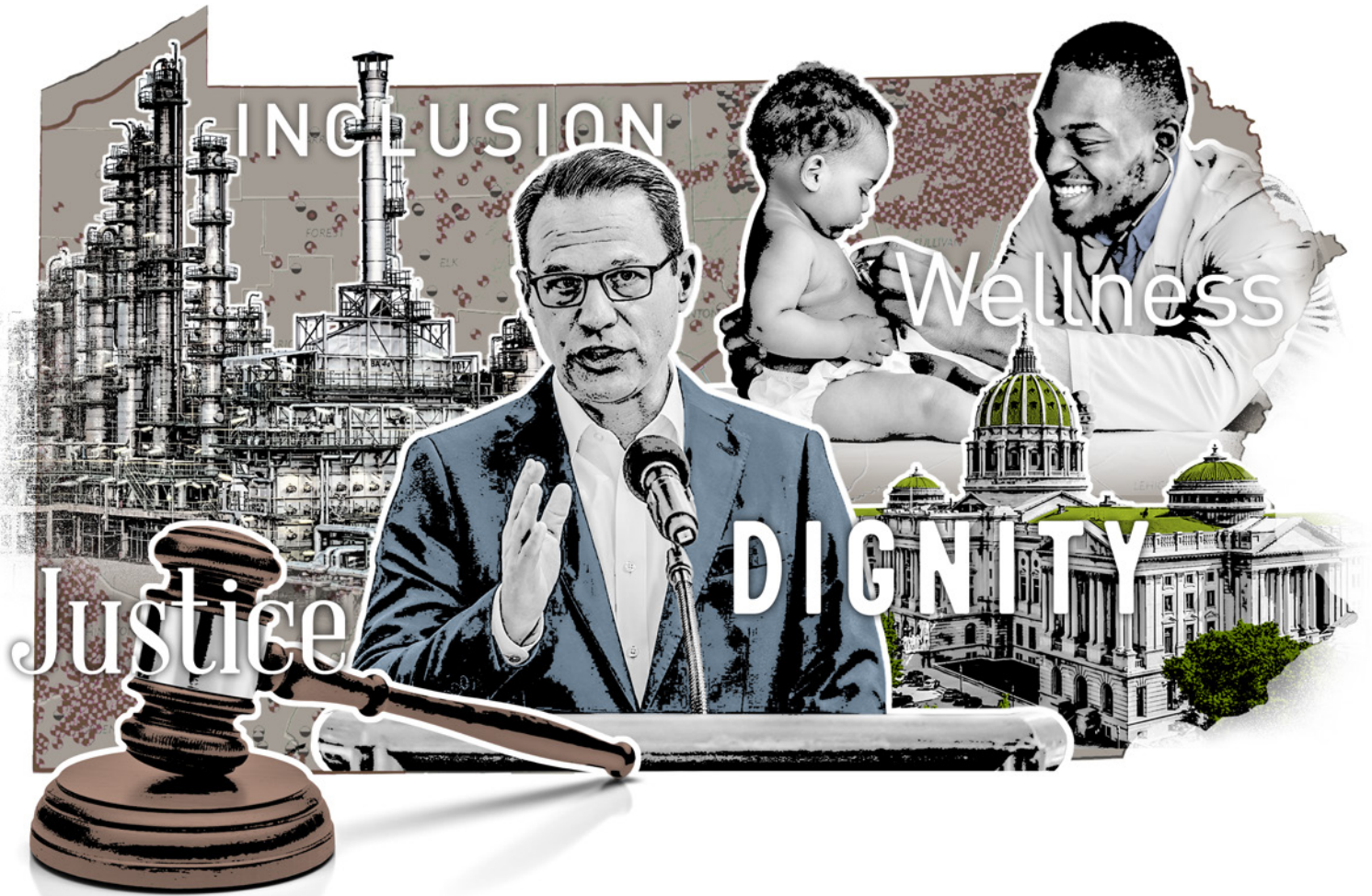


PENNSYLVANIA'S SHALE GAS BOOM:

What the Shapiro Administration Can Do to Better Protect Public Health



ENVIRONMENTAL
HEALTH PROJECT
DEFENDING PUBLIC HEALTH SINCE 2012

APRIL 2025

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Sources are cited in the main body of the white paper. For access to an electronic copy of the full paper, scan this QR code or visit:

<https://www.environmentalhealthproject.org/white-paper>



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EXECUTIVE SUMMARY

There remains a profound gap between our Constitutional mandate for clean air and pure water, and the realities facing Pennsylvanians who live in the shadow of fracking giants and their investors.

– Pennsylvania Attorney General Josh Shapiro, June 2020

PURPOSE OF THIS PAPER

Since 2005, shale gas development has increased dramatically across a vast swath of Pennsylvania, and frontline communities have experienced otherwise unexplainable and sometimes devastating health impacts. Residents have reached out to government officials and agencies for explanations as to what is happening, but their inquiries have often been met with denigration, misinformation, or silence.

The Environmental Health Project (EHP) has closely examined the actions of Pennsylvania’s governing bodies over more than a decade of shale gas development (also called *hydraulic fracturing* or *fracking*). We have identified a series of egregious and, at times, intentional efforts to make it easier to extract gas without regard to the health of those living nearby. These failings are discussed in detail in our 2022 white paper, *Pennsylvania’s Shale Gas Boom: How Policy Decisions Failed to Protect Public Health and What We Can Do to Correct It*.

Now, we turn our attention to Gov. Shapiro, who talked passionately about the importance of protecting public health from shale gas development when he was attorney general. He pointed to industry and regulatory failures and vowed to address recommendations made in a Grand Jury Report released in 2020. When he campaigned for governor, he promised stronger health protections for Pennsylvanians, given their constitutional guarantees to clean air and pure water. More than two years into his term, residents are still waiting for meaningful action.

GOVERNMENT AND RESEARCH TIMELINE

GOVERNMENT

JUNE 2020



Pennsylvania’s 43rd Statewide Investigating Grand Jury report on the unconventional oil and gas industry released under Attorney General Shapiro

RESEARCH

JUNE 2020



Maternal & Child Health: Tran et al. Residential Proximity to Oil and Gas Development and Birth Outcomes in California: A Retrospective Cohort Study of 2006-2015 Births

JULY 2020



Maternal & Child Health: Cushing et al. Flaring from Unconventional Oil and Gas Development and Birth Outcomes in the Eagle Ford Shale in South Texas

JULY 2020



Mortality: Hendryx & Luo. Natural gas pipeline compressor stations: VOC emissions and mortality rates

Several key indicators, including the administration’s policies and responses to shale gas-related issues, demonstrate that the Shapiro Administration has not fulfilled the commitments the governor made to Pennsylvanians in general and to frontline communities in particular. However, this paper also identifies important ways the administration can correct course and work toward better health protections for Pennsylvania residents impacted by shale gas development.

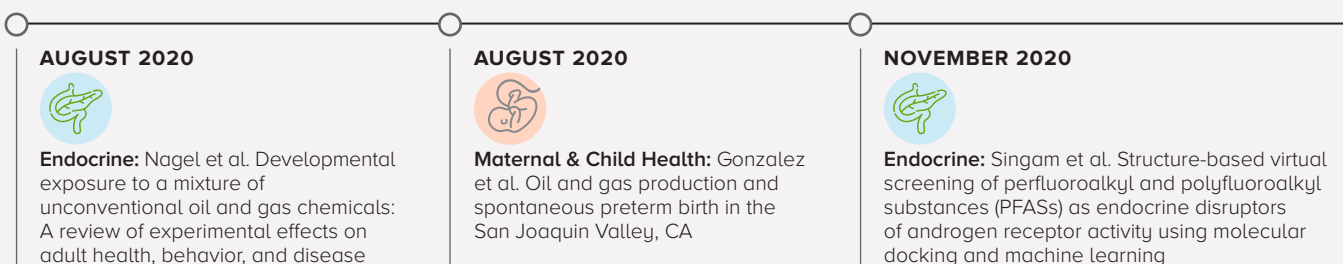
THE RESEARCH IS IN

Over the past 20 years, enough research studies and investigations have been done to clearly demonstrate many of the health risks shale gas development poses. More than 30 peer-reviewed epidemiological studies show an association between gas infrastructure and adverse health impacts for nearby residents. Hundreds of other investigations and first-hand accounts have corroborated those findings. Children, the elderly, pregnant individuals, and people with pre-existing conditions are especially vulnerable to these health impacts, as are workers in the industry, who often encounter higher levels of exposure to toxic and radioactive materials than do others.

Approximately 1.5 million Pennsylvanians live within a half mile of oil and gas wells. Millions more live within a half mile of a pipeline, compressor station, processing facility, or other shale gas infrastructure—sometimes more than one. There is no established “safe” distance, and people living near these sites experience increased risks of:

- Respiratory problems, such as asthma and chronic bronchitis
- Skin and eye irritation
- Headaches, dizziness, and nausea

RESEARCH GOVERNMENT



- Hospitalization from heart-related complications
- Cancer, particularly in those who are exposed over a long period of time
- Adverse birth outcomes, including preterm birth, low birth weight, and birth defects
- Mental health issues from noise, vibration, and light pollution
- Premature mortality in the elderly.

Taxpayer-funded research released by the University of Pittsburgh in 2023 as the Pennsylvania Health and Environment Studies (Pitt Studies) bore out these associations. Another study, performed by researchers at Carnegie Mellon University, estimated that air pollution from shale gas development activities in Pennsylvania, Ohio, and West Virginia from 2004 to 2016 resulted in 1,200 to 4,600 premature deaths in the region.

Shale gas extraction and use also contributes to climate change, which poses other health impacts for every resident of Pennsylvania, and indeed for people worldwide. Climate change increases the incidence and severity of storms, floods, wildfires, and insect-borne diseases, such as Lyme disease—all of which increase illnesses, hospitalizations, and deaths.

State-level officials have generally demonstrated a lack of awareness of the available science or simply denied the connection between shale gas development and health risks. Some have paid far more attention to securing industry accommodations than to protecting public health, and many have overestimated how well regulations actually protect people from harm.

DECEMBER 2020



Mental Health: Soyer et al. Socio-Psychological Impacts of Hydraulic Fracturing on Community Health and Well-Being

DECEMBER 2020



Cardiology, Hospitalizations: McAlexander et al. Unconventional Natural Gas Development and Hospitalization for Heart Failure in Pennsylvania

APRIL 2021



Cardiology, Hospitalizations, Mortality: Denham et al. Acute myocardial infarction associated with unconventional natural gas development: A natural experiment

JULY 2021



Maternal & Child Health: Willis et al. Associations between Residential Proximity to Oil and Gas Drilling and Term Birth Weight and Small-for-Gestational-Age Infants in Texas: A Difference-in-Difference Analysis

WHERE THE SHAPIRO ADMINISTRATION HAS MADE PROGRESS

Over the course of the last two years, the Shapiro Administration has taken a number of actions to better protect the health of residents in the Commonwealth. We applaud the governor’s efforts in these areas, despite increasing challenges at the federal level.

✓ **Plugging abandoned/orphaned wells**

Abandoned and orphaned wells represent serious public health hazards. Pollution from uncontrolled, and often unsuspected, leaks can impair the health of people living near these wells. The Pennsylvania Department of Environmental Protection (DEP) has identified more than 27,000 abandoned wells in the state, though the true number is estimated to be between 300,000 and 750,000 wells. Utilizing funding from the 2021 Infrastructure Investment and Jobs Act, the DEP has overseen the capping of more than 200 wells within the first 14 months of Gov. Shapiro’s term. The DEP also partnered with the United Mine Workers of America to institute a new registered apprenticeship program that teaches workers how to clean up oil and gas wells.

✓ **Proposing alternatives to RGGI**

With the Pennsylvania General Assembly unlikely to act on approving the Regional Greenhouse Gas Initiative (RGGI), the Shapiro Administration has turned to alternative proposals to reduce pollution and hold polluters accountable in the state, such as:

- The Reducing Industrial Sector Emissions in Pennsylvania (RISE PA) program, a \$396 million decarbonization grant opportunity for industrial polluters and a positive step in reducing greenhouse gases and co-pollutant emissions
- The Pennsylvania Climate Emissions Reduction (PACER) act, which would establish a cap-and-invest arrangement requiring power producers to pay a fair share to offset environmental impacts of pollution created by their energy generation
- The Pennsylvania Reliable Energy Sustainability Standard (PRESS), which would require Pennsylvania to get 50% of its electricity from a diverse range of energy resources by 2035, including 35% from solar, wind, and small modular reactors

GOVERNMENT

RESEARCH

OCTOBER 2021



Josh Shapiro announces candidacy for governor, campaigning on defending Pennsylvanians’ constitutional right to clean air and pure water

AUGUST 2021



Endocrine: Gonzalez et al. Iodoacetic Acid, a Water Disinfection Byproduct, Disrupts Hypothalamic, and Pituitary Reproductive Regulatory Factors and Induces Toxicity in the Female Pituitary

DECEMBER 2021



Maternal & Child Health: Willis et al. Associations between residential proximity to oil and gas extraction and hypertensive conditions during pregnancy; a difference-in-difference analysis in Texas, 1996-2009

JANUARY 2022



Mortality: Li et al. Exposure to unconventional oil and gas development and all-cause mortality in Medicare beneficiaries

It should be noted that all these proposals and programs still have some inherent drawbacks, such as continuing to prioritize use of fossil fuels and adding to the pollution burden of already-impacted communities and residents. The Shapiro Administration’s “Lightning Plan,” meant to address Pennsylvania’s energy future and promote a wide array of energy projects in the Commonwealth, persists in propagating these shortcomings.



Prioritizing DEP

During budget hearings in 2024, the Pennsylvania Department of Environmental Protection (DEP) estimated that the staff of its Oil and Gas Program, which oversees permitting and regulating the industry, was operating at about 75% capacity due to staffing shortfalls. Because of these shortfalls, DEP has often been unable to take meaningful enforcement action, failing to address many spills and other violations. To its credit, the Shapiro Administration was able to obtain a 14% increase in DEP funding in the fiscal year 2024-2025 budget, while calling for an additional 12% increase in DEP funding in the 2025-2026 budget. However, while details of the 2025-2026 budget have not yet been released, the bulk of the 2024-2025 funding was earmarked for staff in the permitting division, not the enforcement division, where a real regulatory need exists.



Promoting solar and other renewable energy projects

Pennsylvania currently ranks ahead of only Alaska in total solar, wind, and geothermal energy growth since 2013. To make up some of this lost ground, the Shapiro Administration has continued to advance the Pennsylvania Project to Utilize Light and Solar Energy (PA PULSE) initiative, enabling state agencies to source at least 53% of their annual energy consumption from renewables once several solar farms are built throughout the state. Additionally, Pennsylvania is set to receive \$156 million in federal aid from the Solar for All program to place solar panels on more than 14,000 residential homes in low-income and social justice communities, in both urban and rural areas. Likewise, the Shapiro Administration has created the Solar for Schools program, where schools can request grants to cover up to 50% of the cost of solar installations.

JANUARY 2022



Maternal & Child Health: Caron-Beaudoin et al. Volatile organic compounds (VOCs) in indoor air and tap water samples in residences of pregnant women living in an area of unconventional natural gas operations: Findings from the EXPERIVA study

MARCH 2022



Maternal & Child Health: Hill et al. Drinking water, fracking, and infant health

MARCH 2022



Respiratory: Bushong et al. Publicly available data reveals association between asthma hospitalizations and unconventional natural gas development in Pennsylvania

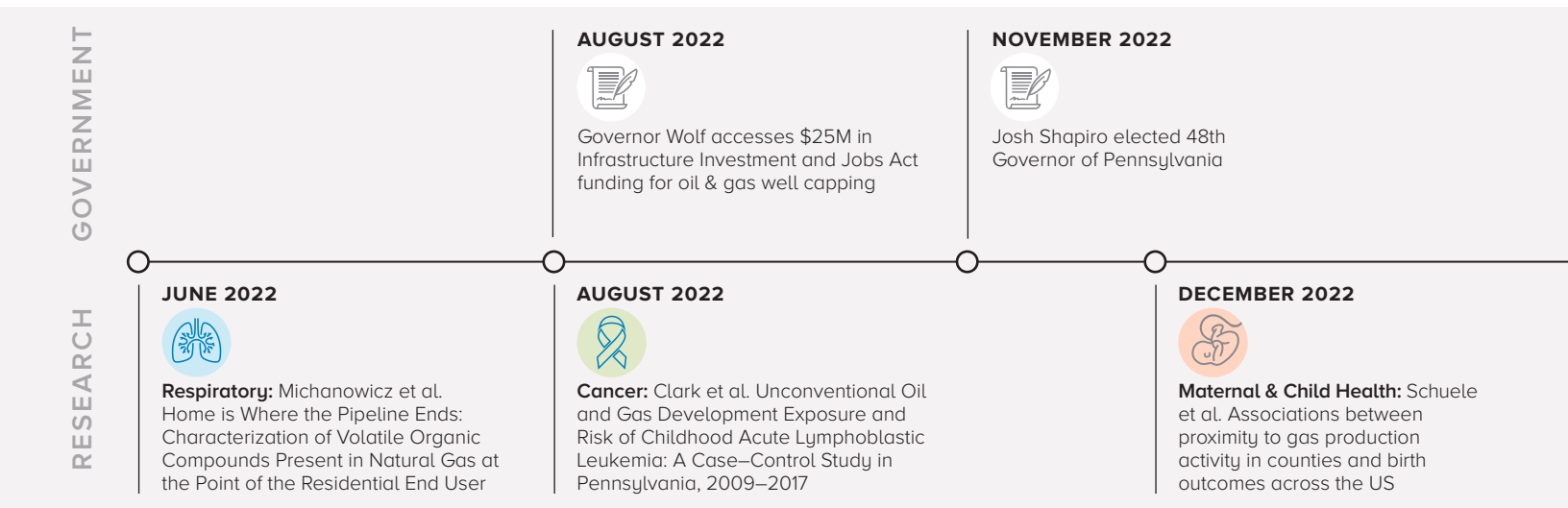


Focusing on community engagement and environmental justice

Frontline communities, especially those considered to be environmental justice communities, have suffered disproportionately large health impacts from shale gas development. It is imperative that state leaders engage with them in meaningful ways to better address the risks they face. The Shapiro Administration has taken a few steps forward in this regard:

- The DEP has established a Customer Experience Management Advisory Council to advise DEP’s leadership “on strategies and improvements to enhance service delivery to the public.”
- In September 2023, DEP published an Interim-Final Environmental Justice Policy, which incorporated input from the public and from advocacy organizations.
- In 2024, the Shapiro Administration appointed Fernando Treviño as special deputy secretary to DEP’s Office of Environmental Justice, elevating OEJ leadership to the level of a deputy secretary for the first time.
- DEP has since added Environmental Justice Regional Coordinators in each of its six regional offices.

