. We need strong government policies backed by the political will to see these needed changes through.<sup>2</sup>

## Widespread Fracking Health and Safety Threats: An Overview

As greenhouse gas emissions from fossil fuels continue to alter the climate, human health is in greater danger. Accelerated warming is increasing heat-related deaths, water-borne illnesses and vector-borne disease transmission. More extreme weather events (like wildfires) and increases in atmospheric ozone and particulate matter heighten the risks of cardiovascular and respiratory illnesses and death. Vulnerable populations — communities of color, lower-income households, immigrants, Indigenous communities, children and the elderly — are often on the frontlines coping with these threats.<sup>3</sup>

Over the past decade, the U.S. has emerged as the largest global producer and consumer of natural gas, largely because of fracking.<sup>4</sup> Fracking is an unconventional method for extracting oil or natural gas from previously inaccessible rock formations. It has been linked to health issues ranging from headaches, nausea and nasal irritation to more serious concerns like reproductive problems and cancer.<sup>5</sup> The chronic nature of these health issues has caused students to miss school and killed people's pets.<sup>6</sup> Without drastic action, the threats of fracking will only further imperil our communities.

Air quality degradation from shale gas production has resulted in as many as 4,600 premature deaths in just over a decade, costing the U.S. around \$23 billion.<sup>7</sup> Health-threatening air pollutants released during fracking include hydrocarbons and volatile organic compounds (VOCs), like benzene and toluene, which impair breathing and irritate the nose and throat.<sup>8</sup> These releases can mix with nitrogen oxide (NO<sub>x</sub>) emissions from diesel-fueled vehicles and stationary equipment at well pads to form ground-level ozone.

Chronic exposure to ground-level ozone can cause asthma and chronic obstructive pulmonary disease. When combined with particulate matter, ozone can form smog, a harmful form of air pollution.<sup>9</sup>

A study from October 2020 revealed that toxic radioactive particles released during drilling and fracking can latch onto existent air particles and travel to downwind locations, potentially harming those who breath them in.<sup>10</sup>

In addition to toxic air emissions, over 75 percent of disclosed fracking fluid chemicals have documented effects on the skin, eyes and other organ systems. These chemicals can also have detrimental impacts on the brain and nervous, renal and cardiovascular systems.<sup>11</sup> This toxic fluid flows back up wells after drilling as flowback or produced water (collectively called wastewater). These chemicals mix with other natural underground toxics, including radioactive material like radium, benzene and metals.<sup>12</sup>

### Fracking: Permitted to Pollute

Thanks to the “Halliburton Loophole” there is limited federal oversight of fracking operations. This exemption was created through legislation crafted behind closed doors and ushered into law by former U.S. Vice President and Halliburton CEO Dick Cheney. Because of it, as long as fracking fluid does not include diesel, fracking is exempt from the Safe Drinking Water Act.<sup>13</sup>

Regulators have little regard for how people are impacted by exposure to these fluids, which happens regularly through spills, leaks, degrading wells, wastewater and storm runoff.<sup>14</sup> Reports commissioned by the federal government have downplayed the impacts of fracking<sup>15</sup> despite ample evidence that the practice pollutes water and air, and drives climate chaos.

In addition to lax federal regulations, state and local governments go to extreme lengths to protect the oil and gas industry, promote fracking and disregard the burgeoning threats these operations have on health. Denton, Texas became the first Texas city to ban fracking. That ban, supported by the majority of the community, was quickly reversed by the industry-friendly Texas Legislature.<sup>16</sup> Within a year, a statewide

