Fighting Off a Petrochemical Future in the Ohio River Valley

Shell Oil's construction of a plastic manufacturing plant, on the banks of the Ohio River, in Beaver County, Pennsylvania.
PHOTO BY RYAN GATTIS

The gas industry envisions a network of fossil-fuel dependent plants. Local activists imagine a different path.

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BY DHARNA NOOR & NICOLE FABRICANT

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Vanessa Lynch grew up in the Pittsburgh suburbs in the 1980s and ’90s but moved away for college. She returned to the area a decade later with her husband and then-1-year-old child.

It was 2007, and the fracking industry was just beginning to take hold in southwest Pennsylvania. The then-fledgling industry was not really on Lynch’s radar; between raising a daughter and working full-time as a therapist, she had her hands full. Things got even busier when she had her son in April 2009 and he began suffering from frightening wheezing spells when he was 6 months old, requiring periodic medical attention.

“Honestly, I really had very little understanding of what was going on in the region,” she says.

Just before her daughter was set to start kindergarten, Lynch and her family moved half an hour away to Indiana Township to be close to a good school and have more space to play outside. The neighborhood had everything the growing family could hope for, with a park to play soccer and softball and a creek for summertime wading.

A couple of years later, however, she learned via a neighbor’s Facebook post that the fracking industry had quietly placed a gas drilling site in her community, just above the local park. Infuriated and inspired to act, in 2018, Lynch joined up with the local chapter of the national environmental advocacy group Moms Clean Air Force, where she now works as a part-time organizer.

Lynch and her fellow organizers were not able to shut down the well pad, but they did win more protective ordinances for the township, shielding approximately 85% of its land from future drilling.

Now, though, there’s another threat lurking at Lynch’s door: a plastics manufacturing plant that Shell Oil is constructing just an hour away, on the banks of the Ohio River.

Shell’s ethane-cracker plant, which it began building in 2017, is set to open later this year, but the company has not yet announced a firm date and did not respond to a request for comment. The first facility of its kind in Appalachia, it will use extreme heat to “crack” ethane, a byproduct of fracked gas, into ethylene, a building block for manufacturing plastic.

The facility will produce more than 1 million tons of plastic pellets per year, which will be used to make products ranging from phone cases to auto parts. As it does, the facility will spew hundreds of tons of dangerous compounds into the air while also emitting planet-heating pollution. And it will be fed by the fracked gas from thousands of wells peppered across Appalachian communities—communities like Lynch’s.

From Gas to Plastic

The fossil fuel industry is a powerful political and economic force in Pennsylvania, and Lynch’s organizing has been an uphill battle. In recent years, though, the market has been on her side.

In the roughly 15 years since fracking first came to Appalachia, gas has become a far riskier investment. Until Russia’s recent invasion of Ukraine, growth in global demand was on the decline, especially amid the spread of COVID-19. One 2021 study even found that Appalachian gas may never be profitable again.

In plastic, however, the fossil fuel industry sees a chance to turn itself around, solidifying demand for fracked gas in the region for decades to come. Local officials are on board with the scheme—they awarded Shell one of the largest public subsidy packages in national history.

Advocates are particularly concerned because the Shell cracker plant isn’t meant to be the sole plastic plant in the region. Rather, it is part of a plan to transform Appalachia’s Ohio River Valley into a plastic and petrochemical hub, with cracker plants, storage facilities, and gas pipelines erected across Ohio, Pennsylvania, West Virginia, and Kentucky.

“These plants don’t stand alone, and they require a high volume of natural gas to do the work that they do,” Lynch says. “So when you think about the Ohio River Valley and the potential for these sorts of very large polluters to become more and more common, it really does become a more concerning story.”

Health Impacts

In Lynch’s township, gas companies are currently extracting gas from eight wells. But six more are permitted for future use if the industry decides to develop them, and as demand for ethane increases to supply the cracker plant (or plants), she is concerned that the number could rise.

Nearby areas, many of them more economically depressed, are far more open to drilling than hers. The most fracked county in the state is Washington County, where the poverty rate is 3% higher than it is in Lynch's township. But as demand grows, Lynch says, fracking is expanding.

"[Washington County] is where fracking really started in southwest PA, so it's the most concentrated," she says. "What we're finding is, as they're looking for places to expand, we're the next generation of areas that they're coming to."

Since emissions don't respect borders, pollution from nearby municipalities could spread across the region. The air in the area is already polluted: A 2013 study found that Allegheny County, which comprises the greater Pittsburgh area, including Indiana Township, is in the top 2% of areas in the U.S. for cancer risks from air pollution.

Fracking—shorthand for "hydraulic fracturing"—involves pumping chemicals, such as benzene, antifreeze, and diesel, deep underground to fracture shale deposits and release the gas stored within them. The process releases airborne benzene, formaldehyde, particulate matter, and ammonia, which have been linked to respiratory ailments and other illnesses.

There is no way to determine whether fracking contributed to Lynch's son's lung issues due to his proximity to fracking operations, but the practice has been linked to shortness of breath, worsened asthma, and other respiratory ailments.