More recently, in September 2024, the DEP announced it was applying approximately \$2 million in grant funding from the U.S. Department of Energy to develop the Renewable Energy Siting through Technical Engagement and Planning (R-STEP) program to help local communities identify the best places for wind and solar projects that can lower utility costs and fight climate change.



WHERE THE SHAPIRO ADMINISTRATION HAS FALLEN SHORT

While Gov. Shapiro’s administration has taken some definitive steps forward in better protecting the health of Pennsylvania residents from shale gas pollution during its first two years, it has fallen short on several other fronts.

! Expanding no-drill zones in Pennsylvania from the required 500 feet to 2,500 feet

In a 2020 Grand Jury Report on shale gas development, then Attorney General Shapiro recommended increasing “no drill zones”—or “setback distances”—from the legally required 500 feet to 2,500 feet in order to better protect the health of residents living near oil and gas infrastructure. As of February 2025, no meaningful, industry-wide changes had been made to setback distances.

! Requiring fracking companies to publicly disclose all chemicals used in drilling and hydraulic fracturing before they are used on-site

In January 2024, the Pennsylvania Department of Environmental Protection (DEP) announced it would implement new policy requiring gas operators to publicly disclose chemicals they use in drilling and hydraulic fracturing earlier in the well development process. However, Pennsylvania law does not require operators to publicly disclose chemical blends if they are considered proprietary or a trade secret. Consequently, many of the chemicals involved in the fracking process will still not be made available to the public, health care professionals (except in very limited situations), researchers, government officials, or emergency preparedness and response teams that require such information when leaks or spills occur.

! Acknowledging the settled science on the health risks of exposure to shale gas pollution

During the first two years of his term, Gov. Shapiro had many opportunities to acknowledge the substantial and conclusive research on health impacts from the shale gas industry. EHP and other health and community organizations provided the

JANUARY 2023



Josh Shapiro assumes office as 48th Governor of Pennsylvania

DECEMBER 2022



Maternal & Child Health: Willis et al. Congenital anomalies associated with oil and gas development and resource extraction: a population-based retrospective cohort study in Texas

DECEMBER 2022



Maternal & Child Health: Claustre et al. Assessing gestational exposure to trace elements in an area of unconventional oil and gas activity: comparison with reference populations and evaluation of variability

Shapiro Administration with information about relevant studies and investigations on several occasions. Based on the evidence to date, Gov. Shapiro has so far failed to acknowledge this research, most recently remaining silent on the Health and Environment Studies (Pitt Studies) since their release in August 2023. Instead, he has called for even more research before taking action, which will delay necessary protections for many more years.

! Directing state health agencies to meaningfully engage with frontline communities and health care providers

The Department of Health (DOH), Pennsylvania’s premiere health agency, must perform a key role in helping to protect residents exposed to shale gas pollution. In recent years, the DOH has made progress in educating residents and health care providers on the risks of exposure to toxic emissions from shale gas development. The DOH has provided continuing education to local health care providers on oil and gas pollutant exposure, created an initiative to educate schools on air quality, and introduced a new Environmental Health Complaint process. While the DOH has taken positive steps to meet with organizations and educate state residents on the health implications of shale gas pollution, it needs a clear mandate from Gov. Shapiro to act more openly regarding known health risks.

! Empowering enforcement agencies to regulate toxic emissions and to effectively penalize operators who violate regulations

The DEP’s mission is “to protect Pennsylvania’s air, land, and water resources and to provide for the health and safety of its residents and visitors...” However, the DEP has failed to fulfill this mission on several fronts. First, the DEP’s regulatory authority continues to be insufficient to foster meaningful oversight of shale gas operators. DEP field inspectors are historically understaffed, and though the DEP cited conventional and unconventional operators 102,652 times for violations between 2007 and 2023, these citations have not deterred operators from continuing to pollute, often at will.

GOVERNMENT

MARCH 2023



Members of PA legislature introduce bipartisan bills to establish community solar programs, helping address energy spikes caused by volatile gas prices

MAY 2023



DEP secures \$10M fine from Shell for air quality violations and pledges to fund environmental improvement projects in Western PA

RESEARCH

MARCH 2023



Cardiovascular, Respiratory: Trickey et al. Hospitalisations for cardiovascular and respiratory disease among older adults living near unconventional natural gas development: a difference-in-differences analysis

MAY 2023



Maternal & Child Health: Caron-Beaudoin et al. Estimation of exposure to particulate matter in pregnant individuals living in an area of unconventional oil and gas operations: Findings from the EXPERIVA study

JULY 2023



Maternal & Child Health: Gaughan et al. Residential proximity to unconventional oil and gas development and birth defects in Ohio

The Shapiro Administration has the power to strengthen regulations and improve enforcement, including more stringent penalties for violations, but has not yet done so in any meaningful way.

! Calling for legislative action to shore up legal gaps that jeopardize health

The DEP continues to operate under most of the same industry-friendly regulations put into place almost two decades ago. Some current legislators have introduced bills that would increase health protections near shale gas pollution, but each one of these bills has either been voted down or stalled in committees. Other legislators are attempting to increase favorable conditions for industry by punishing communities who seek to better protect their health through stronger local ordinances. Amid these disagreements, Gov. Shapiro could publicly engage legislators and urge passage of bills that protect residents from shale gas pollution, but like his predecessors, again, he has chosen not to.

! Regulating industry to reduce health risks

In 2020, Attorney General Shapiro was clear that oil and gas operators must be held accountable for their actions, saying:

We can't rely on big corporations to police themselves. After all, they report to their investors and their shareholders. That's their job. It's the government's job to set and enforce the ground rules that protect the public interest. And through multiple administrations, they failed to do that.

Instead, in November 2023, Gov. Shapiro announced a collaboration with CNX Resources, a heavily fined shale gas extraction company based in Canonsburg, Pennsylvania. While the governor touts this collaboration as a new model of industry cooperation and “radical transparency,” CNX has committed to little more than what is already legally required, making the governor’s support sound disingenuous in the context of his prior statements. Gov. Shapiro’s part in this deal was deeply upsetting to many members of frontline communities who were counting on his promises to hold

AUGUST 2023



DOH presents findings of Pennsylvania Health and Environment Studies (“Pitt Studies”) at community event

AUGUST 2023



Shapiro appoints Fernando Treviño as OEJ’s special deputy secretary, elevating OEJ leadership to level of deputy secretary for first time

SEPTEMBER 2023



Pipeline and Hazardous Materials Safety Administration of the US DOT suspends authorization of LNG transportation in rail tank cars

AUGUST 2023



Respiratory, Hospitalizations: Xu. Fracking Boom and Respiratory Health: Evidence from Texas

AUGUST 2023



Cancer, Maternal & Child Health, Respiratory: University of Pittsburgh School of Public Health. Hydraulic fracturing epidemiology research studies: childhood cancer case control study, asthma outcomes, and birth outcomes

industry accountable, and as of February 2025, he still has not attempted to press for rulemaking that would require more meaningful health-protective measures for the industry at large.

! Prioritizing truly clean energy

Gov. Shapiro has spoken extensively about the importance of “clean energy.” However, the administration’s definition of “clean” includes the use of fossil fuels, which will extend the timeline of fossil fuel extraction, endangering the health of those nearby and placing our planet in continued jeopardy.

Petrochemical facilities, such as the Shell ethane cracker plant in Beaver County, rely on fossil fuels to operate. While the DEP appears ready to continue to hold Shell accountable for pollution violations at the existing cracker plant, Gov. Shapiro has not yet addressed the problematic pollution of this facility. Nor has he publicly called into question the wisdom of building additional petrochemical facilities in an area already burdened with pollution from shale gas extraction, transportation, and use.

Blue hydrogen facilities, such as those planned in the Appalachian Regional Clean Hydrogen Hub (ARCH2), will necessitate thousands of miles of new pipelines and huge amounts of shale gas as feedstock from the region, leading to many more wells being drilled in areas already impacted by the toxic legacy of this heavy industry. These projects risk more uncontrolled emissions at every stage of development, not to mention raising the possibility of earthquakes and groundwater contamination.

Liquefied natural gas (LNG) facilities, which are proposed in Pennsylvania, pose immediate health and safety risks to those living nearby due to the volume of methane emissions and volatility of the production and transportation process. These risks include explosions, air and water pollution, noise, mental health impacts, and climate-warming pollution released throughout the process.

GOVERNMENT

SEPTEMBER 2023



DEP publishes interim-final Environmental Justice policy to help integrate EJ into DEP work within regulatory limits

OCTOBER 2023



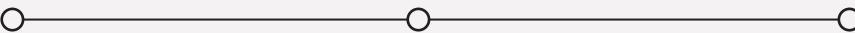
US DOE announces federal funding for regional clean hydrogen hubs, including the Appalachian Regional Clean Hydrogen Hub (ARCH2)

NOVEMBER 2023



Shapiro announces “Radical Transparency” collaboration with CNX Resources with no involvement from residents

RESEARCH



In his first two years as Pennsylvania’s governor, Gov. Shapiro has publicly supported all the above fossil fuel projects, calling them good for Pennsylvania’s economy. However, it appears that he and his administration have not yet considered the negative economic impacts created by adverse health and safety outcomes for Pennsylvania residents.

! Supporting a just transition to renewable energy

The transition to renewable energy production, such as solar, wind, geothermal, and others, must happen quickly to reduce severe weather impacts due to climate change that are devastating lives and property across the globe. Further, any transition must consider the enormous health costs associated with continued or expanded fossil fuel development, especially in Pennsylvania, which has a long history of extractive industries. While the Shapiro Administration has made some progress on promoting renewable energy in the Commonwealth, it can do much more to make renewables a priority.

Gov. Shapiro has himself acknowledged that Pennsylvania has fallen behind the nation in terms of investing in green energy sources like wind, solar, and hydropower, but he has seemed reluctant to make bold commitments to renewable energy production, scaling up manufacturing of renewable technologies, or wide implementation of renewable solutions in the Commonwealth, even as fossil fuel jobs are already being replaced by plentiful and good-paying jobs in the renewable energy sector. Indeed, Gov. Shapiro’s “Ten-Year Strategic Plan for Economic Development in Pennsylvania,” as well as his 2024 and 2025 budget addresses, zeroed in on fossil fuel emissions reductions, while ignoring a chance to design and execute a comprehensive renewable energy plan.

NOVEMBER 2023



Shapiro appeals two Commonwealth Court decisions to strike down Regional Greenhouse Gas Initiative (RGGI) participation

JANUARY 2024



Shapiro urges/DEP announces new policies requiring gas operators to publicly disclose chemicals, excepting proprietary chemical blends

JANUARY 2024



Shapiro presents “Ten-Year Strategic Plan for Economic Development in Pennsylvania,” which excludes strategy for renewable energy development

JANUARY 2024



Maternal & Child Health: Shupler et al. Short-Term Increases in NO₂ and O₃ Concentrations during Pregnancy and Stillbirth Risk in the U.S.: A Time-Stratified Case-Crossover Study

WHAT THE SHAPIRO ADMINISTRATION CAN DO TO BETTER DEFEND PUBLIC HEALTH

The Shapiro Administration has room for improvement to protect Pennsylvanians’ constitutional right to clean air and pure water. Based on this assessment of Gov. Shapiro’s first two years in office, EHP suggests the following specific actions his administration can take to defend public health while prioritizing a just transition toward renewable energy:

1. Increase setback distances from shale gas infrastructure.

Setback distances (protective buffers) between shale gas operations and occupied buildings are currently governed by Pennsylvania Act 13 (2012), which established certain legal requirements around this industry. The governor can urge the General Assembly to amend Act 13 and mandate greater setbacks for all operators. While no distance has been established as “safe,” EHP recommends setback distances of at least 1 km (about 3,300 feet or 0.6 miles) for small facilities and at least 2 km (about 6,600 feet or 1.25 miles) for large facilities and from schools, nursing homes, and other structures accommodating vulnerable populations. Because farther is ultimately better for reducing health harms, the industry should not be allowed exemptions or waivers to these distances for any reason.

2. Publicly disclose all chemicals used in shale gas development.

Changing the law around chemical disclosures may require legislative action. If chemical disclosures cannot be changed through DEP rulemaking, Gov. Shapiro should press the legislature to act and require operators to fully disclose all chemicals they use, even if they are considered proprietary or a trade secret. This disclosure should ideally be made to the general public or, at a bare minimum, to government agencies, public works administrators, emergency preparedness and response teams, and medical practitioners treating affected patients, all of whom require this data. Gov. Shapiro can also urge the legislature to consider the full lifecycle of all toxic pollutants involved in shale gas development when requiring operators to disclose what they put into the ground and what comes back out during operations.

GOVERNMENT

MARCH 2024



Shapiro urges Biden administration to end moratorium on LNG export projects, setting stage for more shale gas infrastructure

APRIL 2024



RISE PA program proposed using IRA funding to promote industrial decarbonization projects, \$396M in funding announced in July 2024

RESEARCH

MARCH 2024



Cancer, Cardiology, Maternal & Child Health, Mortality, Respiratory: Aker et al. The human health effects of unconventional oil and gas development (UOGD): A scoping review of epidemiologic studies

MARCH 2024



Endocrine: Woodruff. Health Effects of Fossil Fuel–Derived Endocrine Disruptors

3. Develop a comprehensive health plan for preventing fossil fuel pollution exposure.

Holding profit-motivated industries to account is one role governments must assume to best defend residents' health. The Shapiro Administration must take a more proactive and higher profile role in defending the health of Pennsylvanians from oil and gas pollution with a comprehensive health response. Such a response would include an honest recognition of the health impacts associated with shale gas development and sufficient provisions for fully funded and staffed agencies with strong enforcement authority.

Epidemiologic research showing serious health impacts from shale gas development is already substantial and sufficient to inform swift action. Gov. Shapiro must acknowledge the inherent health risks in these operations and task his agencies with taking appropriate action to reduce these risks. This research includes the findings of the Pennsylvania Health and Environment Studies (Pitt Studies), which Gov. Shapiro has yet to acknowledge.

The Pennsylvania Department of Health (DOH) has recently taken a more open approach to confronting health harms experienced by communities on the front lines of shale gas development, but much more could be done with adequate support from the governor. Adequate support could enable this agency to create and distribute comprehensive resources, actionable guidance, and suitable response/investigations near existing facilities, as well as provide Health Impact Assessments and evaluations of additional considerations for Environmental Justice communities before the permitting and development of new facilities.

The Pennsylvania Department of Environmental Protection (DEP) has regulatory authority over the shale gas industry and must hold it accountable by requiring accurate and timely monitoring and reporting of regular emissions and upsets, providing public access to collected data, and strictly enforcing rules and regulations with fines and other meaningful punitive consequences. Other high-priority items should

MAY 2024



PRESS and PACER legislation introduced to save ratepayers money, create energy jobs, and generate investment in reliable energy sources

JULY 2024



Governor Shapiro signs 2024-25 Commonwealth Budget with 14% increase (nearly \$32.5M) for DEP

JULY 2024



Shapiro signs Carbon Capture and Sequestration Act, allowing Environmental Hearing Board to force landowners to store CO₂ without their consent

JUNE 2024



Cancer: Hoang et al. Residential proximity to oil and gas developments and childhood cancer survival

include closing hazardous waste loopholes, monitoring radioactivity at shale gas sites and landfills, requiring safer transport of the contaminated waste created from drilling sites, and regulating gathering lines, which are used to transport shale gas hundreds of miles, reducing opportunities for leaks, explosions, and other health risks throughout.

4. Address cumulative emissions when permitting sites.

As part of its permitting process, the DEP should cumulatively analyze emissions—all sources of air pollution in a given area—to accurately assess air quality and to limit shale gas development in airsheds that are already burdened with pollution. Currently, shale gas facilities are permitted for air pollution emissions as stand-alone entities, but emissions from a new facility, when combined with other existing emission sources nearby, may result in dangerous exposure levels in the ambient air, which may cause adverse acute and chronic health impacts. For that reason, such considerations must be included in the permitting process.

5. Increase funding for state agencies to better fulfill their missions.

Gov. Shapiro must put forward—and the General Assembly must approve—state budgets that include adequate funding to agencies like the DOH and the DEP so that they can effectively do their job of protecting Pennsylvania’s resources and the health of residents. While the increase in DEP funding approved in the 2024-2025 budget and the request for more DEP funding in the 2025-2026 budget are a start, more funds must be channeled to the enforcement arm of DEP and to effective monitoring of public exposure to pollutants from the shale gas industry and other sources. Similarly, the DOH must be fully funded to do the difficult but essential work of addressing health concerns from impacted residents and disseminating timely guidance.