law was passed to prevent any local ban on fracking in the state.<sup>17</sup>

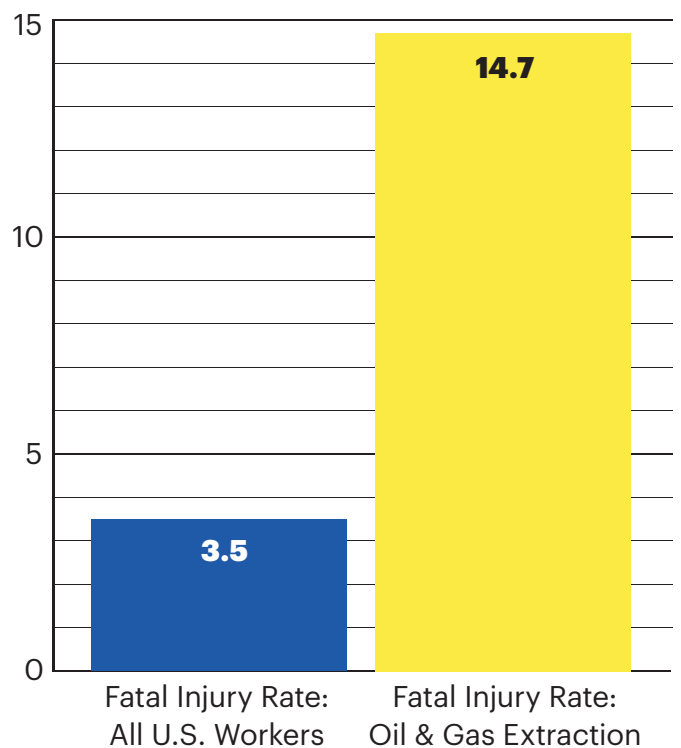
In 2012, in Pennsylvania, a medical gag rule was secretly put in legislation requiring Pennsylvania medical professionals to keep quiet about information regarding fracking chemicals and its associated effects, applying to patients they were treating.<sup>18</sup> Two years later it was uncovered that Pennsylvania Department of Health workers were given a list of “buzzwords” associated with fracking and other environmental hazards (like “cancer cluster”, “hair falling out” and “skin rash”) and told to ignore health complaints containing these words.<sup>19</sup>

### Fracking Hazards on the Job

Oil and gas workers are among the most impacted by fracking. They face severe injuries and death from onsite blowouts and explosions, and traffic accidents en route to and from well sites.<sup>20</sup> Bureau of Labor Statistics data shows that in 2018, the death rate for oil and gas extraction workers was quadruple that of all U.S. workers (14.7 and 3.5, respectively; see Figure 1).<sup>21</sup>

In addition to the safety hazards, workers are also

**FIGURE 1. Total U.S. Worker Fatality Rate Compared to Oil & Gas Extraction Worker Fatality Rate, 2018**



exposed to toxic pollutants including silica sand, diesel exhaust, VOCs and particulate matter. These contaminants put workers at risk for lung diseases, cancer, nervous system disruption and organ injury.<sup>22</sup>

Silicosis is a lung disease caused by exposure to silica sand, the agent used to keep shale rock ajar during fracking to release oil and gas. Inhalation of silica sand dust — which is reportedly 20 times more toxic than coal dust — at work sites has resulted in deaths around the world. It can take up to 20 years of exposure before this incurable disease manifests.<sup>23</sup> Likewise, inhalation of fracked crude oil vapor can cause fatal poisoning. Across the country, workers have died at well sites after breathing in hydrocarbon vapors from storage tanks.<sup>24</sup>

Workers are at risk of burns and irritation from contact with hundreds of hazardous fracking chemicals.<sup>25</sup> They can be further exposed to elevated levels of radiation through direct contact with waste during transport or while working at the site.<sup>26</sup> A worker whose job was to cart fracking wastewater from wells to injection sites reported experiencing headaches, nausea, numbness and joint pain. Others have been diagnosed with cancer and experienced sores and skin lesions for months at a time.<sup>27</sup>

## The Environmental Injustice and Social Costs of Fracking

Just as workers are disproportionately burdened by fracking, marginalized populations are forced to carry a disparate burden of health, safety and quality of life risks related to fracking because these operations are more likely to be placed in their communities. A study of fracking activity across Colorado, Oklahoma, Pennsylvania and Texas found that wells were disproportionately placed in Black communities.<sup>28</sup> Fracking companies target lower-income areas for drilling. In 2016, one executive admitted that his company avoids drilling gas wells in affluent communities near “big houses,” where people have the financial resources to fight back.<sup>29</sup>

In Southern Texas, people of color are most likely to live near a wastewater disposal well, on top of already dealing with the impacts of uranium mining.<sup>30</sup> Likewise, in Colorado, wells were being proposed

next to a predominately Black and Latino school after original plans for the operations to be located near a mostly white school were revoked amidst protests.<sup>31</sup>

Fracking also frequently takes place in lower-income rural areas because land for equipment is vast and cheap. Industry preys on residents by promising economic prosperity.<sup>32</sup> In reality, shale production diminishes quality of life due to drilling, the labyrinth of fracked gas pipelines, compressor stations, traffic, heavy truck accidents, public health problems, crime spikes and more.<sup>33</sup>