There are other health impacts to worry about too. Used fracking chemicals often get dumped into rivers—a concern that some state and federal authorities have ignored.

Drilling into shale for gas can also release radioactive materials, like uranium and thorium, that have been buried for millennia. In recent years, dozens of children have contracted rare cancers, including Ewing sarcoma, in southwest Pennsylvania. Researchers suspect exposure to radiation could be responsible.

"Fracking makes people sick. It makes people very sick," says Ned Ketyer, a retired pediatrician and board member of Physicians for Social Responsibility, a physician-led organization focused on environmental health.

With the imminent opening of Shell's cracker plant, Ketyer says there will be even more risks to health on the horizon from the plant's emissions, including nitrogen oxide, ozone, and volatile organic compounds, as well as the increased demand for fracked gas.

Ketyer has spent years raising the alarm about the dangers of fossil fuels, but despite the evidence that gas is harming locals, he's found that not everyone is interested in pushing back.

"This is an area where people have lived for generations, extracting fossil fuel and supporting the industries that extract fossil fuels," he says.

Challenges

Growing up in the Pittsburgh suburbs, Lynch didn't think much about pollution. Neither, she says, did her family members—even those who were exposed to it each day at work. Her grandfather, for instance, was an electrical engineer in the steel industry.

"He used to tell a story about how when he would get up in the morning, he would put on his white shirt to go to work, and when he would come home in the evening, the shirt would be gray," she says.

Polluting, fossil fuel-based industries—coal, steel, and now gas—have long formed the backbone of the region's economy. The resulting public desensitization to pollution has posed difficulties in local environmental organizing. So have Shell's claims that the plastic industry will put people back to work. In southwest Pennsylvania, the unemployment rate is significantly above the national average.

"We are often prepared to trade our health for jobs," says Lois Bower-Bjornson, field organizer for Clean Air Council, who lives in southwest Pennsylvania's Washington County.

Amid dwindling employment opportunities, local unions have been overwhelmingly supportive of the cracker plant. But while Shell once claimed the facility would create thousands of jobs, that projection later dropped to the hundreds.

Matt Mehalik, executive director of the Breathe Project, a coalition of environmental and public health groups focused on the Pittsburgh region, says that even some residents who are skeptical of the fossil fuel industry's expansion plans are nervous to publicly take a stand. They fear backlash not only from their neighbors, but also from the industry or its government allies.

"There's a cultural history where people have learned through multiple generations that it's better to just go along and get along and not raise up these issues—that if you want to be able to survive in this county, you keep your mouth shut," he says. "That's what we run up against. That is a legacy of [the region's] industrial past."

Resistance

Despite the challenges, a small yet vibrant movement in southwest Pennsylvania is fighting plans for gas and plastic expansion: holding protests, writing op-eds and letters to elected officials, and mobilizing dozens of people to testify at hearings.

They have achieved some wins, including the fact that the cracker plant will monitor its emissions on-site.

Activists have also taken emissions tracking into their own hands, using both naked-eye observations and low-cost monitors to track pollution to ensure Shell is complying with regulations.

Beyond fighting the Shell plant itself, Lynch has also been advocating for a fairer regulatory environment, pressuring the federal government to keep its promise to instate strict regulation on methane emissions and advocating for the state of Pennsylvania to join a regional climate initiative, two measures that could lessen local pollution.

Activists are also working to boost public awareness of the dangers of fracking and plastic. Bower-Bjornson of the Clean Air Council, for instance, organizes tours to introduce the public to the human impacts of fracking, showing attendees well pads and compressor sites and introducing them to people impacted by their pollution.

Like the planned petrochemical hub, the movement for a healthier and safer environment transcends state lines. This varied opposition is necessary, since there's no single policy that can take down the fossil fuel industry, says Dustin White, a senior campaigner on plastics and petrochemicals with the Center for International Environmental Law.

"There's no one thing that's absolutely gonna stop it all," he says, instead calling for a "death by 1,000 paper cuts" approach.

White, who lives in West Virginia, says this approach also includes thinking bigger by advocating for a total ban on a petrochemical build-out. Just as important is helping people envision more just and sustainable systems, where neither communities nor materials are treated as disposable: "A more regenerative economy," he says.

It's clear the current economic system isn't working for most working-class people in Pennsylvania. It may not even be sustainable for the fossil fuel sector. Financial analysts and environmentalists alike have predicted that, due to a variety of market factors and increasing concern about the climate crisis, the petrochemical build-out is far from a safe financial bet.

Rather than pouring public money into projects that put Pennsylvanians' health and the climate on the line—and that could be doomed to collapse anyway—activists say officials should invest in more sustainable industries. Research shows that investments in renewable energy, for example, could create almost a quarter-million jobs each year in the state.

Lynch fears that if her local economy doesn't change quickly, the region—and the planet—she calls home could become unlivable by the time her kids are grown. But she gains motivation from knowing there's another path.

"I think about the oil and gas industry in Pennsylvania, but I also think about all the amazing opportunities we have to protect this region and to remind people that our health and our well-being [have] value," she says. "It's the project of a lifetime."

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