6. Initiate more transparency and interaction with impacted communities.

Gov. Shapiro must call on the DOH and the DEP to work more closely and transparently with communities, providing potentially impacted residents with health-protective strategies to combat pollution exposure and ensure that the voices of

GOVERNMENT

AUGUST 2024



US DOE announces \$30M in funding for ARCH2, which will largely use fracked methane to produce hydrogen

SEPTEMBER 2024



DEP secures \$1.96M from US DOE for renewable energy projects through R-STEP program

SEPTEMBER 2024



Shapiro Administration commits to additional \$76M in federal funding for oil & gas well plugging

RESEARCH

SEPTEMBER 2024



Mental Health: Willis et al. Residential Proximity to Oil and Gas Development and Mental Health in a North American Preconception Cohort Study: 2013-2023

residents, especially those experiencing environmental and health harms, are heard. These residents should know whom to contact when they have an issue or where to go for relevant information, and the appropriate agency should acknowledge, act upon, and respond to any resident’s communication in a timely manner. The DOH should continue to inform medical providers about health risks from shale gas development so that they can share guidance with patients to help mitigate those risks. Elevating the Environmental Justice Office of the DEP is a good start, but more can be done to support two-way communication with residents and to elevate their experiences when developing health-protective policy.

7. Take a precautionary approach to petrochemicals, blue hydrogen, and LNG.

Industries that use fossil fuels require proactive and comprehensive oversight. If allowed to operate at all, these industries must be compelled to effect stringent emissions detection and reporting, working with communities to reduce exposure and to alert the public of the content of its releases, whether planned or accidental. Government agencies must be intrinsically involved in making sure industry complies with pollution standards, holding operators accountable when they do not. Further, health impact assessments and other community health monitoring must be put in place to ensure residents’ health is protected today and into the future. Residents must be informed fully about health risks to which they are or will become exposed, communities must be given a say as to whether this development happens within their borders, and clear channels of communication between governmental agencies, industrial operators, and community leaders must be established and supported as long as shale gas development is allowed to operate.

8. Work boldly and creatively to transition away from fossil fuels and toward renewable forms of energy.

The Shapiro Administration must take bold steps to raise Pennsylvania from its lowly position of lagging the rest of the country in renewable energy creation to one where renewable energy becomes a primary health-protective driver of the state’s economy.

JANUARY 2025



Shapiro introduces Lightning Plan to address Pennsylvania’s energy future and promote a wide array of energy projects in the Commonwealth

FEBRUARY 2025



Shapiro proposes 2025-2026 budget increases for DOH & DEP to support agency work

OCTOBER 2024



Maternal & Child Health: Boland et al. A National Study of the Associations between Hormonal Modulators in Hydraulic Fracturing Fluid Chemicals and Birth Outcomes in the United States of America: A County-Level Analysis

The continued reliance and emphasis on fossil fuel-sourced industries will only put the state farther behind this goal. A just energy transition must begin today, and it must have the full force of Gov. Shapiro's voice and the full attention of his administration and the agencies that work for him. Only then can the Shapiro Administration say that it is truly working to protect the health and wellbeing of all Pennsylvanians.

CONCLUSION

In the press release that accompanied the Grand Jury Report on shale gas development in June 2020, then Attorney General Shapiro called for strong action:

Our government has a duty to set, and enforce, ground rules that protect public health and safety. We are the referees; we are here to prevent big corporations and the powerful industries from harming our communities or running over the rights of citizens. When it comes to fracking, Pennsylvania failed. Now it's time to face the facts and do what we can to protect the people of this commonwealth by encouraging the Department of Environmental Protection to partner with us and by passing the Grand Jurors' common-sense reforms.

But as frontline residents have expressed, it seems that Gov. Shapiro's actions are not reflective of Attorney General Shapiro's words.

The field of public health is characterized by swift action to reduce the risk of harm, sometimes based on limited information available at the time. Thanks to years of study after study, we no longer have limited information about the adverse health impacts of shale gas development. Nevertheless, we have yet to see Pennsylvania's leaders—including the Governor's Office, state agencies, and the General Assembly—take meaningful action to protect Pennsylvanians from health harms brought on by continued reliance on fossil fuels.

Other states have made great progress in embracing the renewable energy economy by leveraging federal dollars to boost job creation and put their communities on a path to greater economic prosperity. Pennsylvania is on the verge of being left behind, but that does not have to be its legacy. With its strong roots in manufacturing, its expertise in technology and medical research, and an existing workforce that is energy-oriented, Pennsylvania has what it takes to become a renewable energy leader, creating sustainable jobs, reducing health impacts and health care costs, and saving lives.

Gov. Shapiro has had ample time to introduce new policies and use his position of power to influence legislators and other decision makers when it comes to protecting residents from health risks associated with shale gas development. The governor can still address this vital issue during this term, but the clock is ticking. Many residents continue to deal with the serious health consequences of a polluting industry operating where they live, work, play, learn, worship, and heal. We call on Gov. Shapiro to acknowledge the health risks associated with shale gas and become a leading force in protecting Pennsylvanians from these very real harms.



INTRODUCTION

The Environmental Health Project (EHP) has closely examined the actions of Pennsylvania’s governing bodies—governors, agencies, and legislatures—over more than a decade of shale gas development (also called *hydraulic fracturing* or *fracking*). We have identified a series of egregious and, at times, intentional efforts to make it easier to extract gas without regard to the health of those living near gas infrastructure. These failings are discussed in detail in our 2022 white paper, *Pennsylvania’s Shale Gas Boom: How Policy Decisions Failed to Protect Public Health and What We Can Do to Correct It*.¹

In that report, we found that the administrations of three previous Pennsylvania governors, aided by the General Assembly (Senate and House), have largely enabled shale gas companies to operate with no consideration for the public’s health and without fear of meaningful penalties or fines that might impact their ability to conduct business. The General Assembly has failed to pass legislation that would better protect residents’ health, sometimes stalling such legislation in committees and never bringing it to a vote. The General Assembly has also failed to adequately fund state agencies, namely the Pennsylvania Department of Health (DOH) and the Pennsylvania Department of Environmental Protection (DEP), which, when fully funded, could more effectively help to protect the public from health harms related to shale gas development.

Now, we turn our attention to the Shapiro Administration. As of January 2025, Gov. Shapiro and his administration have had two full years to make inroads into protecting public health from shale gas development and other fossil fuel pollution. The governor talked about this issue passionately when he was attorney general, when he called out both the industry and state regulators for failing to protect the health of Pennsylvanians. He vowed then to address recommendations made in a Grand Jury Report on shale gas development released in 2020.² Additionally, Gov. Shapiro campaigned on stronger health protections for Pennsylvanians, given their constitutional guarantees to clean air and pure water.³

Residents impacted by the vast network of shale gas infrastructure—wells, compressor stations, processing plants, pipelines, truck traffic, etc.—had every reason to expect that Gov. Shapiro and his administration, once in office, would make progress to defend their health from sources of pollution. Two years later, residents are still waiting for meaningful action.

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- 1 Environmental Health Project (2022, April). *Pennsylvania’s Shale Gas Boom: How Policy Decisions Failed to Protect Public Health and What We Can Do to Correct It*. https://www.environmentalhealthproject.org/_files/ugd/a9ce25_92b1ee87271140d5b9f93e174cfc849c.pdf
 - 2 Commonwealth of Pennsylvania Office of the Attorney General. (2020, June 25). *43rd Statewide Grand Jury Finds Pennsylvania Failed To Protect Citizens During Fracking Boom*. <https://www.attorneygeneral.gov/taking-action/43rd-statewide-grand-jury-finds-pennsylvania-failed-to-protect-citizens-during-fracking-boom/>
 - 3 Cusick, M. (2021, May 21). *Celebrating 50 Years of Your Constitutional Right to Clean Air and Pure Water*. Allegheny Front. <https://www.alleghenyfront.org/constitutional-right-to-clean-air-and-pure-water/>

Residents impacted by the vast network of shale gas infrastructure—wells, compressor stations, processing plants, pipelines, truck traffic, etc.—had every reason to expect that Gov. Shapiro and his administration, once in office, would make progress to defend their health from sources of pollution. Two years later, residents are still waiting for meaningful action.

This paper examines opportunities the Shapiro Administration has had to create a healthier environment around shale gas development for Pennsylvanians statewide and whether the governor has lived up to the promises he made before entering office. It looks at the policies and programs the administration has put into place that may improve public health outcomes, where there is still work to be done, and how Gov. Shapiro has positioned this issue in relationship to other statewide priorities.

Our assessment concludes that the Shapiro Administration has not fulfilled the commitments the governor made to Pennsylvanians in general and to frontline communities in particular. In reaching our conclusions, we looked at several key indicators, including the administration's policies and responses to shale gas-related issues. The paper also identifies important ways the administration can correct course and work toward better health protections for Pennsylvania residents impacted by shale gas development—which, in the end, means all Pennsylvanians.



WHY HEALTH MATTERS

Since 2005, frontline communities have experienced otherwise unexplainable health impacts, along with the rise of unconventional shale gas development in the region. At first, communities and families reached out to government office holders and agencies for explanations as to why they were suddenly experiencing health issues, but their inquiries were met with denigration, misinformation, or silence. It became imperative that advocacy organizations, such as EHP, step in to fill the void and help protect residents from health harms, while trusted researchers and investigators began the work of determining why people were being inexplicably afflicted.

THE RESEARCH IS IN

Two decades later, enough research studies and investigations have been done to clearly identify many of the health risks shale gas development poses. More than 30 peer-reviewed epidemiological studies show an association between shale gas development and health impacts for residents living nearby.⁴ Hundreds of other investigations and first-hand accounts have shown that shale gas development correlates with poor health outcomes for people living in proximity to such infrastructure.⁵

Approximately 1.5 million Pennsylvanians live within a half mile of oil and gas wells.⁶ Millions more live within a half mile of a pipeline, compressor station, processing facility, or other shale gas infrastructure, and sometimes they live in proximity to more than one of these. Health impacts observed in people living in proximity to shale gas development include increased risks of:

- Respiratory problems, such as asthma, chronic bronchitis, and reduced lung function
- Skin and eye irritation
- Headaches, dizziness, and nausea
- Hospitalization from heart-related complications
- Cancer, particularly in those who are exposed over a long period of time
- Adverse birth outcomes, including preterm birth, low birth weight, and birth defects
- Mental health issues from noise, vibration, and light pollution from shale gas industry activity
- Premature mortality in the elderly.^{7,8}

4 Environmental Health Project (2023, May). Health Impacts of Shale Gas Development: A Collection of Research. https://www.environmentalhealthproject.org/files/ugd/a9ce25_feddfe7415ba4d3b894e94821aa40aab.pdf

5 Concerned Health Professionals of NY. (2023, October 19). Compendium of Scientific, Medical, and Media Findings Demonstrating Risks and Harms of Fracking and Associated Gas and Oil Infrastructure, Ninth Edition. <https://concernedhealthny.org/compendium/>

6 Jackson, E. (2023, August 25). Studies Reveal Health Impacts from Fracking in Pennsylvania. FracTracker Alliance. <https://www.fractracker.org/2023/08/pennsylvania-health-study-results/>

7 Environmental Health Project. (2023, May). Health Impacts of Shale Gas Development: A Collection of Research. https://www.environmentalhealthproject.org/files/ugd/a9ce25_feddfe7415ba4d3b894e94821aa40aab.pdf

8 Harvard T.H. Chan School of Public Health. (2022, January 27). Living near or downwind of unconventional oil and gas development linked with increased risk of early death. <https://www.hsph.harvard.edu/news/press-releases/living-near-or-downwind-of-unconventional-oil-and-gas-development-linked-with-increased-risk-of-early-death/>

One study, performed by researchers at Carnegie Mellon University, estimated that air pollution from shale gas development activities in Pennsylvania, Ohio, and West Virginia from 2004 to 2016 resulted in 1,200 to 4,600 premature deaths in the region.⁹

Industry workers are especially vulnerable to health impacts from shale gas operations. According to OSHA, safety and health hazards or dangerous conditions that can lead to fatalities include vehicle and equipment accidents, explosions or fires, falls, and exposure to high levels of toxic chemicals.¹⁰ Waste handling puts workers at particular risk of exposure to toxic and radioactive substances.¹¹

PENNSYLVANIA HEALTH & ENVIRONMENT STUDIES (PITT STUDIES)

The Pennsylvania Health and Environment Studies, three taxpayer-funded studies released in August 2023 (also called the Pitt Studies), looked at the prevalence of several health risks for people living in proximity to shale gas development in Southwestern Pennsylvania.¹² Conducted by the University of Pittsburgh's School of Public Health at the request of former Gov. Tom Wolf and the Pennsylvania Department of Health, the studies revealed increased risks of asthma, childhood cancer, and adverse birth outcomes for people living near well pads. The investigators compared historical incidences of documented health effects in areas of varying proximity to wells. The rates at various distances were then compared to those of people living farther away from wells (greater than 10 miles for birth outcomes and asthma, greater than 5 miles for childhood cancers). Many of the fracking-associated impacts showed some relationship between increased risks and decreased distances to wells, while some were still observed even at the largest distance studied.

More specifically, the studies found:

- A strong link between the production phase of unconventional shale gas development and severe exacerbations, emergency department visits, and hospitalizations for asthma in people living within 10 miles of one or more gas-producing wells. People with asthma had a 4 to 5 times greater chance of having an asthma attack if they lived near shale gas wells during the production phase.¹³

9 Mayfield, E. N., Cohon, J. L., Muller, N. Z., Azevedo, I. M. L. & Robinson, A. L. (2019, November 18). Cumulative environmental and employment impacts of the shale gas boom. *Nature Sustainability*, 2: 1122–1131. <https://doi.org/10.1038/s41893-019-0420-1>

10 U.S. Department of Labor, Occupational Safety and Health Administration. (N.D.) Oil and Gas Extraction: Health Hazards Associated with Oil and Gas Extraction Activities. <https://www.osha.gov/oil-and-gas-extraction/health-hazards>

11 Pribanic, J. B. (2023, December 10). "I Turned Blue": Workers Share Horrifying Experiences Treating Fracking Wastewater. *Public Herald*. <https://publicherald.org/i-turned-blue-workers-share-horrifying-experiences-treating-fracking-wastewater/>

12 University of Pittsburgh School of Public Health. (2023, July 31). Final Report for Pennsylvania Department of Health, Bureau of Epidemiology, Hydraulic Fracturing Epidemiology Research Studies <https://www.pa.gov/en/agencies/health/programs/environmental-health/oilgas.html#:~:text=ONGP%20Information>

13 University of Pittsburgh School of Public Health. (2023, July 31). Final Report for Pennsylvania Department of Health, Bureau of Epidemiology, Hydraulic Fracturing Epidemiology Research Studies: Asthma Outcomes. https://www.pa.gov/content/dam/copapwp-pagov/en/health/documents/topics/documents/environmental-health/Report_Asthma_outcomes_2023.pdf

- Children who lived within 1 mile of one or more wells had a 5 to 7 times higher chance of developing lymphoma, a relatively rare type of cancer, compared to children who lived in an area without wells within 5 miles. In this study, there were no associations found between shale gas development activities and childhood leukemia or brain and bone cancers, including the Ewing family of tumors.¹⁴
- Infants born to mothers who lived near shale gas wells during the production phase while pregnant were 20-40 grams (about 1 ounce) smaller at birth. The study found interference of fetal growth associated with the lengthy production phase of shale gas development.¹⁵

That these new studies reveal significant correlations between shale gas development and health issues should come as no surprise. The results of the studies complement those of other studies and reinforce the scientific consensus that shale gas development is unsafe, especially for vulnerable populations, including children, the elderly, pregnant individuals, and those with existing health conditions.

GLOBAL HEALTH IMPACTS OF SHALE GAS DEVELOPMENT

Shale gas development impacts the health of people living in proximity to its activities, whether they be wells or compressor stations, power plants or storage facilities, truck routes or pipelines. But shale gas development also contributes to climate change, which poses other health impacts for every resident of Pennsylvania, and indeed for people worldwide.