Although some communities have turned down the industry's empty promises,<sup>34</sup> others have been swindled. In Southern Pennsylvania, fracking companies bribed residents to gain access to their land. Residents now deal with nausea, dizziness, mouth ulcers, rashes, headaches and abdominal pain.<sup>35</sup>

Rural communities also experience increases in crime as a result of fracking. An influx of transient workers with disposable income can lead to higher levels of social disorder, especially substance abuse and alcohol-related crimes. A number of communities across the U.S. have documented higher crime rates linked to the fracking boom.<sup>36</sup>

People have also experienced increased anxiety and depression because of the uncertainty that fracking brings, including concerns about their health, safety and changes to their lifestyles. Researchers found that widespread fracking can cause “collective trauma” in the communities they infiltrate. This is “reinforced through uneven political, social, and economic power.”<sup>37</sup> Bringing fracking to an unfracked area can also rattle residents’ “sense of place and social identity.”<sup>38</sup>

## Specific Fracking-Related Health Concerns

In addition to the overarching social costs of drilling and fracking, specific health issues have been increasingly linked to this dangerous form of extraction. From adults and children getting cancer due to pollution, to the threat of high-risk pregnancies, people are fighting for their survival.

## Fracking and Cancer Caution

According to the U.S. Environmental Protection Agency, companies refuse to disclose about 11 percent of the chemicals used during fracking.<sup>39</sup> A 2011 federal report found that fracking fluids contain close to 30 different chemicals that are known or suspected carcinogens.<sup>40</sup> Another study found that 55 different chemicals used in fracking could cause cancer; 20 of these have been linked to leukemia and/or lymphoma.<sup>41</sup>

One of the main cancer-causing chemicals in fracking fluid is benzene. Others, like ethanol, cadmium, 1,3-butadiene and formaldehyde are also confirmed carcinogens.<sup>42</sup> A study done on mice found that their exposure to fracking chemicals was associated with abnormalities consistent with “pre-cancerous lesions.” Researchers stress the importance of conducting more studies to determine if there are similar effects related to breast cancer risks in humans.<sup>43</sup>

Raw natural gas contains benzene and natural gas development produces formaldehyde — both of which are released by the tens of thousands of tons each year and can be detected up to 885 to 2,500 feet away from well sites, respectively.<sup>44</sup> These carcinogens have come into contact with people through degraded well casings, spills, underground leaking, equipment failure and leaching wastewater pits.<sup>45</sup> Inhaling VOCs produced by fracking is also associated with acute and chronic cancer risks.<sup>46</sup>

A study that looked at cancer incidences before and after fracking in Southwest Pennsylvania concluded that shale development must be considered a risk factor for cancer. Indeed, cancer rates in these counties increased after fracking began.<sup>47</sup> As of early 2020, this region of Pennsylvania stands as one of the most heavily fracked regions in the state (see Figure 2).<sup>48</sup> In Washington County, families have mounting fears that fracking is linked to a rare cancer known as Ewing Sarcoma.<sup>49</sup>

The U.S. only sees around 250 cases of this rare form of cancer per year, yet in this specific area, a number of children have fallen ill and died of Ewing Sarcoma. Six cases have appeared in the Canon-McMillan

School District alone.<sup>50</sup> A study originally conducted by the Pennsylvania Department of Health claimed rates of Ewing Sarcoma were not statistically significant, but growing pressure from families led the state to allot close to \$4 million for two additional studies on fracking's effects on health and its possible link to cancer in the area.<sup>51</sup>

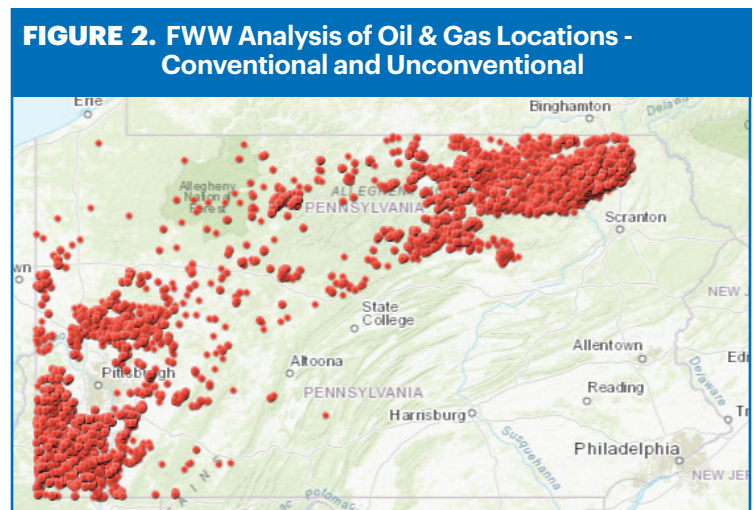
Throughout rural Colorado, studies have concluded that the closer one gets to oil and gas well sites, the higher the risk for cancer.<sup>52</sup> Fracking operations disproportionately threaten Colorado's youth (people aged 5-24), who were four times more likely to live near active oil and gas wells, and more likely to get cancer from exposure to fracking pollutants.<sup>53</sup>

Due to long incubation periods, medical professionals suspect even more cancer cases will eventually develop, increasing overall rates.<sup>54</sup>

## Fracking's Dangers to Reproductive Health and Children

Fracking can harm fetuses and pregnant women. Studies show that fracking chemicals could be endocrine disruptors, which can alter hormone functions and cause a number of hormone-related disorders and diseases including reproductive health issues.<sup>55</sup> Other research links drilling and fracking to preterm birth, low birthweight and infant mortality.

Fracking chemicals can put developing embryos and fetuses at risk during the prenatal and early postnatal stages.<sup>56</sup> In fact, mothers who live in areas with



Map data and map courtesy of Pennsylvania Department of Environmental Protection, Pennsylvania Spatial Data Access (PASDA), ESRI, ArcGIS, HERE, Garmin, FAO, NOAA, USGS, EPA & NPS

substantial fracking activity are more likely to have high-risk pregnancies.<sup>57</sup> Research finds that mothers who live less than a mile from an active well site experience “significantly worse infant health outcomes.”<sup>58</sup>

A study of birth outcomes in Pennsylvania mothers from 2003 to 2010 found that proximity to fracking operations was associated with low birthweights and a decrease in average term birthweights.<sup>59</sup> In a separate analysis, unconventional natural gas development was linked to low birthweight and heart defects in infants born to mothers living near wells.<sup>60</sup> The odds of preterm birth may also increase during the production and completion phases of fracking and drilling.<sup>61</sup> And fracking lessens the chance of survival of some babies. In heavily fracked counties of Pennsylvania, researchers found that babies born after a period of rapid gas development were 28 percent more likely to die in their first month.<sup>62</sup>

Likewise, children living near fracking sites are more susceptible to air pollution due to their still-developing lungs and the amount of time they spend outside playing. Their developing brains and central nervous systems make them more sensitive to various fracking contaminants linked to neurodevelopmental problems.<sup>63</sup> Benzene exposure in children can alter blood profiles, enzymes and physical functioning, leading to an increased risk of blood-related diseases.<sup>64</sup>

## Fracking-Related Water Contamination

Clean drinking water is a human right. But one of the most notorious public health risks associated with fracking is its direct impact on drinking water. Since the fracking boom began, drinking water contamination has popped up across the country. One study found higher concentrations of combustible methane in areas close to active fracking.<sup>65</sup> Other studies confirm that foam, brine, natural gas and other chemicals can migrate through layers of rock and leach into groundwater sources.<sup>66</sup>

In a Texas community, investigators found that water had elevated levels of metals and chemicals linked to nearby drilling.<sup>67</sup> After leasing land to Chesapeake Energy, three families experienced

methane-tainted drinking water; the town eventually settled with Chesapeake for \$1.6 million.<sup>68</sup> In Dimock, Pennsylvania — an energy “sacrifice zone” that used to be surrounded by coal mining — fracking led to widespread drinking water pollution, and much of the community had to get drinkable water trucked in.<sup>69</sup> Brown, murky contaminants and flammable methane flowed from water faucets, even resulting in a well blowout.<sup>70</sup> As of June 2020, Cabot Oil and Gas has been charged with at least 15 crimes, including nine felonies, related to its operations.<sup>71</sup>