Shale gas operations intentionally vent methane, the primary component of shale gas, when flaring gas wells to control pressure. Methane also leaks accidentally at nearly every stage of shale gas development, from extraction to production, from storage to transportation. While leak detection and prevention technology has improved, the oil and gas industry nationally still loses approximately 1.6% of the product it extracts from the ground to venting and leaks.¹⁶

14 University of Pittsburgh School of Public Health. (2023, August 3). Final Report for Pennsylvania Department of Health, Bureau of Epidemiology, Hydraulic Fracturing Epidemiology Research Studies: Childhood Cancer Case-Control Study. https://www.pa.gov/content/dam/copapwp-pagov/en/health/documents/topics/documents/environmental-health/Report_Cancer_outcomes_2023.pdf

15 University of Pittsburgh School of Public Health. (2023, July 31). Final Report for Pennsylvania Department of Health, Bureau of Epidemiology, Hydraulic Fracturing Epidemiology Research Studies: Birth Outcomes. https://www.pa.gov/content/dam/copapwp-pagov/en/health/documents/topics/documents/environmental-health/Report_Birth_outcomes_2023.pdf

16 McDevitt, R. (2024, September 17). Methane emissions much higher than gas industry targets, study says. The Allegheny Front. <https://www.alleghenyfront.org/methane-emissions-leaks-natural-gas-industry/>

Methane is responsible for more than 25 percent of the climate warming we are experiencing today.¹⁷ On a 20-year timescale, methane is more than 80 times more potent than carbon dioxide (CO₂), meaning its contribution to climate change in the short term is outsized compared to other common greenhouse gases.¹⁸ The International Energy Agency calculates that the energy sector emitted 129 megatons of methane from 2017 to 2020, and that 41 of those megatons, or over 30%, were from fossil gas operations.¹⁹

Climate change increases the incidence and severity of storms, floods, wildfires, and insect-borne diseases, such as Lyme disease—all of which increase illnesses, hospitalizations, and deaths. Heat waves, which create especially serious health consequences, have increased in intensity, duration, and frequency since the 1960s.²⁰ According to the Pan American Health Organization, while some deaths are caused directly by heat, many more are caused by the exacerbation of existing conditions, primarily cardiopulmonary, renal, or psychiatric diseases.²¹

The acute effects of severe heat events are dangerous to health because they compromise the body's ability to regulate its temperature. This impact can manifest in various illnesses, including heat cramps, exhaustion, hyperthermia, and heatstroke. In the event of a heat wave with compounding external events, such as a power blackout, medical systems are not equipped to deal with a surge in emergency room visits. For example, one study estimated that if the City of Phoenix, Arizona, were to experience a 5-day heat wave and a total electric grid failure at the same time, as many as 13,250 deaths could result.²²

WHAT OUR OWN RESEARCH TELLS US

EHP's analysis of independent scientific studies, as well as its own research, has yielded the following conclusions about public health policy and shale gas development:

17 Benschhoff, L. (2022, September 29). Research shows oil field flaring emits nearly five times more methane than expected. National Public Radio. <https://www.npr.org/2022/09/29/1125894105/oil-field-flaring-methane-report>

18 Mar, K. A., Unger, C., Walderdorff, L. & Butler, T. (2022, August). Beyond CO₂ equivalence: The impacts of methane on climate, ecosystems, and health. Environmental Science & Policy, 134: 127-136. <https://www.sciencedirect.com/science/article/pii/S1462901122001204>

19 International Energy Agency. (2021). Methane and climate change. <https://www.iea.org/reports/methane-tracker-2021/methane-and-climate-change>

20 Environmental Protection Agency (EPA) & National Oceanic and Atmospheric Administration (NOAA). (2024, June). Climate Change Indicators: Heat Waves. <https://www.epa.gov/climate-indicators/climate-change-indicators-heat-waves>

21 Pan American Health Organization & World Health Organization. (2024). Extreme Meteorological Events: Heat Waves. <https://www.paho.org/en/campaigns/extreme-meteorological-events#olas-color>

22 Stone Jr., B., Gronlund, C. J., Mallen, E., Hondula, D., O'Neill, M. S., Rajput, M., Grijalva, S., Lanza, K., Harlan, S., Larsen, L., Augenbroe, G., Kragenhoff, E. S., Broadbent, A., Georgescu, M. (2023, May 23). How Blackouts during Heat Waves Amplify Mortality and Morbidity Risk. Environmental Science & Technology, 57:22. <https://pubs.acs.org/doi/10.1021/acs.est.2c09588>

- Epidemiologic studies help us understand the distribution and progression of diseases in a population by identifying risk factors and methods for their control and prevention. This process involves tracking new and ongoing cases over various periods of time to reveal patterns, trends, and outcomes, including how the condition affects our society and economy. Epidemiological studies are highly relied upon for understanding environmental health risks, especially given the unethical nature of doing toxic exposure studies on live human specimens—experimental studies that might subject the tested population to harms they wouldn’t otherwise experience.
- A chasm exists between the reliable health research that has been conducted on the subject of shale gas development and the policies or initiatives that Pennsylvania’s government has promoted over the years. Public health actions are meant to be timely, agile, and based on the strongest evidence available at the time, not slow and characterized by waiting years for more complete evidence before taking protective action. Yet, policymakers have consistently justified inaction by citing a lack of sufficient knowledge about health impacts.
- Regulations provide some limits on companies and accountability for harm and damage caused, but there is a common misconception that their existence guarantees safety for those nearby. In reality, regulations are designed to balance health impacts with other factors, such as economic ones, that may in practice undermine their ability to protect health. Companies are often assumed to be operating safely if they are meeting lax regulatory requirements, and consequently the burden of proof that emissions are causing harm often falls to the affected individuals and communities.
- Regarding shale gas development in Pennsylvania, the promise of economic benefits overshadowed caution in the face of potential negative health impacts. In an attempt to attract more economic benefits, policies were created to be exceptionally accommodating to the shale gas industry. Unfortunately, it appears that the shale gas boom did not provide a net economic benefit in many of the counties hosting infrastructure.

State-level officials have generally demonstrated a lack of awareness of the available science or have continued to raise the bar on what constitutes sufficient research on the health impacts of shale gas development. Many have also paid far more attention to industry accommodations than to public health considerations and have overestimated how well regulations can actually protect people from harm. For a deeper discussion of these failures, see EHP’s 2022 white paper, “Pennsylvania’s Shale Gas Boom: How Policy Decisions Failed to Protect Public Health and What We Can Do to Correct It.”²³

²³ Environmental Health Project (2022, April). Pennsylvania’s Shale Gas Boom: How Policy Decisions Failed to Protect Public Health and What We Can Do to Correct It. https://www.environmentalhealthproject.org/_files/ugd/a9ce25_92b1ee87271140d5b9f93e174cfc849c.pdf



WHERE THE SHAPIRO ADMINISTRATION HAS MADE PROGRESS

Any fair analysis of the Shapiro Administration’s performance regarding shale gas development must include progress the administration has made with respect to fossil fuel issues or energy policies that impact public health. It should be noted that this is an interim report, released halfway through the administration’s first term. The administration may be making progress on initiatives or projects that have not yet been made public. If true, we certainly encourage that work and look forward to learning more about it when information is released.

We are also cognizant that the new presidential administration and U.S. Congress that took office in January 2025 will have an outsized influence on efforts at the state level. The federal government is currently working to cut off funding and repeal rules that support many of the programs and initiatives we will cover in this section. For example, on February 12, Gov. Shapiro filed a lawsuit “challenging the Trump Administration’s unconstitutional freeze of federal funding.”²⁴ State agencies, such as the Department of Environmental Protection and the Department of Health, were unable to access \$1.2 billion in federal funding, “with an additional \$900 million requiring an undefined review by federal agencies before it can be drawn down.” Without this promised funding, the Commonwealth’s public health would have suffered irreparable damage, which may have impacted Pennsylvanians for generations. The political pressure created by the lawsuit and related efforts was successful, as the federal government restored funding on February 24, 2025. However, the threat of future funding freezes still casts a shadow over programs and services that benefit Pennsylvanians, including those that impact their health.

Over the course of the last two years, the Shapiro Administration has taken several actions to better protect the health of residents in the Commonwealth. We applaud the Governor’s efforts to move these actions forward to date and support his efforts to keep them going, despite increasing challenges at the federal level.



Plugging Abandoned/Orphaned Wells

Abandoned and orphaned wells represent serious public health hazards. Pollution from uncontrolled, and often unsuspected, leaks can impair the health of people living near these wells. Since leaks from abandoned wells make up nearly 8% of the state’s total methane emissions, they are also a significant contributor to climate change and the associated health impacts.²⁵

²⁴ Commonwealth of Pennsylvania Office of the Governor. (2025, February 12). Governor Shapiro Files Lawsuit Challenging Trump Administration’s Unconstitutional Federal Funding Freeze in Order to Protect Pennsylvania Interests. <https://www.pa.gov/governor/newsroom/2025-press-releases/gov-shapiro-files-lawsuit-trump-admin-unconstitutional-federal-f.html>

²⁵ Commonwealth of Pennsylvania Office of the Governor. (2024, March 12). Shapiro Administration Plugs 200th Orphaned and Abandoned Well, Surpassing Total from Previous 9 Years Combined and Continuing Historic Progress to Protect Public Health and Create Jobs. <https://www.pa.gov/en/governor/newsroom/2024-press-releases/shapiro-administration-plugs-200th-orphaned-and-abandoned-well-.html>

Under the 2021 Infrastructure Investment and Jobs Act, Pennsylvania was eligible to receive up to \$400 million in federal funding to assist with plugging orphaned and abandoned wells.²⁶ Gov. Wolf accessed about \$25 million of initial funding in August 2022, and the Pennsylvania DEP immediately began finding contractors to cap wells that are not producing and have operators who cannot be found, or property owners who cannot afford to plug the bore holes themselves.²⁷ Within the first 14 months of Gov. Shapiro's term, more than 200 wells were capped.^{28,29} The DEP also partnered with the United Mine Workers of America to institute a new registered apprenticeship program that teaches workers how to clean up oil and gas wells.³⁰ In September 2024, the Shapiro Administration announced a commitment of an additional \$76 million in federal funding for well plugging.³¹

This funding comes at a time when the DEP has identified more than 27,000 abandoned wells in the state, though the true number is estimated to be between 300,000 and 750,000 wells.³² Plugging these wells is good for both mitigating climate change and protecting public health.³³ However, there is much more to be done to properly prioritize which wells should benefit from taxpayer dollars. When the state can identify operators who knowingly walked away from the expense of plugging the wells, it should require responsible parties to pay for those remediations.³⁴ The state should also make it a priority to first plug high-emitting wells, especially those near residences and other occupied buildings or recreational areas.³⁵ Further, the Shapiro Administration should urge the General Assembly to pass legislation that allows the

26 Huangpu, K. (2024, February 26). Federal money has supercharged Pa.'s plugging of dangerous wells, but critics want more oversight. Spotlight PA. <https://www.spotlightpa.org/news/2024/02/pennsylvania-abandoned-oil-gas-wells-federal-plugging-climate-change/>

27 McDevitt, R. (2023, May 30). Pa. advocates say more scrutiny needed over well-plugging money. StateImpact Pennsylvania. <https://stateimpact.npr.org/pennsylvania/2023/05/30/pa-oil-gas-abandoned-wells-more-scrutiny-well-plugging-money/>

28 Commonwealth of Pennsylvania Office of the Governor. (2024, July 11). Governor Shapiro Signs Bipartisan 2024-25 Budget, Investing in Economic Development, K-12 and Higher Education, and Public Safety to Create Freedom and Opportunity for All Pennsylvanians. <https://www.pa.gov/en/governor/newsroom/2024-press-releases/governor-shapiro-signs-bipartisan-2024-25-budget-investing-in-e.html>

29 Commonwealth of Pennsylvania Office of the Governor (2024, March 12). Shapiro Administration Plugs 200th Orphaned and Abandoned Well, Surpassing Total from Previous 9 Years Combined and Continuing Historic Progress to Protect Public Health and Create Jobs. <https://www.pa.gov/governor/newsroom/2024-press-releases/shapiro-administration-plugs-200th-orphaned-and-abandoned-well-.html>

30 Gough, P. J. (2024, August 27). Pennsylvania, United Mine Workers partner for new oil/gas well cleanup apprenticeship. Pittsburgh Business Times. <https://www.bizjournals.com/pittsburgh/news/2024/08/27/oil-gas-well-cleanup-apprenticeship.html>

31 Times Leader. (2024, September 7). Pa. secures \$76M in federal funding to boost oil/gas well-plugging program. <https://www.timesleader.com/sports/1666482/pa-secures-76m-in-federal-funding-to-boost-oil-gas-well-plugging-program>

32 Quigley, J. (2024, March 20). A Permanence Agenda for Abandoned Oil and Gas Wells in PA and Beyond. University of Pennsylvania Kleinman Center for Energy Policy. <https://kleinmanenergy.upenn.edu/news-insights/a-permanence-agenda-for-abandoned-oil-and-gas-wells-in-pa-and-beyond/>

33 Commonwealth of Pennsylvania Office of the Governor. (2024, March 12). Shapiro Administration Plugs 200th Orphaned and Abandoned Well, Surpassing Total from Previous 9 Years Combined and Continuing Historic Progress to Protect Public Health and Create Jobs. <https://www.pa.gov/en/governor/newsroom/2024-press-releases/shapiro-administration-plugs-200th-orphaned-and-abandoned-well-.html>

34 Van Osdol, P. (2023, October 31). State struggles to make abandoned well owners pay plugging costs. WTAE-ABC. <https://www.wtae.com/article/pennsylvania-abandoned-wells-plugging-struggles/45703220>

35 Huangpu, K. (2024, March 4). Federal money has supercharged Pa.'s plugging of dangerous wells, but critics want more oversight. Spotlight PA. <https://www.wesa.fm/environment-energy/2024-03-04/pennsylvania-plugging-abandoned-oil-gas-wells-federal-money-oversight>

Pennsylvania Environmental Quality Board (EQB) to raise bonding requirements for oil and gas operators, bringing these rates more in line with the actual costs of capping wells as opposed to the current, woefully underfunded bonding requirements.³⁶



Continuing to Challenge Court Decisions on RGGI

Paving the way for Pennsylvania to enter the Regional Greenhouse Gas Initiative (RGGI) was difficult for former Gov. Wolf, whose administration preceded Shapiro's. The Pennsylvania Senate went to court to block the state's entrance into RGGI, even though every other state in the Northeastern U.S. had signed on.^{37,38} A cap-and-invest program, RGGI would benefit Pennsylvanians by reducing utility bills, creating jobs, and improving pollution-related health outcomes while helping to drastically cut carbon pollution from the region's power plants.³⁹

While never a strong advocate for RGGI, the Shapiro Administration nevertheless appealed two Commonwealth Court decisions that struck down Pennsylvania's participation in the initiative. The administration has said that the reason for the appeal was "limited to questions of executive authority, and our Administration must appeal in order to protect that important authority for this Administration and all future governors."⁴⁰ The Pennsylvania Supreme Court must take up the appeal, though, as of February 2025, it had not yet done so. Although Gov. Shapiro may not be a proponent of RGGI, his administration should be credited with attempting to preserve the executive powers that allow Pennsylvania governors to make decisions that protect the health and wellbeing of residents statewide.



Introducing New, Innovative Energy Solutions: PRESS, PACER, and RISE PA

Rather than spending time, energy, and tax dollars advocating for RGGI, the Shapiro Administration has gone a different route. It has proposed two new legislative acts that focus squarely on Pennsylvania's unique energy landscape, paving the way for a more innovative approach to the state's energy production and use: PRESS and PACER.⁴¹ The administration has also sought to leverage federal dollars to reduce emissions from Pennsylvania's industrial sector through the RISE PA grant program.

36 Sierra Club. (2023, August 23). Environmental Groups Sue Pennsylvania's General Assembly, Governor Josh Shapiro for Not Holding Oil, Gas Companies Accountable for Abandoned Wells. <https://www.sierraclub.org/press-releases/2023/12/environmental-groups-sue-pennsylvania-s-general-assembly-governor-josh>

37 Huangpu, K. (2023, November 1). Pa. court strikes down a key climate program, but environmentalists expect an appeal. Spotlight PA. <https://www.spotlightpa.org/news/2023/11/regional-greenhouse-gas-rggi-struck-down-pennsylvania-climate-change-fossil-energy/>

38 Ho, B. (2021, July 14). The Regional Greenhouse Gas Initiative Is a Model for the Nation. Natural Resources Defense Council. <https://www.nrdc.org/resources/regional-greenhouse-gas-initiative-model-nation>

39 Sciammacco, S. (2023, June 8). New Analysis: RGGI Will Cut Consumer Energy Costs and Increase Federal Investments in PA. Ceres. <https://www.ceres.org/resources/news/new-analysis-rggi-will-cut-consumer-energy-costs-and-increase-federal-investments-in-pa>

40 Huangpu, K. and Meyer, K. (2023, November 21). Gov. Josh Shapiro appeals decisions that struck down key climate program to Pa.'s highest court. Spotlight PA. <https://www.spotlightpa.org/news/2023/11/pennsylvania-josh-shapiro-climate-change-appeal-regional-greenhouse-gas-initiative-court-case/>

41 Commonwealth of Pennsylvania Office of the Governor. (2024, March 13). Governor Josh Shapiro's Energy Plan Builds on Pennsylvania's Legacy of Energy Leadership by Protecting and Creating Energy Jobs and Lowering Electricity Costs for Consumers. <https://www.pa.gov/en/governor/newsroom/2024-press-releases/governor-josh-shapiro-s-energy-plan-builds-on-pennsylvania-s-leg.html>

The Pennsylvania Reliable Energy Sustainability Standard (PRESS) would require Pennsylvania to get 50% of its electricity from a diverse range of energy resources by 2035, including 35% from solar, wind, and small modular reactors. According to the Governor’s Office, PRESS would significantly increase the amount of renewable energy that utilities use, saving Pennsylvanians money on energy bills, creating thousands of clean energy jobs, and reducing the harmful emissions that result in air pollution and climate change. While we acknowledge the public health benefits PRESS can offer, one questionable piece of the initiative is the inclusion of as much as 5% of “ultra-low emission forms of natural gas and other traditional fuels.” The term “ultra-low emission” is not defined; however, if carbon capture and underground storage (CCUS) must be employed in order to realize ultra-low emission status, this would mean using an unreliable and unproven process that has never been demonstrated to be feasible at scale.

Like RGGI, the Pennsylvania Climate Emissions Reduction Act (PACER) would establish a cap-and-invest arrangement requiring power producers to pay a fair share to offset environmental impacts of pollution created by their energy generation. Unlike RGGI, the PACER initiative would apply only to Pennsylvania producers. PACER would plan to return 70% of the revenue generated by the initiative to Pennsylvania consumers as a rebate on their electric bills, which the Governor’s Office claims is more than any other cap-and-invest program in the nation.