Poorly disposed wastewater can leak into groundwater aquifers. Near a fracking wastewater disposal site in a majority Black community in DeBerry, Texas, groundwater was contaminated with pollutants — including benzene, arsenic and lead — beyond acceptable drinking water standards.<sup>72</sup> In North Dakota, wastewater spills and illegal wastewater disposal have polluted shallow groundwater sources and waterways. In some cases, these contaminants were identified in the water four years after spills first occurred.<sup>73</sup>

Complaints about foul-tasting and -smelling water in Pavilion, Wyoming prompted an investigation in which scientists concluded the contamination was due to fracking. Concentrations of ions and other compounds in fracking wastewater had leached into the drinking water aquifers from unlined disposal pits.<sup>74</sup> One resident in Pavilion pointed to fracking when his water well became polluted with related chemicals after decades of having clean water. On one occasion, his water well spewed a stream of natural gas and foam, a blowout that continued for three days that ejected six million cubic feet of natural gas.<sup>75</sup>

## Fracking Infrastructure Perpetuates Health and Safety Risks

From natural gas power plants to gas storage facilities, pipelines to petrochemical plants, fracking-backed infrastructure jeopardizes surrounding communities. The closer people live to an oil and gas facility, the worse their health can be. Researchers found that people who live 500 feet or closer experience elevated cancer risks.<sup>76</sup> These dangers are

especially real for low-income communities and communities of color that are disproportionately situated near toxic facilities.

A study commissioned by the NAACP found that one million Black people live within a half mile of existing natural gas facilities, including compressor stations and processing facilities.<sup>77</sup> Dominion Energy's now canceled Atlantic Coast Pipeline would have run through communities with disproportionately higher percentages of Black and lower-income people. In North Carolina, it would have stretched through Indigenous communities.<sup>78</sup> In North Dakota, the highly publicized resistance of the Standing Rock Tribe to the Dakota Access Pipeline brought national attention to the environmental injustices faced by Indigenous persons.<sup>79</sup> Indeed, an analysis found that Indigenous communities in Utah, North Dakota and New Mexico were more likely to live within a half mile of an oil and gas facility.<sup>80</sup> And in Providence, Rhode Island, a liquified natural gas plant is being constructed in a predominately lower-income minority community, despite local opposition.<sup>81</sup>

## Fracked Gas Props Up Power Plants

The industry and its shills tout natural gas-fired power plants as the "cleaner" fossil fuel. Still, they emit significant amounts of methane, carbon dioxide, NO<sub>x</sub> and sulfur dioxides (SO<sub>2</sub>), particulate matter and other pollutants.<sup>82</sup>

NO<sub>x</sub> can lead to respiratory and reproductive issues, abdominal pain and nausea and high exposures can cause death.<sup>83</sup> SO<sub>2</sub> is a colorless gas that can impair the respiratory system and can decrease fertility.<sup>84</sup> Exposure to methane can lead to headaches, vomiting and loss of coordination, and the inhalation of particulate matter can contribute to heart disease, strokes, asthma and cancer.<sup>85</sup>

Power plants are often unequally sited in communities of color.<sup>86</sup> Food & Water Watch analyzed the placement of power plants in Pennsylvania and revealed that in 2017, the state's 88 existing oil, natural gas and coal power plants were disparately located in disadvantaged communities. The addition of the nearly 50 proposed gas-fired power plants would reinforce this environmental injustice.<sup>87</sup>

Additionally, these facilities are loud, with noise being generated from turbines, air intakes and cooling towers. And natural gas-fired power plants are typically supported by additional dirty and dangerous infrastructure like pipelines and storage tanks.<sup>88</sup>

## Disastrous Gas Storage Facilities

Fracked gas is often over-produced, and the excess must be warehoused in outdated underground gas storage facilities while awaiting transportation through pipelines for various end uses. This gas is injected into wells that are most commonly located in depleted oil and gas fields.<sup>89</sup> The shift from coal to natural gas for electricity generation has driven underground gas storage to record levels.<sup>90</sup>

One study found that 65 percent of underground gas storage wells across six states are located near homes; 41 percent of these wells have a home less than a quarter mile away.<sup>91</sup> Alarmingly, these facilities are prone to leaks, blowouts and explosions. Notoriously, the Aliso Canyon storage facility leak in 2015 went on for months, spewing nearly 100,000 metric tons of methane and other pollutants into the air. Nearby residents suffered from headaches, nosebleeds, nausea and rashes. Over 8,000 families were forced to evacuate.<sup>92</sup> Toxic pollutants lingered in the air even after the blowout.