In May 2024, members of the state senate and house introduced bills to advance these two important pieces of legislation.⁴² As of February 2025, no further action has been taken. According to the Governor’s Office, if the legislature passes both bills, the initiatives together will generate about 15,000 energy jobs and address fossil fuel pollution. They would also “save Pennsylvania ratepayers \$252 million in the first five years, while generating \$5.1 billion in investment in clean, reliable energy sources.”⁴³

While PRESS and PACER may be steps in the right direction, they come with a caveat. Some revenues of the programs are scheduled to be used as investments in questionable energy projects, such as carbon capture and storage and fossil fuel-based hydrogen, both of which represent significant threats to public health and have the potential to worsen the climate crisis.^{44,45,46} These investments are also slated to be made in communities previously impacted by coal, oil, or gas infrastructure—which

42 Friel Otten, D. & Abney, A. A. (2024, May 8). Lawmakers introduce landmark energy bills in Pa. House. Pennsylvania House Democrats. <https://www.pahouse.com/InTheNews/NewsRelease/?id=134007>

43 Commonwealth of Pennsylvania Office of the Governor. (2024, March 13). Governor Josh Shapiro’s Energy Plan Builds on Pennsylvania’s Legacy of Energy Leadership by Protecting and Creating Energy Jobs and Lowering Electricity Costs for Consumers. <https://www.pa.gov/en/governor/newsroom/2024-press-releases/governor-josh-shapiro-s-energy-plan-builds-on-pennsylvania-s-leg.html>

44 Howarth, R. W. & Jacobson, M. Z. (2021, August 12). How green is blue hydrogen? Energy Science & Engineering. <https://scijournals.onlinelibrary.wiley.com/doi/full/10.1002/ese3.956>

45 Dooling, P. (2024, January 2). Carbon Capture, Utilization, and Storage (CCUS): Another False Solution? Environmental Health Project. <https://www.environmentalhealthproject.org/post/carbon-capture-utilization-and-storage-ccus-another-false-solution>

46 Environmental Health Project. (2022, August 16). Blue Hydrogen: A Threat to Public Health? <https://www.environmentalhealthproject.org/post/blue-hydrogen-a-threat-to-public-health>

means the same environmental justice communities will continue to carry the greatest burden of health harms from pollution.

The Shapiro Administration continues to propagate this investment in questionable energy projects in its “Lightning Plan,” a comprehensive proposal released in January 2025 meant to address Pennsylvania’s energy future and promote a wide array of energy projects in the Commonwealth.⁴⁷ While there is much in the plan that supports aspects of a transition to renewable energy, the plan enables continued extraction and consumption of fossil fuels, while it leaves unaddressed direct opportunities to prioritize renewable energy, which would lower the risk of health harms for families living in frontline communities—and for all Pennsylvanians. (For more on this topic, see “A Just Transition to Renewable Energies” later in this report.)

Reducing Industrial Sector Emissions in Pennsylvania (RISE PA) is a \$396 million industrial decarbonization grant program. Announced in April 2024, this program leverages funding from the U.S. Environmental Protection Agency’s Climate Pollution Reduction Grants under the Inflation Reduction Act of 2022. Pennsylvania’s industrial sector is the highest-emitting sector statewide, accounting for over 30% of Pennsylvania’s total greenhouse gas emissions. RISE PA offers grants for decarbonization projects of all sizes at industrial facilities—a positive step in reducing greenhouse gases and co-pollutant emissions.⁴⁸



Prioritizing DEP

For decades now, the Pennsylvania Department of Environmental Protection (DEP) has been operating with insufficient budget and personnel. During budget hearings in 2024, the DEP estimated that the staff of its Oil and Gas Program, which oversees permitting and regulating the industry, was operating at about 75% capacity due to staffing shortfalls.⁴⁹ Because of these shortfalls, DEP has often been unable to take meaningful enforcement action, failing to address many spills and other violations. Further, the Grand Jury Report on shale gas development, which Shapiro spearheaded as attorney general, included detailed analysis of how the DEP was undertrained, failed to institute adequate regulations, and inadequately enforced existing statutes, all of which created greater health risks for frontline communities.⁵⁰

47 Commonwealth of Pennsylvania Office of the Governor. (2025, January 31). Governor Shapiro Unveils “Lightning Plan” to Strengthen Commonwealth’s Energy Leadership, Create Jobs, and Lower Costs for Consumers. <https://www.pa.gov/governor/newsroom/2025-press-releases/governor-shapiro-unveils-lightning-plan--to-strengthen-commonwe.html>

48 Commonwealth of Pennsylvania Department of Environmental Protection. (n.d.) Reducing Industrial Sector Emissions in Pennsylvania (RISE PA). https://www.dep.pa.gov/Business/Energy/OfficeofPollutionPrevention/Pages/RISE_PA.aspx

49 Vitali, G. (2024, May 28). Pa. Department of Environmental Protection Needs More Help. Pennsylvania House of Representatives. <https://www.pahouse.com/Vitali/InTheNews/Opinion/?id=134244>

50 Commonwealth of Pennsylvania Office of the Attorney General. (2020, June 25). 43rd Statewide Grand Jury Finds Pennsylvania Failed To Protect Citizens During Fracking Boom. <https://www.attorneygeneral.gov/taking-action/43rd-statewide-grand-jury-finds-pennsylvania-failed-to-protect-citizens-during-fracking-boom/>

To its credit, the Shapiro Administration, in its fiscal year 2024-2025 budget, proposed a 19% increase in funding for the DEP.⁵¹ The budget called for 59 new jobs at DEP, with 40 of these slated for the Oil and Gas Program and two new staff to facilitate air quality monitoring.⁵² The budget also called for funding of \$1.1 million for air monitoring by the DEP's Bureau of Air Quality as well as \$1.5 million for PFAS testing across the state. The final budget bill that landed on Gov. Shapiro's desk for signing included a 14% increase in DEP funding, bringing the agency's annual budget to \$232 million in state funds.⁵³

Gov. Shapiro's 2025-2026 budget proposal called for an additional 12% increase in DEP funding, though details of how those dollars might be spent were lacking as of the time the draft budget was submitted.⁵⁴

Sufficient funding and personnel are required to ensure the DEP can do its job of regulating the industry, and so is a clear mandate from the governor's office to prioritize enforcement of existing regulations. The 2024-2025 Shapiro budget called for the majority of the new positions to be targeted to the permitting division of DEP. While a more robust permitting staff might help to block wells that fall short of state regulations, it raises questions. Specifically of concern is whether this ramp up in permitting division hiring signals a desire to increase approval for more shale gas wells and to do so quickly, thus exacerbating the current shortage of field staff to investigate violations. Concomitant funding for enforcement staff to make sure operators are obeying the rules and regulations DEP currently administers could allay those concerns, but there was no indication from the Administration's budget of an intention to do so. (See "The DEP" later in this paper.)



Promoting Solar and Other Renewable Energy Projects

A just transition from fossil fuels to renewable energies is vital for protecting public health (see "A Just Transition to Renewable Energies" below). Pennsylvania can become a national leader in solar, but it currently ranks 50th in the nation (when D.C. is included), ahead of only Alaska, in total solar, wind, and geothermal energy growth since 2013.⁵⁵ The Shapiro Administration has an opportunity to make up some of that lost ground.

51 Commonwealth of Pennsylvania Office of the Governor. (2024). Governor Shapiro's Fiscally Responsible, Balanced Budget. <https://www.shapirobudget.pa.gov/>

52 Commonwealth of Pennsylvania Department of Environmental Protection. (2024, March 7). DEP Reports Progress on Implementing Shapiro Administration Permitting Reform, Reduces Permit Backlog by 41 Percent. <https://www.ahs.dep.pa.gov/NewsRoomPublic/articleviewer.aspx?id=22408&typeid=1>

53 Raulerson, J. (2024, July 12). Key Wins, Missed Opportunities: A 2024-25 Budget Breakdown. Pennsylvania Environmental Council (PEC). <https://pecpa.org/news/key-wins-missed-opportunities-a-2024-25-budget-breakdown/>

54 Commonwealth of Pennsylvania Office of the Governor. (2025, February 4). 2025-26 General Fund Tracking Run. <https://www.pa.gov/content/dam/copapwp-pagov/en/budget/documents/publications-and-reports/commonwealthbudget/2025-26-budget-documents/2025-26%20executive%20budget%20-%20proposed%20general%20fund%20state%20appropriations%20-%20web.pdf>

55 Kerns, E., Masur, D. (2023, October 11). Pennsylvania Lagging in Renewable Energy Race. PennEnvironment. <https://environmentamerica.org/pennsylvania/center/media-center/pennsylvania-lagging-in-renewable-energy-race/>

Advancing an initiative begun by his predecessor, Gov. Shapiro has prioritized the Pennsylvania Project to Utilize Light and Solar Energy (PA PULSE) initiative.⁵⁶ State agencies will source at least 53% of their annual energy consumption from renewables once several solar farms are built throughout the state. According to the U.S. EPA, this initiative will become the largest renewable energy commitment in the nation by any state government.⁵⁷ The initiative calls for immediately installing six sites delivering electricity, all of it originating in Pennsylvania, to state agencies, with additional sites in development across the state.

Pennsylvania is also set to receive \$156 million in federal aid to place solar panels on more than 14,000 residential homes in low-income and social justice communities, in both urban and rural areas. Unless funding is withheld by the current presidential administration, the aid will come from the Biden Administration's Solar for All program.⁵⁸

Likewise, Pennsylvania's 2024-2025 budget, as passed, included \$25 million in state funds to be used in combination with federal grants to create the Solar for Schools program.⁵⁹ Under the program, schools can request grants to cover up to 50% of the cost of solar installations. The program will help schools save money while contributing to a just transition away from fossil fuels and toward renewable energy, a move that will improve pollution-related health outcomes. The Governor's Office reported that, as of January 2025, the Solar for Schools program had received 88 applications from school districts interested in the program, meaning that nearly 18% of the state's approximately 500 school districts were investigating solar installations.⁶⁰ Gov. Shapiro's 2025-2026 budget proposal included another \$25 million for the Solar for Schools program.⁶¹



Focusing on Community Engagement and Environmental Justice

Frontline communities, especially those considered to be environmental justice communities, have suffered the greatest health impacts from shale gas development and face the largest risks going forward. It is imperative that state leaders prioritize these communities, engaging with them in meaningful ways to better protect residents' health.

56 Commonwealth of Pennsylvania Office of the Governor. (2024, April 22). Governor Shapiro Unveils New Statewide Energy Initiative, Making Pennsylvania the First State Government to Commit to Getting 50 Percent of Its Electricity from Solar Power. <https://www.pa.gov/en/governor/newsroom/2024-press-releases/governor-shapiro-unveils-new-statewide-energy-initiative--making.html>

57 U.S. Environmental Protection Agency (EPA). (2024, July 25). Green Power Partnership National Top 100. <https://www.epa.gov/greenpower/green-power-partnership-national-top-100>

58 Crable, A. (2024, May 4). Pennsylvania gets \$156 million to boost solar projects in low income, polluted communities. Bay Journal. https://www.bayjournal.com/news/climate_change/pennsylvania-gets-156-million-to-boost-solar-projects-in-low-income-polluted-communities/article_5a77ebd4-0a4f-11ef-8727-df7b242ef777.html

59 McDevitt, R. (2024, July 31). Pa. legislators passed a lot of new laws with the budget. Here's what's happening with environmental policy. StateImpact Pennsylvania. <https://stateimpact.npr.org/pennsylvania/2024/07/31/pa-legislators-passed-a-lot-of-new-laws-with-the-budget-heres-whats-happening-with-environmental-policy/>

60 Fiedler, E. (2025, February 4). Fiedler applauds \$25 million for Solar for Schools in proposed state budget: Proposal highlights overwhelming demand. Office of Pennsylvania Representative Elizabeth Fiedler. <https://www.pahouse.com/Fiedler/InTheNews/NewsRelease/?id=137074>

61 Ulrich, S. (2025, February 6). Shapiro unveils \$51.4B budget proposal. Politics PA. <https://www.politicspa.com/shapiro-unveils-51-4b-budget-proposal/140650/>

Under Gov. Shapiro, the DEP has established a Customer Experience Management Advisory Council (CXMAC) to advise DEP’s leadership “on strategies and improvements to enhance service delivery to the public.”⁶² Comprised of private businesses, nonprofit organizations, and government agencies, the council has set a goal of ensuring DEP’s services are accessible to residents and that the agency can effectively do its job. Whether this council will succeed in improving community engagement is not yet known.

Environmental justice has been a stated priority of the governor’s office for several years now. Gov. Wolf established the DEP’s Office of Environmental Justice (OEJ) by executive order in October 2021.⁶³ In 2024, the Shapiro Administration appointed Fernando Treviño as OEJ’s special deputy secretary, elevating OEJ leadership to the level of a deputy secretary for the first time.⁶⁴

In September 2023, DEP published an Interim-Final Environmental Justice Policy, which incorporated input from the public and from advocacy organizations. According to DEP Acting Secretary Jessica Shirley, the purpose of this revised EJ policy is “to facilitate environmental justice in communities across Pennsylvania and to ensure every community, no matter their location, demographic, or wealth has equity and environmental justice in the administration of DEP’s constitutional, statutory, and regulatory duties.”⁶⁵ This environmental justice policy advances the right to clean air and pure water guaranteed to all Pennsylvanians in the state’s constitution.⁶⁶

§ 27. Natural resources and the public estate.

The people have a right to clean air, pure water, and to the preservation of the natural, scenic, historic and esthetic values of the environment. Pennsylvania’s public natural resources are the common property of all the people, including generations yet to come. As trustee of these resources, the Commonwealth shall conserve and maintain them for the benefit of all the people. (May 18, 1971, P.L.769, J.R.3)

62 Commonwealth of Pennsylvania Department of Environmental Protection. (2024, June 12). DEP Establishes a Customer Experience Management Advisory Council to Put Customer Service Front and Center for Agency Leadership. https://www.media.pa.gov/Pages/DEP_details.aspx?newsid=1887

63 Wolf, T. (2021, October 28). Executive Order 2021-07, Environmental Justice. Commonwealth of Pennsylvania Governor’s Office. <https://www.oa.pa.gov/Policies/eo/Documents/2021-07.pdf>

64 Commonwealth of Pennsylvania Department of Environmental Protection. (2023, August 29). Shapiro Administration Expands Environmental Justice Protections with Updated Policy and Improved Mapping Tool. https://www.media.pa.gov/pages/dep_details.aspx?newsid=1797

65 Shirley, J. (2024, February 28). Budget Testimony for Interim Acting Secretary Jessica Shirley, PA Department of Environmental Protection. House Appropriations Committee. <https://houseappropriations.com/files/Documents/PA%20DEP%20House%20Budget%20Hearing%20Testimony.pdf>

66 Cusick, M. (2021, May 21). Celebrating 50 Years of Your Constitutional Right to Clean Air and Pure Water. Allegheny Front. <https://www.alleghenyfront.org/constitutional-right-to-clean-air-and-pure-water/>

Additionally, DEP has added Environmental Justice Regional Coordinators in each of its six regional offices. These coordinators are charged with establishing relationships with residents and community organizations. According to the DEP, coordinators will help to ensure DEP's Permitting Efficiency Plan is implemented effectively and that there is adequate community participation and environmental justice among vulnerable communities.⁶⁷

More recently, in September 2024, the DEP announced it was receiving approximately \$2 million in grant funding from U.S. Department of Energy to develop the Renewable Energy Siting through Technical Engagement and Planning (R-STEP) program. The goal of R-STEP is to help local communities identify the best places for wind and solar projects that can lower utility costs and fight climate change.⁶⁸

In the face of complex energy and health challenges, the Shapiro Administration has made inroads on certain fronts. We encourage continued progress through effective stakeholder engagement and prioritization of policy considerations that defend the health of Pennsylvanians.

67 Shirley, J. (2024, February 28). Budget Testimony for Interim Acting Secretary Jessica Shirley, PA Department of Environmental Protection. House Appropriations Committee. <https://houseappropriations.com/files/Documents/PA%20DEP%20House%20Budget%20Hearing%20Testimony.pdf>

68 Commonwealth of Pennsylvania Department of Environmental Protection. (2024, September 13). Shapiro Administration Secures Nearly \$2 Million for Renewable Energy Planning for Pennsylvania. https://www.media.pa.gov/pages/dep_details.aspx?newsid=1934



WHERE THE SHAPIRO ADMINISTRATION HAS FALLEN SHORT

In the two years since Gov. Shapiro's inauguration, his administration has taken some definitive steps forward in better protecting residents' health from polluters and may be working on others that, as of February 2025, have not yet been made public. However, as discussed in the coming pages, the Shapiro Administration has fallen short on several other fronts when it comes to protecting the health of Pennsylvania residents from shale gas pollution. Even as the Governor's Press Office has attempted to cast a positive light on the governor's actions with respect to the environment and public health, EHP has identified a number of serious shortcomings and failures in this regard.



GRAND JURY REPORT RECOMMENDATIONS

Gov. Shapiro's press office has released positive statements that imply significant progress toward fully addressing the eight recommendations made in Pennsylvania's 43rd Statewide Investigating Grand Jury report on the shale gas industry, which Shapiro made public in 2020 when he was Pennsylvania's attorney general.⁶⁹ Any such implication is false. While the administration has made minor progress on a few of the recommendations, none of them has yet been fully addressed, and some have not been addressed at all. Frontline residents have expressed disappointment in this lack of progress, given the passion and conviction with which then Attorney General Shapiro talked about these recommendations when the Grand Jury report first came out.

A closer look at the action Gov. Shapiro has taken so far with respect to each of the Grand Jury Report recommendations reveals clear failings.

1. "Expanding no-drill zones in Pennsylvania from the required 500 feet to 2,500 feet"

In November 2023, the governor announced a collaboration with CNX Resources, a gas extraction operator headquartered in Southwestern Pennsylvania, to purportedly provide "radical transparency" on their operations.⁷⁰ The collaboration, which has many problematic issues, is outlined in a Statement of Mutual Interests.^{71,72} (For further discussion of the CNX arrangement and its shortcomings, see "CNX Collaboration" later in this report.)