Similarly, in 2001, a massive natural gas leak at a Kansas storage facility led to multiple explosions, the destruction of storefronts and two deaths.<sup>93</sup> A blowout at Marina del Rey (near Los Angeles) in January 2019 released natural gas and a mixture of water and mud into the air.<sup>94</sup>

## Pipelines and Compressor Stations

Pipelines and compressor stations connect hazardous oil and gas infrastructure together. Compressor stations, key parts of the pipeline infrastructure network, are used to maintain or increase pressure in natural gas transmission lines.<sup>95</sup> Pipelines are the actual conduits for transporting oil or gas. Both compressor stations and pipelines are prone to spills, explosions and leaks with direct implications on the health and safety of workers and communities nearby.

From 1999 to 2018, there have been more than 5,700 pipeline incidents that have resulted in 1,267 injuries, close to 300 deaths and more than \$9 billion in accrued costs.<sup>96</sup> Pipelines can result in accidental releases of oil and gas, putting residents and businesses along their paths under the constant threat of accidents, explosions, environmental and property damages, and even injuries or deaths.<sup>97</sup> Moreover, pipelines built since 2010 are nearly five times more likely to have problems than those built from 1980 to 2009, likely because the rush to complete pipelines during the fracking boom encouraged corner-cutting during construction.<sup>98</sup>

There are numerous documented instances where pipelines have dangerously malfunctioned. A 2010 incident in San Bruno, California resulted in a large pipeline blowout that killed eight, injured 58 and demolished 38 homes.<sup>99</sup> In 2016, a Spectra Energy pipeline in Salem Township, Pennsylvania exploded, scorching trees, destroying a home and causing injuries to a man attempting to escape.<sup>100</sup> More recently, during summer 2019 in Kentucky, the 9,000-mile Texas Eastern Transmission natural gas pipeline exploded and killed one person and injured five. The blowout destroyed nearby railroad infrastructure and forced 75 people to be evacuated from nearby homes.<sup>101</sup>

In January 2019, a segment of that same natural gas pipeline — which stretches from Texas to New York — blew up, destroying homes, injuring two people and killing one.<sup>102</sup>

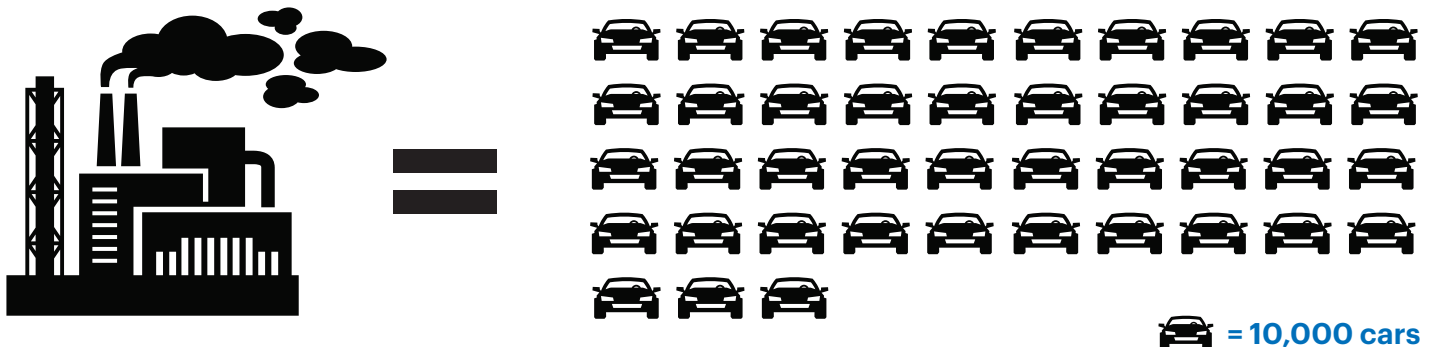
Compressor stations release large amounts of NO<sub>x</sub>, carbon monoxide, VOCs and particulate matter. Arsenic and benzene are also released from compressor stations; both have been linked to various cancers.<sup>103</sup> These facilities can also ignite. In 2019, a Michigan compressor station exploded, resulting in a fire that burned for five hours.<sup>104</sup> A 2012 natural gas explosion at a compressor station in Pennsylvania caused a fire that burned for hours; despite an ongoing investigation, the facility was up and running days later.<sup>105</sup> In Wyoming, a natural gas leak caused a fire and explosions at a compressor station, resulting in workers being hospitalized.<sup>106</sup>