69 Commonwealth of Pennsylvania Office of the Attorney General. (2020, June 25). 43rd Statewide Grand Jury Finds Pennsylvania Failed To Protect Citizens During Fracking Boom. <https://www.attorneygeneral.gov/taking-action/43rd-statewide-grand-jury-finds-pennsylvania-failed-to-protect-citizens-during-fracking-boom/>

70 Miller, C. (2023, December 18). Western Pa. natural gas co. begins self-reporting air quality data as part of Shapiro partnership. Pennsylvania Capital-Star. <https://penncapital-star.com/government-politics/western-pa-natural-gas-co-begins-self-reporting-air-quality-data-as-part-of-shapiro-partnership/>

71 Shapiro, J. & Delulius, N. J. (2023, November 2). Statement of Mutual Interests. Pennsylvania Office of the Governor and CNX Resources Corp. <https://www.pa.gov/content/dam/copapwp-pagov/en/governor/documents/Statement-of-Mutual-Interests-CNX.pdf>

72 Steele, A. L. (2023, December 7). Statement on Shapiro Administration and CNX Resources Collaboration. Environmental Health Project. https://www.environmentalhealthproject.org/files/ugd/a30426_82ca27b2c9db477eb5f0c56bae01e5ba.pdf

One such issue in this collaboration deals with “no drill zones,” or “setback distances” as they are often called. In the statement, CNX agreed to voluntarily increase the legally required setback of 500 feet between gas wells and occupied buildings to 600 feet, with a 2,500-foot setback from schools and hospitals.

While the CNX setbacks are a marginal increase over current requirements, they do not reflect the recommendations put forth in the Grand Jury Report, which included a 2,500-foot setback from residences and a 5,000-foot setback from schools and hospitals.⁷³ By way of comparison, EHP recommends a minimum of a 3,300-foot (1 km) setback from small wells and other facilities and a 6,600-foot (2 km) setback from large well pads and other facilities.⁷⁴ These distances are based on a large and growing body of academic research and a recognition that, while there is still no established safe distance, farther is ultimately better for reducing health harms.⁷⁵

As we have said, there is no evidence that shale gas development can be done without harm to human health. Moreover, the voluntary nature of the CNX collaboration is far weaker than if the setbacks were mandated by law and enforced by agency officials. For the governor to imply that the CNX deal meets the setback standards outlined in the Grand Jury Report is patently false and disingenuous to frontline communities that were hoping for stronger protections.

Act 13—legislation the Pennsylvania General Assembly passed and Gov. Corbett signed into law in 2012—gives the legislature, and not the governor or state agencies, the power to adjust setback distances. However, Gov. Shapiro can take a more active role in pressing the legislature to better protect residents’ health with meaningful setback increases, as he did when he was attorney general.^{76,77}

2. “Requiring fracking companies to publicly disclose all chemicals used in drilling and hydraulic fracturing before they are used on-site”

In January 2024, the Pennsylvania Department of Environmental Protection (DEP) announced it would implement new policies to require gas operators to publicly disclose chemicals they use in drilling and hydraulic fracturing earlier in the well

73 Commonwealth of Pennsylvania Office of the Attorney General. (2020, June 25). 43rd Statewide Grand Jury Finds Pennsylvania Failed To Protect Citizens During Fracking Boom. <https://www.attorneygeneral.gov/taking-action/43rd-statewide-grand-jury-finds-pennsylvania-failed-to-protect-citizens-during-fracking-boom/>

74 Environmental Health Project. (2023, February). Position Statement on Setback Distances. https://www.environmentalhealthproject.org/files/ugd/a9ce25_6e404d6e33594312abc9d51317908d47.pdf

75 Environmental Health Project. (2023, May). Health Impacts of Shale Gas Development: A Collection of Research. https://www.environmentalhealthproject.org/files/ugd/a9ce25_feddfe7415ba4d3b894e94821aa40aab.pdf

76 Commonwealth of Pennsylvania Department of Environmental Protection. (n.d.). Act 13 Frequently Asked Questions. <https://www.dep.pa.gov/Business/Energy/OilandGasPrograms/Act13/Pages/Act-13-FAQ.aspx>

77 PennFuture. (2021, May 25). Shapiro, lawmakers tout new batch of fracking oversight bills. <https://www.pennfuture.org/News-Shapiro-lawmakers-tout-new-batch-of-fracking-oversight-bills>

development process.⁷⁸ Previously, operators were required to keep a list of chemicals on hand but did not have to provide it to the DEP unless it was requested. Disclosure to the public was made by each operator's participation in FracFocus, the national hydraulic fracturing chemical disclosure registry, which continues to be a requirement for operators.⁷⁹ Now, when issuing permits for new shale wells, the DEP will also require operators to submit a list of chemicals they intend to use in their site-specific Preparedness, Prevention, and Contingency (PPC) plans prior to drilling, and DEP will post the PPC documents online.⁸⁰

While this new policy may seem to create greater transparency, Pennsylvania law does not require operators to disclose chemical blends if they are considered proprietary or a trade secret. Many of the chemicals involved in the fracking process will still not be made available to the public, to health care professionals (except in very limited situations), or to researchers. Nor is this information available to the government officials or emergency preparedness and response teams that require it when leaks or spills occur.

It should also be noted that the disclosure of chemicals does not in any way impact the permitting of a well since the disclosure comes after the well permit has already been issued. Even more importantly, the chemicals that go into the ground are only one part of the problem. Wastewater that comes back to the surface after the well is fracked contains additional toxic and naturally occurring radioactive elements that present additional health hazards.⁸¹

Changing the law around chemical disclosures may require legislative action. If chemical disclosures cannot be changed through DEP rulemaking, Gov. Shapiro should press the legislature to act to require operators to fully disclose all chemicals they use.

3. “Conducting a comprehensive health response to the effects of living near unconventional drilling sites”

Neither the Grand Jury Report nor the accompanying materials define what a “comprehensive health response” to living near shale gas development looks like. Public health experts might define such an approach for a governor's administration as, at a minimum:

78 Commonwealth of Pennsylvania Office of the Governor. (2024, January 26). Shapiro Administration, DEP Requires All Fracking Companies to be More Transparent About Chemicals Used in Drilling. https://www.media.pa.gov/pages/DEP_details.aspx?newsid=1858

79 Ground Water Protection Council. (n.d.). FracFocus Chemical Disclosure Registry. <https://fracfocus.org/>

80 Commonwealth of Pennsylvania Office of the Governor. (2024, January 26). Shapiro Administration, DEP Requires All Fracking Companies to be More Transparent About Chemicals Used in Drilling. https://www.media.pa.gov/pages/DEP_details.aspx?newsid=1858

81 Environmental Health Project (n.d.). Water. <https://www.environmentalhealthproject.org/water>

1. Acknowledging the settled science on the health risks of exposure to shale gas pollution
2. Directing state health agencies to meaningfully engage with frontline communities and health care providers to help them protect residents from that pollution
3. Empowering enforcement agencies to regulate toxic emissions and to effectively penalize operators who fail to follow regulations
4. Calling for legislative action to shore up legal gaps in industry regulations that jeopardize the health of those living nearby.

The governor has the power to do all of these things, but it is clear that the Shapiro Administration has not yet implemented a comprehensive health response.

Settled Science

During the first two years of his term, Gov. Shapiro has had many opportunities to acknowledge the substantial and conclusive research on health impacts from the shale gas industry. As noted earlier, dozens of peer-reviewed epidemiologic studies and hundreds of other investigations conducted over the last decade already point to a range of health risks from exposure to shale gas emissions, particularly from well pads.^{82,83} The concerning health impacts identified in the Pennsylvania Health and Environment Studies (Pitt Studies) are further proof of these higher risks.⁸⁴

EHP and other health and community organizations have provided the Shapiro Administration with information about relevant studies and investigations on several occasions. Based on the evidence to date, Gov. Shapiro has so far failed to acknowledge this research, most recently remaining silent on the Pitt Studies since their release in August 2023. Instead, he has called for even more research, which will delay necessary health-protective actions for many more years.

Agency Response

The agencies under the direction of Gov. Shapiro also have a part to play in a comprehensive health response to shale gas pollution. Both the Department of Health (DOH) and the Department of Environmental Protection (DEP) must perform key roles in helping to protect residents exposed to shale gas pollution.

82 Environmental Health Project (2023, May). Health Impacts of Shale Gas Development: A Collection of Research. https://www.environmentalhealthproject.org/_files/ugd/a9ce25_feddfe7415ba4d3b894e94821aa40aab.pdf

83 Concerned Health Professionals of NY. (2023, October 19). Compendium of Scientific, Medical, and Media Findings Demonstrating Risks and Harms of Fracking and Associated Gas and Oil Infrastructure, Ninth Edition. <https://concernedhealthny.org/compendium/>

84 University of Pittsburgh School of Public Health. (2023, July 31). Final Report for Pennsylvania Department of Health, Bureau of Epidemiology, Hydraulic Fracturing Epidemiology Research Studies <https://www.pa.gov/en/agencies/health/programs/environmental-health/oilgas.html#:~:text=ONGP%20Information>

The DOH. Over the last few years, the DOH has begun to make progress in educating residents and health care providers on the risks of exposure to toxic emissions from shale gas development. At a community meeting releasing the results of the Health and Environment Studies, the DOH committed to:

- Provide continuing education to local healthcare providers on oil & gas pollutant exposure
- Create an initiative to educate schools on air quality
- Create a new Environmental Health Complaint process
- Update its literature review
- Continue to review data and monitor cancer rates in fracking areas to determine any correlations between oil & gas pollution and health harms
- Continue working closely with other agencies, particularly the DEP, to protect the health of all residents and share educational information.

As of February 2025, the DOH had reported meeting four of these commitments (providing continuing education to local healthcare providers, creating an initiative to educate schools, creating a new Environmental Health Complaint process, and continuing to work closely with other agencies) and was developing plans for meeting the other two.

Specifically, the DOH has created a certificate training presentation for public health professionals on the health impacts of climate change, titled “Climate-informed Public Health Training.”⁸⁵ Staff also shared that they are working with the Pennsylvania Department of Education to provide educational materials for schools and families, including a document titled, “Integrating Environmental Health and Science: Resources for K-12 Teachers in Pennsylvania” and are seeking approval for a presentation to health professionals that would include continuing education credits for nurses. DOH added a new feature to its environmental health website in 2024 to help individuals submit environmental health complaints.⁸⁶ In early 2025, DOH began to provide presentations on environmental health to healthcare professionals in collaboration with the Pennsylvania State University College of Medicine’s Project ECHO (Extension for Community Healthcare Outcomes).^{87,88} In January 2025, a Health Advisory with “Resources for Health Care Professionals on Health Effects of Environmental

85 Train PA. (2024, April 25). PA-EHE: Climate-informed Public Health Training – Recorded. Pennsylvania Department of Health. <https://www.train.org/pa/course/1119835/details>

86 Commonwealth of Pennsylvania Department of Health. (n.d.). Report an Environmental Health Concern. <https://www.pa.gov/agencies/health/programs/environmental-health/concern.html>

87 Pennsylvania State University College of Medicine. (2022, November 18). Project ECHO at Penn State awarded “Superhub” status. <https://pennstatehealthnews.org/2022/11/project-echo-at-penn-state-awarded-superhub-status/>

88 Penn State University College of Medicine. (2025). Environmental Determinants of Health, Project ECHO Collaborative for Primary Care Providers. https://breatheproject.org/wp-content/uploads/2025/01/Schedule_EnvironmentalDeterminants_Oct25.pdf

Exposures” was sent to statewide members of the Pennsylvania Health Alert Network.⁸⁹ Finally, DOH reported it would be engaging in a full literature review of studies done since its last review in 2019.

The DOH should be recognized for meeting regularly with a handful of environmental health advocates, including EHP, to hear concerns about residents and learn more about the health issues examined in recent literature. DOH leadership and staff should also be recognized for touring impacted communities and speaking with impacted residents in Southwestern Pennsylvania on four separate occasions over recent years, including during the presentation of the Pitt Studies results. Yet, while the DOH has taken positive steps to meet with organizations and educate state residents on the health implications of shale gas pollution, Pennsylvania’s premiere health agency must still do more to press Gov. Shapiro to act on known health risks and to engage directly with frontline communities, which have faced a long history of exposure to pollution from extractive industries.

The DEP. As discussed earlier, Gov. Shapiro has taken steps to shore up staffing at DEP (at least in the permitting division), has bolstered funding for the DEP’s well-plugging program, and has advanced a more robust environmental justice effort within the department. However, the agency is still experiencing several shortcomings around its mission to provide for the health and safety of Pennsylvania residents and visitors.

“The Department of Environmental Protection’s mission is to protect Pennsylvania’s air, land, and water resources and to provide for the health and safety of its residents and visitors, consistent with the rights and duties established under the Environmental Rights Amendment (Article 1, Section 27 of the Pennsylvania Constitution).”

- PA DEP’s Mission Statement⁹⁰

First, the DEP’s regulatory authority continues to be insufficient to foster meaningful oversight of shale gas operators. DEP field inspectors are historically understaffed,^{91,92} and though the DEP cited conventional and unconventional operators 102,652 times

⁸⁹ Commonwealth of Pennsylvania Department of Health. (2025, January 13). Resources for Health Care Professionals on Health Effects of Environmental Exposures. <https://www.pa.gov/content/dam/copapwp-pagov/en/health/documents/topics/documents/2025%20HAN/2025-782-01-13-EHE%20Resources.pdf>

⁹⁰ Commonwealth of Pennsylvania Department of Environmental Protection. (n.d.). About DEP. <https://www.pa.gov/agencies/dep/about-dep.html>

⁹¹ Levy, M. (2017, March 3). Federal officials: Pa. DEP not adequately staffed to carry out its mission. Times Leader. <https://www.timesleader.com/news/639388/federal-officials-pa-dep-not-adequately-staffed-to-carry-out-its-mission>

⁹² Vitali, G. (2024, May 20). Opinion: The Department of Environmental Protection needs to be protected from underfunding and understaffing. City & State Pennsylvania. <https://www.cityandstatepa.com/opinion/2024/05/opinion-department-environmental-protection-needs-be-protected-underfunding-and-understaffing/396713/>

for violations between 2007 and 2023, these citations have not deterred operators from continuing to pollute, often at will.⁹³ According to former DEP Secretary David E. Hess, when DEP does act, operators many times disregard DEP actions and ignore changes DEP requests in inspection reports, choosing instead to pay minimal fines. It often takes many years for violations to be resolved with penalties and consent agreements, enabling violators to continue harming the health of nearby residents in the meantime.⁹⁴ The Shapiro Administration has the power to strengthen regulations and improve enforcement, including more stringent penalties for violations but has not yet done so in any meaningful way.

Further, the DEP continues to operate under most of the same industry-friendly regulations put into place almost two decades ago. Some current legislators have introduced bills that would increase health protections near shale gas pollution, but each one of these bills has either been voted down or stalled in committees. Other legislators are attempting to increase favorable conditions for industry by punishing communities who seek to better protect their health through stronger local ordinances.^{95,96}

Amid these disagreements in the General Assembly, one power of the executive branch is the ability to use the office as a bully pulpit to urge legislators to act. Unlike his predecessors, Gov. Shapiro could publicly engage legislators and urge passage of bills that protect residents from shale gas pollution, but like his predecessors, again, he has chosen not to. Certainly, operating in a divided government can be difficult, but courageous leadership requires taking hard stances on issues of importance to the people and pressing them forward.

Unlike his predecessors, Gov. Shapiro could publicly engage legislators and urge passage of bills that protect residents from shale gas pollution, but like his predecessors, again, he has chosen not to.

For a more in-depth discussion on what a comprehensive health response would look like, see the next section of this paper, “What the Shapiro Administration Can Do to Better Defend Public Health.”

93 Kelso, M. (2024, August 1). Pennsylvania Oil and Gas Industry Trends: Drilled Wells, Violations, Production, and Waste. FracTracker Alliance. <https://www.fractracker.org/2024/08/pennsylvania-oil-and-gas-trends/>

94 Hess, D. E. (2024, August 6). Interview.

95 Bartolotta, C. & Yaw, G. (2024, October 9). Memorandum: Impact Fee Withheld from Municipality in Certain Cases. Pennsylvania Senate. <https://www.legis.state.pa.us/cfdocs/Legis/CSM/showMemoPublic.cfm?Chamber=S&SPick=20230&cosponId=43262>

96 Hess, D. E. (2024, October 12). Sen. Bartolotta, Sen. Yaw Announce Bill To Withhold Gas Drilling Impact Fees To Municipalities That Set More Protective Standards On Natural Gas Development Than State Law, And While There Is a Legal Challenge To Local Restrictions. <https://paenvironmentdaily.blogspot.com/2024/10/sen-bartolotta-sen-yaw-announce-bill-to.html?m=1>

4. Other Recommendations from the Grand Jury Report

Based on information publicly available in February 2025, the Shapiro Administration had not yet meaningfully addressed other recommendations from the Grand Jury Report. These include:

- “Requiring the regulation of gathering lines, used to transport unconventional gas hundreds of miles”
- “Adding up all sources of air pollution in a given area to accurately assess air quality”
- “Requiring safer transport of the contaminated waste created from fracking sites”
- “Limiting the ability of Pennsylvania Department of Environmental Protection employees to be employed in the private sector immediately after leaving the Department”
- “Allowing the Pennsylvania Office of Attorney General original criminal jurisdiction over unconventional oil and gas companies”

In the Statement of Mutual Interests between Shapiro and CNX, CNX volunteered to address some of the above recommendations, particularly around chemical disclosures, gathering lines, and transport.⁹⁷ A press release from the Governor’s Office also stated that “CNX will refrain from hiring Pennsylvania Department of Environmental Protection employees from regional offices covering CNX operational areas for two years after those employees leave the Department,” though this language does not appear in the Statement of Mutual Interests.⁹⁸ In January 2024, Gov. Shapiro directed the DEP to implement new policies that mirror the CNX deal and require operators to publicly disclose chemicals they use in drilling and hydraulic fracturing earlier in the well development process.⁹⁹ However, as in the CNX deal, exceptions will be made for proprietary chemicals, making the policy less effective for first responders to accidents, spills, and explosions. At that time, Gov. Shapiro also directed the DEP to take action to pursue formal rulemaking and policy changes that reflect certain voluntary actions outlined in the CNX collaboration, including stronger drilling waste protections and corrosion protections for gathering lines that transport shale gas.¹⁰⁰ As of February 2025, however, it is unclear whether any of these directives have been translated into actual rules or policy.

97 Shapiro, J. & Delulius, N. J. (2023, November 2). Statement of Mutual Interests. Pennsylvania Office of the Governor and CNX Resources Corp. <https://www.pa.gov/content/dam/copapwp-pagov/en/governor/documents/Statement-of-Mutual-Interests-CNX.pdf>

98 Commonwealth of Pennsylvania Office of the Governor. (2023, November 2). Shapiro Administration and Leading Natural Gas Company CNX Resources Announce First-of-its-Kind Collaboration on Environmental Monitoring and Chemical Disclosures. <https://www.pa.gov/en/governor/newsroom/press-releases/shapiro-administration-and-leading-natural-gas-company-cnx-resou.html>

99 Commonwealth of Pennsylvania Department of Environmental Protection. (2024, January 26). Shapiro Administration, DEP Requires All Fracking Companies to be More Transparent About Chemicals Used in Drilling. https://www.media.pa.gov/pages/DEP_details.aspx?newsid=1858

100 Commonwealth of Pennsylvania Department of Environmental Protection. (2024, January 26). Shapiro Administration, DEP Requires All Fracking Companies to be More Transparent About Chemicals Used in Drilling. https://www.media.pa.gov/pages/DEP_details.aspx?newsid=1858

In Attorney General Shapiro's Own Words

In the press release that accompanied the Grand Jury Report on shale gas development, then Attorney General Shapiro is quoted as saying:¹⁰¹

This report is about preventing the failures of our past from continuing into our future. It's about the big fights we must take on to protect Pennsylvanians—to ensure that their voices are not drowned out by those with bigger wallets and better connections. There remains a profound gap between our Constitutional mandate for clean air and pure water, and the realities facing Pennsylvanians who live in the shadow of fracking giants and their investors.

Shapiro went on to say:

Our government has a duty to set, and enforce, ground rules that protect public health and safety. We are the referees; we are here to prevent big corporations and the powerful industries from harming our communities or running over the rights of citizens. When it comes to fracking, Pennsylvania failed. Now it's time to face the facts and do what we can to protect the people of this commonwealth by encouraging the Department of Environmental Protection to partner with us and by passing the Grand Jurors' common-sense reforms.

As frontline residents have expressed, it seems that Governor Shapiro's actions are not reflective of Attorney General Shapiro's words.



CNX COLLABORATION

In further remarks made during the release of the 2020 Grand Jury Report, Attorney General Shapiro was clear that oil and gas operators must be held accountable for their actions. Said the attorney general:

*We can't rely on big corporations to police themselves. After all, they report to their investors and their shareholders. That's their job. It's the government's job to set and enforce the ground rules that protect the public interest. And through multiple administrations, they failed to do that.*¹⁰²

Contrast this statement with Gov. Shapiro's actions on November 2, 2023, when he announced a collaboration with CNX Resources, a heavily fined shale gas extraction company based in Canonsburg, Pennsylvania. Details of the collaboration were outlined in a Statement of Mutual Interests signed by Gov. Shapiro and CNX's president

¹⁰¹ Commonwealth of Pennsylvania Office of the Attorney General. (2020, June 25). 43rd Statewide Grand Jury Finds Pennsylvania Failed To Protect Citizens During Fracking Boom. <https://www.attorneygeneral.gov/taking-action/43rd-statewide-grand-jury-finds-pennsylvania-failed-to-protect-citizens-during-fracking-boom/>

¹⁰² Bense, K. (2024, February 7). In His First Year as Governor, Josh Shapiro Forged Alliances With the Natural Gas Industry, Angering Environmentalists Who Once Supported Him. Inside Climate News. <https://insideclimatenews.org/news/07022024/first-year-pennsylvania-governor-josh-shapiro-forged-alliances-with-natural-gas-industry/>

and CEO, Nicholas Deluliis.¹⁰³ While the governor touts this collaboration as a new model of industry cooperation, to believe that this deal somehow protects residents' health is naïve in the context of his prior statements. This move on the governor's part was also deeply upsetting to members of frontline communities who were counting on his promises to hold industry accountable. The Center for Coalfield Justice, which serves residents of Southwestern Pennsylvania, called Gov. Shapiro's announcement of the CNX partnership "a slap in the face to communities suffering from years of drilling."¹⁰⁴

In the end, this collaboration requires CNX to do little more than what is already legally required in Pennsylvania, and there are no consequences for failing to deliver on any of the stated commitments. Most concerning, however, is a patently unscientific data analysis report CNX released in August 2024 falsely claiming that, after monitoring a handful of wells for a short duration, its operations pose no threat to the health of those nearby.

Why the Collaboration Fails to Protect Public Health

This paper has already covered the inconsequential improvements a voluntary 600-foot setback would have on public health and how this buffer falls well short of the 2,500-foot setback (5,000 feet for schools and hospitals) Attorney General Shapiro endorsed in the 2020 Grand Jury Report and the 3,300-foot minimum setback EHP recommends. It is critical to note, however, that despite arguments about what setback levels are appropriate, we have no evidence that shale gas development can be done without harm to human health, and there is no established "safe" distance from well pads.

As we have also discussed, requiring operators to reveal to the DEP chemicals used in their processes earlier in the permitting process does not protect residents. Nor does it better inform researchers, health professionals, government officials, and emergency responders. In Pennsylvania, proprietary chemicals used in the drilling and fracking processes are still protected from disclosure under state law.¹⁰⁵ The statement between Governor Shapiro and CNX upholds the option for CNX to refrain from disclosure of chemical information "subject to trade secret claims" at the cost of Pennsylvanians' health.

Finally, the voluntary nature of the Shapiro/CNX deal means that it has no teeth. Actual meaningful health protection would require Gov. Shapiro to direct his DEP to make changes to rules and regulations affecting all operators, and it would also require the

¹⁰³ Shapiro, J. & Deluliis, N. J. (2023, November 2). Statement of Mutual Interests. Pennsylvania Office of the Governor and CNX Resources Corp. <https://www.pa.gov/content/dam/copapwp-pagov/en/governor/documents/Statement-of-Mutual-Interests-CNX.pdf>

¹⁰⁴ DePaoli, L. (2023, November 2). Press Release: Gov Shapiro's Announcement of CNX Partnership is a Slap in the Face to Communities Suffering from Years of Drilling. Center for Coalfield Justice. <https://centerforcoalfieldjustice.org/2023/11/shapirocnx/>

¹⁰⁵ Hurdle, J. (2018, September 11). More than half PA gas wells used 'secret' chemicals for fracking or drilling, report says. StateImpact Pennsylvania. <https://stateimpact.npr.org/pennsylvania/2018/09/11/more-than-half-pa-gas-wells-used-secret-chemicals-for-fracking-or-drilling-report-says/>

governor to press the General Assembly to pass laws that protect residents' health. None of these steps has yet happened. Meanwhile, the Shapiro Administration is crediting the CNX deal as though it checks several boxes among the Grand Jury Report recommendations. It does not.

CNX's Data Analysis Report: A Model of Obfuscation

The lack of accountability in the Shapiro/CNX association is exemplified by a data analysis report CNX published on August 14, 2024, titled "Initial Results are in: Radical Public-Private Collaboration Demonstrating CNX Natural Gas Development Poses No Public Health Risks," which it has continued to publicize, as at a February 11, 2025, DEP Citizen Advisory Council Meeting.^{106,107} The CNX report cited its own monitoring data and declared that its shale gas development "is safe and poses no public health risk." These initial results are based on monthslong monitoring of two fracked-gas well pads, one in production and the other during the horizontal drilling, hydrofracturing, drill-out, and flowback stages of development.

The CNX report displays a number of misleading statements, questionable methodologies, and premature conclusions that only serve to further undermine the health of frontline communities faced with pollution from fossil fuel extraction. The flawed methods CNX used to interpret the data, CNX's naïve assertions about the field of public health, and the Shapiro Administration's tacit support of this report show, once again, that the health and wellbeing of Pennsylvanians is being compromised in favor of industry.

The CNX report displays a number of misleading statements, questionable methodologies, and premature conclusions that only serve to further undermine the health of frontline communities faced with pollution from fossil fuel extraction.

Cherry-picked Data

Both the report itself and the accompanying press release state that the air quality data collected over recent months proves that CNX operations are "safe" and pose "no public health risks." However, these conclusions are speculative and based on extremely limited information. In its report, CNX referenced selected criteria for five substances from just two cherry-picked wells and compared it to EPA standards that are not, in fact, safety levels; CNX then concluded that these wells pose no health threat and implied that none of its other sites do either. To say that this limited data

¹⁰⁶ Scott, H. (2024, August 14). Initial Results are in: Radical Public-Private Collaboration Demonstrating CNX Natural Gas Development Poses No Public Health Risks. CNX Positive Energy Hub. <https://www.positiveenergyhub.com/initial-results-are-in-radical-public-private-collaboration-proving-natural-gas-development-poses-no-public-health-risks>

¹⁰⁷ Hess, D. E. (2025, February 12). CNX CEO Tells DEP's Citizens Council Their Monitoring Shows 'No Material Impact' To Air Or Water Quality From Natural Gas Development; Citizens Said CNX Lacks Scientific Rigor, Offers Misleading Greenwash. PA Environment Digest Blog. <https://paenvironmentdaily.blogspot.com/2025/02/cnx-ceo-tells-deps-citizens-council.html>

from self-selected sites evaluating only one route of exposure (air) proves there are no health risks to residents from its operations company-wide is premature and irresponsible.¹⁰⁸

The CNX conclusions appear to be based on a misunderstanding or omission of relevant facts. For example, CNX claims that the emissions monitored never exceeded EPA air and water quality standards, when in fact EPA standards do not reflect “safe” levels of exposure to harmful pollutants. Instead, these standards are agreed-upon measures that attempt to balance the protection of as many people as possible, the limits of pollution detection and control technology, and industry’s opportunities to reduce costs. Additionally, monitoring for a limited period of time fails to take into account the likelihood that a well or other facility will develop leaks or other emissions issues in the future. As history has shown, when industry is allowed to pollute at will and without adequate oversight, many individuals—not by their own choice—are exposed to toxic pollutants that raise the risk of health impacts to them and their families. Simply meeting EPA standards is not enough to truly protect the health of those on the front lines of shale gas development.

To underscore this point, the EPA standards to which CNX compared its own data are based on 24-hour monitoring averages. We know for a fact that peaks, or spikes, in emissions can raise the risk of health harms, especially for individuals in vulnerable populations like children, the elderly, and those who are pregnant or have pre-existing health conditions.¹⁰⁹ Since the CNX report uses the 24-hour average standard, it fails to take into consideration any short-term emission peaks that may have occurred during that time. A more precise gauge of emission exposure would be a 15-minute rolling average that identifies when individuals may experience sporadic higher doses of pollution.

Further, the CNX report claims that if emissions limits are not exceeded at the fence lines of the well pads, then someone living farther away would not experience higher emissions or health risks. This statement, again, lacks a critical understanding of pollution dispersion dynamics. While the report is correct to say that wind direction affects emissions dispersal, there are other meteorological and topographical factors that must be considered. Pollution can rise into the air and be carried long distances before settling back to ground level. It can also collect in valleys or combine with other elements in the atmosphere to produce compounds harmful to humans at distances greater than the fence line. Emissions dispersion modeling can illustrate how pollution

108 Carleton, A. (2024, September 24). Pennsylvania Gas Driller: Our Operations Pose No Health Risk. You Can't Be Serious, Activists Say. Capital & Main. <https://capitalandmain.com/pennsylvania-gas-driller-our-operations-pose-no-health-risk-you-cant-be-serious-activists-say>

109 Wua, K. Hoc, H. C., Sua, H., Huangd, C., Zhenge, H., Zhangf, W., Taa, J., Hossaing, M. Z., Zhangh, Y., Hui, K., Yanga, M., Wua, O., Xuj, Z., Chenga, J. (2022, December). A systematic review and meta-analysis of intraday effects of ambient air pollution and temperature on cardiorespiratory morbidities: First few hours of exposure matters to life. *eBioMedicine*, 86: 104327. [https://www.thelancet.com/journals/ebiom/article/PIIS2352-3964\(22\)00509-6/fulltext](https://www.thelancet.com/journals/ebiom/article/PIIS2352-3964(22)00509-6/fulltext)

may be more concentrated in areas not directly adjacent to well pads; several studies have demonstrated adverse health impacts occurring a mile or more away from wells.¹¹⁰

When gauging pollution exposure, it is also important to consider cumulative emissions (understood through an aggregation process), that is, emissions from more than one source, such as multiple well pads and other polluting facilities sited in proximity to each other.¹¹¹ Shapiro called attention to this issue in his Grand Jury Report recommendations. Even if it is conceivable that a single well pad may not produce emissions strong enough to harm individuals nearby, several well pads or a well pad in combination with a compressor station, power plant, or other industrial facility can significantly raise the emissions exposure and, with it, the risk of health harms. The CNX report makes no mention of cumulative emissions in its analysis of the data.

True health-protective monitoring must be done over the full life of the well and with sufficient sensitivity to identify short-term spikes in emissions, and monitors should be located not only at the fence line but also where people live, work, and go to school. It should be noted that the CNX report leads with the title “Initial Results,” meaning this analysis of the data is very preliminary and should not be considered conclusive in any way. Future analyses based on better scientific methods and additional data—and evaluated by scientists not associated with the industry itself—may very possibly show that these “initial results” are premature and inaccurate.

The assumption being made here is an incorrect one with dangerous implications: that, even if two CNX wells could be deemed to show short-term emissions averages below EPA levels of concern for five substances, then somehow all CNX operations are, by association, safe. At the time of the report, CNX was providing monitoring data around 11 active shale gas well pads and three compressor stations. At the end of August 2024, dozens of operators had developed shale gas sites across Pennsylvania, including 13,098 active shale gas wells on 3,360 well pads, with an average of 50 new wells added each month, with CNX producing just 7.45% of the total annual gas production in the state in 2023.^{112,113} CNX’s conclusions about the two wells in its report rely on misrepresentations of limited data; this information is incapable of supporting an assertion that the entire industry is safe.

110 U.S. Environmental Protection Agency, Support Center for Regulatory Atmospheric Modeling (SCRAM). (2024, May 24). Air Quality Models. <https://www.epa.gov/scram/air-quality-models>

111 Environmental Health Project. (2022, January). Position Statement on Aggregate Emissions. https://www.environmentalhealthproject.org/files/ugd/a9ce25_0303d90b1c1c4ca096d6c2fe89544203.pdf

112 CNX Resources Corporation. (2023). Company Stats, Quick facts about CNX. Accessed October 17, 2024. <https://www.cnx.com/about-us/company-stats>

113 Hess, D. E. (2024, February 26). IFO Reports 2023 PA Natural Gas Production Up 1.0% Over 2022, Thanks To Strong Q4 Production; Fewest New Wells Drilled In Last Decade. PA Environment Digest Blog. <https://paenvironmentdaily.blogspot.com/2024/02/ifo-reports-2023-pa-natural-gas.html#:~:text=Total%20annual%20production%20was%207%2C520,billion%20cubic%20feet%20in%202019>

Real Health Impacts

The CNX report goes to great lengths to discredit the methods and conclusions of the University of Pittsburgh Health and Environment Studies (Pitt Studies) discussed earlier, the results of which the Pennsylvania Department of Health presented in August 2023.¹¹⁴ CNX attempts to equate its own analysis to the taxpayer-funded Pitt Studies, but that is an apples-to-oranges comparison. For example, the Pitt studies purposely measured health endpoints, not emissions data. University of Pittsburgh researchers looked at health results in proximity to well pads over many years and compared these results to areas without well pads. The researchers never made the claim that air pollution was responsible for the observed effects and noted as much in their report. In fact, the researchers acknowledge that it could have been air, water, noise, light, stress, radiation—or combinations of these or other factors—that were responsible for the study results.

To be clear, the Pitt Studies identified the above health impacts from a number of exposure pathways and a wider swath of pollutants over a longer period of time than what is represented in the data CNX has highlighted in its report. CNX measured a limited number of pollutants: PM_{2.5} and four volatile organic compounds (VOCs)—benzene, toluene, ethylbenzene, and xylene (BTEX). However, there are other chemicals, such as nitrogen dioxide (NO₂) and many other VOCs, not to mention toxic mixtures of chemicals, that are of concern to human health and known to be present in the shale gas lifecycle, with plausible pathways of exposure other than air.¹¹⁵

No peer-reviewed study has ever been able to demonstrate that shale gas development can be done safely and without impact to human health, but if CNX had chosen to examine, for example, the effectiveness of different types of pollution control technologies at different sites, that approach could have potentially provided useful insights for effective methods of harm reduction. However, instead of building upon existing epidemiological science, the CNX report appears to have been designed to refute a substantial body of work conducted over years by scores of competent, unbiased researchers. This report is an example of “big corporations [policing] themselves,” as Attorney General Shapiro warned against, and it is being used to undermine legitimate, good-faith efforts to secure better health protections for Pennsylvania residents.