## Plastic and Petrochemical Plants

Lastly, there is a building boom of petrochemical plants that use cheap fracking byproducts like ethane to manufacture plastics.<sup>107</sup> Petrochemical plants emit NO<sub>x</sub> and dangerous hydrocarbons, which pose numerous health harms. The mixture of NO<sub>x</sub> with VOCs from these facilities can also produce dangerous ozone pollution.<sup>108</sup> Research has found that these plants could result in rapid ozone development, and flaring potentially exposes nearby communities to high levels of formaldehyde (a carcinogenic air pollutant and ozone precursor).<sup>109</sup>

Despite all this, there are hundreds of new proposals for petrochemical plants in Appalachia and the Gulf Coast.<sup>110</sup> In Beaver County, Pennsylvania, Shell is constructing a petrochemical (ethane cracker) plant that is already being estimated to release the greenhouse gas equivalent of 430,000 cars annually.<sup>111</sup>

**Shell's ethane cracker plant, currently under construction, is already estimated to release the greenhouse gas equivalent of 430,000 cars annually.**





Medical experts worry about the pollution from this facility, which could travel over 30 miles to already pollution-burdened Pittsburgh.<sup>112</sup>

New facilities will compound existing pollution burdens in these areas. Several Ohio, Pennsylvania and West Virginia communities were ranked among the most polluted areas for ozone and particulate matter by the American Lung Association — including Beaver County, where the Shell cracker is being built.<sup>113</sup> Belmont County, Ohio, the proposed site for another cracker plant, has already been plagued with “intense” emissions from shale gas development.<sup>114</sup>

In Texas, there were 16 chemical plants within a three-mile radius of the Manchester-Harrisburg neighborhood, one of Houston’s lower-income communities of color.<sup>115</sup> One study found that children living within two miles of the Houston Ship Channel, where many plants are located, have a 56 percent greater chance of developing leukemia than children living 10 miles away.<sup>116</sup>



HOUSTON SHIP CHANNEL PHOTO COURTESY OF U.S. COAST GUARD

In rural “Cancer Alley” Louisiana, along the Mississippi River, there are a slew of petrochemical plants that have exposed residents to heightened levels of airborne carcinogens, terrible odors and a variety of health issues for decades. From St. James Parish to St. Gabriel to LaPlace, several predominantly Black and low-income neighborhoods are home to residents

who have struggled with cancer, miscarriages, skin conditions and labored breathing due to the presence of these plants in their communities.<sup>117</sup> The EPA reported that the mostly Black community of St. John the Baptist Parish, which had the highest cancer risk from air pollution in 2015, has been linked to chloroprene emissions — a likely human carcinogen that has polluted this area for decades.<sup>118</sup> Yet chemical companies are still clamoring to build more plants along Cancer Alley, claiming their facilities follow safety standards and can boost the Louisiana economy.<sup>119</sup>

## Conclusion

Fracking has transformed the American landscape over the last decade, triggering booms (and busts) in oil and natural gas production and inflicting a terrible toll on public health. A litany of research reveals a disturbing picture of the suffering of people forced to live near drilling sites, pipelines, compressor stations, power plants and petrochemical facilities. The public health threats associated with fracking and its infrastructure — asthma, skin problems, reproductive damage, cancer and more — are rippling across the country, further harming marginalized groups.

To protect people and the climate, we need to overhaul our energy system. A movement is growing to support a large-scale effort to move the United States away from fossil fuels by building renewable energy and electrifying infrastructure. Technology for a large-scale transition to renewables has existed for more than 20 years and is cheaply available now — we need strong government policies backed by political will to see it through.

### Food & Water Watch recommends:

- An immediate national ban on fracking and its associated infrastructure, like pipelines, power plants and petrochemical facilities.
- Transitioning to 100 percent clean, renewable energy by 2030 through an investment in a New Deal-scale green energy public works program that fosters a rapid transition to real zero-emission clean energy like solar and wind, accompanied by widescale deployment of energy efficiency.

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