Shapiro Administration Complicity

After the zeal with which Attorney General Shapiro investigated and condemned operations of the shale gas industry in Pennsylvania, it is unconscionable that Gov. Shapiro’s Administration would allow any industry operator to self-regulate its activities,

¹¹⁴ University of Pittsburgh School of Public Health. (2023, July 31). Final Report for Pennsylvania Department of Health, Bureau of Epidemiology, Hydraulic Fracturing Epidemiology Research Studies <https://www.pa.gov/en/agencies/health/programs/environmental-health/oilgas.html#:~:text=ONGP%20Information>

¹¹⁵ McKoy, J. (2023, May 8). Air Pollution from Oil and Gas Production Contributes to Thousands of Early Deaths, Childhood Asthma Cases Nationwide. Boston University School of Public Health. <https://www.bu.edu/sph/news/articles/2023/air-pollution-from-oil-and-gas-production-contributes-to-thousands-of-early-deaths-childhood-asthma-cases-nationwide/>

particularly CNX, with its 500 regulatory violations since 2020 and fines totaling nearly \$7 million over the last few decades.^{116,117,118}

However, the most concerning aspect of the Shapiro/CNX voluntary agreement is Gov. Shapiro's tacit approval of CNX's "Radical Transparency" program. Gov. Shapiro traveled to Claysville, in Southwestern Pennsylvania, to join CNX in a public ceremony announcing the collaboration and, it should be noted, did not meet with impacted residents or community groups to address their health or environmental concerns while he was there.¹¹⁹

Gov. Shapiro's complicity with CNX in this association reads like a delay tactic to avoid meaningful action in Pennsylvania, and it is a stark reversal of his prior position when he called for much stronger actions to protect residents from exposure to shale gas activities.

As of February 2025, Gov. Shapiro has not yet sought to disassociate himself from the CNX report, despite its inaccurate and dangerous conclusions. If the promised "radical transparency" were the real goal, he might have advocated for the employment of far more reliable and scientifically sound methods to provide useful information for the project, such as monitoring emissions at points of human impact, engaging communities more fully in the planning process, acknowledging the existing findings of reliable and unbiased researchers, and basing conclusions on proper scientific analysis without hyperbole and bias. CNX's unfounded attacks on independent researchers, community organizations, and other nonprofits in its data analysis report indicate that CNX has no real interest in working transparently with potentially impacted residents and no desire to protect the safety and health of residents on the front lines of shale gas development.

Gov. Shapiro's complicity with CNX in this association reads like a delay tactic to avoid meaningful action in Pennsylvania, and it is a stark reversal of his prior position when he called for much stronger actions to protect residents from exposure to shale gas activities. Positioning this venture as proof that the governor has successfully delivered on his promises to defend public health is disingenuous, especially for the frontline communities that were counting on his leadership to protect the health of their families and neighbors.

116 Frazier, R. (2021, December 6). CNX pleads to criminal charges for misreporting air pollution in Washington County. Allegheny Front. <https://www.alleghenyfront.org/cnx-pleads-to-criminal-charges-for-misreporting-air-pollution-in-washington-county/>

117 Good Jobs First. (N.D.) Violation Tracker: CNX Resources. <https://violationtracker.goodjobsfirst.org/parent/cnx-resources>

118 Commonwealth of Pennsylvania Department of Environmental Protection. (2024, April 23). Oil & Gas Compliance - Report Extracts, CNX Violations - 6.25.2020-4.23.2024. [Database Report]. https://docs.google.com/spreadsheets/d/1jDZvFs8WrxTf1f2x_rqOusGyWuDduqbx/edit?gid=1635002428#gid=1635002428

119 Commonwealth Media Services, PACast. (2023, November 2). Shapiro Administration and Leading Natural Gas Company CNX Resources Announce First-of-its-Kind Collaboration on Environmental Monitoring and Chemical Disclosures. <https://pacast.com/m?p=23994>



CONTINUED SUPPORT FOR EXPANDING FOSSIL FUEL EXTRACTION

Gov. Shapiro has spoken extensively about the importance of “clean energy.” However, the administration’s definition of “clean” includes fossil fuel extraction and uses. Some of these uses, such as methane-sourced plastics and “blue” hydrogen, will extend the timeline of fossil fuel extraction, which endangers the health of those nearby and places our planet in continued jeopardy. Gov. Shapiro has been quiet on the environmental and health impacts of these fossil fuel options since taking office. In cases such as the development of a regional hydrogen hub slated for Pennsylvania and its neighboring states and the expansion of liquified natural gas (LNG) exporting facilities, the governor has ignored the established science and instead chosen to throw his support behind energy choices that put health and planet at risk.

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Shell Ethane Cracker Plant

In the fall of 2022, Royal Dutch Shell began operating an ethane cracker plant in Beaver County, Pennsylvania.¹²⁰ The size of almost 300 football fields, the \$14 billion plant has begun to “crack” ethane molecules into what will eventually become 1.6 million metric tons of plastic a year.¹²¹ The plant’s primary product is small pellets of polyethylene, a common plastic used to manufacture a wide range of products, many of them single use.

Compressed ethane from gas wells across the region is fed through hundreds of miles of pipelines and compressors to the cracker plant. Hundreds of full-producing fracked wells are required every year to feed the voracious appetite of the cracker plant. It has been noted that constructing the plant was the state’s largest industrial project since World War II. So important did former Governor Tom Corbett and state legislators deem the plant that it was given a \$1.65 billion tax credit—the largest state subsidy ever—plus various state and local tax breaks.^{122,123,124}

120 Frazier, R. (2022, November 15). Shell’s ethane cracker, a mammoth plastics plant near Pittsburgh, begins operations. StateImpact Pennsylvania. <https://stateimpact.npr.org/pennsylvania/2022/11/15/shells-ethane-cracker-a-mammoth-plastics-plant-near-pittsburgh-begins-operations/>

121 Environmental Health News. (2024, February 14). Shell’s Beaver County cracker plant cost soars to \$14 billion. <https://www.ehn.org/shell-s-beaver-county-cracker-plant-cost-soars-to-14-billion-2667274485.html>

122 Pennsylvania Budget and Policy Center (2012, June 19). Cracker Plant Tax Credit Expensive for Taxpayers While Promising Few Permanent Jobs. <https://keystoneresearch.org/wp-content/uploads/Cracker-Plan-Tax-Credit-Analysis-6-8-2012-Final.pdf>

123 Frazier, R. (2022, November 15). Shell’s ethane cracker, a mammoth plastics plant near Pittsburgh, begins operations. StateImpact Pennsylvania. <https://stateimpact.npr.org/pennsylvania/2022/11/15/shells-ethane-cracker-a-mammoth-plastics-plant-near-pittsburgh-begins-operations/>

124 De Place, E. & Stone, J. (2023, June 20). Updated: A Cautionary Tale of Petrochemicals from Pennsylvania. Ohio River Valley Institute. <https://ohiorivervalleyinstitute.org/updated-a-cautionary-tale-of-petrochemicals-from-pennsylvania/>

By law, the plant is permitted to release maximum amounts of carbon dioxide and air contaminant emissions each year.¹²⁵ As the 2022 startup operations began, however, the plant almost immediately exceeded permitted air contaminant levels of VOCs, releasing nearly as many VOCs in two months than were allowable for an entire year.¹²⁶ The Pennsylvania DEP promptly issued a notice of violation and fined Shell nearly \$10 million in penalties for the emissions exceedances.^{127,128} Since 2017, when plant construction began, DEP has issued 27 notices of violation to the plant, primarily for air quality infractions.¹²⁹ In response to these recurring violations at the plant, the Environmental Integrity Project and Clean Air Council filed a citizen suit against Shell to “redress and prevent repeated and ongoing violations of the Clean Air Act and the Pennsylvania Air Pollution Control Act.”¹³⁰

The dangerous chemicals cracker plants release are associated with a host of serious health issues, everything from increased asthma rates¹³¹ to heart problems,^{132,133} from poor birth outcomes^{134,135} to neurological issues such as memory impairment.¹³⁶ Over

- 125 Commonwealth of Pennsylvania Department of Environmental Protection (2020, February). Authorization To Discharge Under the National Pollutant Discharge Elimination System Discharge Requirements for Industrial Wastewater Facilities, NPDES Permit No: PA0002208. https://files.dep.state.pa.us/RegionalResources/SWRO/SWROPortalFiles/Shell/FINAL-NPDES_Permit_PA0002208.pdf
- 126 Frazier, R. (2022, December 15). Shell Air Pollution Soars During Startup of Beaver County Cracker Plant. The Allegheny Front. <https://www.alleghenyfront.org/shell-violations-air-pollution-beaver-county-ethane-cracker-plant/>
- 127 Commonwealth of Pennsylvania Department of Environmental Protection (2022, December 14). Notice of Violation. <https://files.dep.state.pa.us/RegionalResources/SWRO/SWROPortalFiles/Shell/12.14.22/04-00740%20Shell%20NOV%2012.14.2022.pdf>
- 128 Rubinkam, M. (2023, May 24). Shell agrees to pay \$10 million for air pollution at massive new Pennsylvania petrochemical plant. The Associated Press. <https://apnews.com/article/shell-pennsylvania-ethane-cracker-plant-penalty-294a8b7a0677dfefc00a76e232c30bfa>
- 129 Bense, K. (2024, April 30). A Plastics Plant Promised Pennsylvania Prosperity, but to Some Residents It's Become a 'Shocking Bad' Neighbor. Inside Climate News. <https://insideclimatenews.org/news/30042024/pennsylvania-shell-plastics-plant-shockingly-bad-neighbor/>
- 130 Clean Air Council & Environmental Integrity Project. (2023, May 11). Complaint for Declaratory and Injunctive Relief. United States District Court for the Western District of Pennsylvania. [Court filing]. <https://environmentalintegrity.org/wp-content/uploads/2023/05/2023.05.11-Shell-Filed-Complaint.pdf>
- 131 Wichmann, F. A., Müller, A., Busi, L. E., Cianni, N., Massolo, L., Schlink, U., Porta, A., Sly, P. D. (2009, March). Increased asthma and respiratory symptoms in children exposed to petrochemical pollution. *Journal of Allergy and Clinical Immunology*, 123(3). <https://pubmed.ncbi.nlm.nih.gov/19111332/>
- 132 Marris, C. R., Kompella, S. N., Miller, M. R., Incardona, J. P., Brette, F., Hancox, J. C., Sørrhus, E., Shiels, H. A. (2019, December 15). Polyaromatic hydrocarbons in pollution: a heart-breaking matter. *Journal of Physiology*, 598: 227-247. <https://doi.org/10.1113/JP278885>
- 133 Ghalhari, M. R., Dehghani, M. H., Bashardoust, P., Nayeri, D., Zarezadeh, E. (2024) Chapter 10 - A comprehensive review of the relationship between air pollution and cardiovascular disease. *Diseases and Health Consequences of Air Pollution*, Volume 3: Air Pollution, Human Health, and the Environment. <https://www.sciencedirect.com/science/article/abs/pii/B978044316080600001X?via%3Dihub>
- 134 Huang, C., Pan, S., Chin, W., Chen, Y., Hsu, C., Lin, P., Guo, Y. L. (2021, March). Maternal proximity to petrochemical industrial parks and risk of premature rupture of membranes. *Environmental Research*, 194. <https://www.sciencedirect.com/science/article/abs/pii/S0013935120315875>
- 135 Patel, J., Nembhard, W. N., Politis, M. D., Rocheleau, C. M., Langlois, P. H., Shaw, G. M., Romitti, P.A., Gilboa, S. M., Desrosiers, T. A., Insaf, T., Lupo, P. J. (2020, July). The National Birth Defects Prevention Study: Maternal occupational exposure to polycyclic aromatic hydrocarbons and the risk of isolated congenital heart defects among offspring. *Environmental Research*, 186. <https://pmc.ncbi.nlm.nih.gov/articles/PMC8756335/>
- 136 Humphreys, J. & Valdés Hernández, M. D. C. (2021, May 28). Impact of Polycyclic Aromatic Hydrocarbon Exposure on Cognitive Function and Neurodegeneration in Humans. A Systematic Review and Meta-Analysis. Preprints. <https://doi.org/10.20944/preprints202105.0692.v1>

time, many of these chemicals can cause cancer.¹³⁷ Researchers are closely monitoring emissions from the plant, and public health organizations are keeping tabs on health impacts in the region. Meanwhile, many residents living near the shale gas wells that feed the plant continue to experience negative health consequences.¹³⁸

Industry and Pennsylvania policymakers have discussed a build-out of petrochemical plants in the region.^{139,140} While the DEP appears ready to continue to hold Shell accountable for pollution violations at the existing cracker plant, Gov. Shapiro has not yet addressed the problematic pollution of this facility. Nor has he publicly called into question the wisdom of building additional petrochemical facilities in an area already burdened with pollution from shale gas extraction, transportation, and use.

Appalachian Regional Clean Hydrogen Hub (ARCH2)

In October 2023, the U.S. Department of Energy (DOE) announced federal funding for seven planned regional clean hydrogen hubs across the country, including the Appalachian Regional Clean Hydrogen Hub (ARCH2) spanning Pennsylvania, West Virginia, and Ohio. According to the DOE, ARCH2 will use shale gas extracted regionally to “produce low-cost clean hydrogen and permanently store the associated carbon emissions.”¹⁴¹ ARCH2 projects can receive up to \$925 million in federal funding to subsidize project construction. The DOE announced the first tranche of \$30 million in funding for ARCH2 in July 2024.¹⁴²

The type of hydrogen called for in most of the ARCH2 projects is **blue hydrogen**, which requires the extraction of methane as feed stock, chiefly utilizing shale gas from the Marcellus and Utica shale formations in this region. Contrast this with **green hydrogen**, created through a process of splitting water molecules into hydrogen and oxygen using electrolysis powered by renewable energy. The resulting hydrogen can be used in hydrogen fuel cells (HFCs)—which operate like batteries—to be used in cars and other consumer goods, backup power systems, or power plants. Hydrogen might also be used in hard-to-decarbonize industries, such as heavy-duty transportation and cement production. This technology is called “green” because it uses renewable sources of energy to extract hydrogen and because the only byproduct of producing and using it is oxygen and water, making it more eco-friendly than the alternatives. No harmful

137 Woodruff, T. J. (2024, March 6). Health Effects of Fossil Fuel–Derived Endocrine Disruptors. *The New England Journal of Medicine*, 390:922-933. <https://www.nejm.org/doi/full/10.1056/NEJMr2300476>

138 Grant, J. (2023, May 11). Environmental groups sue Shell over air pollution violations at cracker plant in Beaver County. *The Allegheny Front*. <https://www.alleghenyfront.org/environmental-groups-sue-shell-over-air-pollution-violations-at-its-cracker-plant/>

139 Kelly, S. (2019, December 4). What the petrochemical buildout along the Ohio River means for regional communities and beyond. *Environmental Health News*. <https://www.ehn.org/petrochemical-industry-ohio-river-2641494525.html>

140 Sanders, E. (2023, April 5). How Shell Is Selling the Petrochemical Buildout as ‘Sustainable.’ *ExxonKnews & Desmog*. <https://www.desmog.com/2023/04/05/shell-norco-louisiana-petrochemical-sustainable/>

141 U.S. Department of Energy. (2023, October 13). Biden-Harris Administration Announces \$7 Billion For America’s First Clean Hydrogen Hubs, Driving Clean Manufacturing and Delivering New Economic Opportunities Nationwide. <https://web.archive.org/web/20250121192138/https://www.energy.gov/articles/biden-harris-administration-announces-7-billion-americas-first-clean-hydrogen-hubs-driving>

142 Marusic, K. (2024, August 5). Appalachian groups express frustration over first \$30 million in federal hydrogen hub funding. *Environmental Health News*. <https://www.ehn.org/appalachian-hydrogen-hub-frustration-2668865762.html>

emissions are produced and there are no costs associated with handling and storing toxic materials like diesel fuel or battery acid. A few of the other projects planned in ARCH2, and some in other regional hubs, are pursuing green hydrogen production.¹⁴³

Blue hydrogen, by contrast, is produced through an energy-intensive process that mixes methane gas with steam to create a chemical reaction that results in carbon dioxide and hydrogen. Unlike its cheaper and dirtier cousin, **gray hydrogen** (which also uses methane gas but emits the carbon dioxide byproduct directly into the air as pollution), blue hydrogen captures some of the carbon dioxide emissions and stores them underground. This underground storage process is typically called “carbon capture, utilization, and storage” (CCUS). The carbon storage mechanism is the step that earns the process its “blue” name.

Blue Hydrogen & Health

While full details of ARCH2 had not yet been made public in early 2025, we know already that many ARCH2 projects cannot be considered clean. Project operators will require huge amounts of shale gas as feedstock, which will lead to many more shale gas wells being drilled in areas already impacted by the toxic legacy of this heavy industry. In generating hydrogen, frontline residents will be left to bear the health burdens of more gas wells and associated infrastructure. Further, a large-scale blue hydrogen industry would facilitate more releases of climate-altering methane, which carries its own consequences in the form of lethal storms, fires, heat waves, floods, and other extreme weather events that impact people’s physical and mental health worldwide.

In addition to the adverse risks of methane, resident health may be impacted by the transportation and storage of used wastewater, gas byproducts, and the hydrogen itself once produced. Whether these products or byproducts are transported by diesel trucks, trains, ships, or pipelines, potentially harmful accidents and pollution releases can occur at every stage of the process. Operators are also challenged to find proper ways to store or dispose of other waste, which typically contains hazardous chemicals and often radioactive substances.

Hydrogen pipelines in particular must be constructed using materials designed specifically to transport compressed, chilled, and liquified gases, meaning that existing shale gas pipelines cannot effectively be repurposed. Likely thousands of miles of new pipelines will be required, and because of the significantly smaller size of the hydrogen molecule compared to methane, infrastructure will be especially susceptible to leaks, failures, and explosions at any stage of the process, posing serious, even fatal, health risks.

¹⁴³ U.S. Department of Energy Office of Clean Energy Demonstrations. (n.d.) Regional Clean Hydrogen Hubs Selections for Award Negotiations. <https://web.archive.org/web/20241230202704/https://www.energy.gov/oced/regional-clean-hydrogen-hubs-selections-award-negotiations>

Blue Hydrogen Economics

From an economic standpoint, blue hydrogen hubs are expected to fail to produce cost savings for consumers. While DOE claims these projects will produce “low cost” hydrogen, carbon capture comes at a considerable cost. According to the Ohio River Valley Institute, widespread adoption of CCUS could cost \$100 billion per year and, if the added cost is passed along to ratepayers, would raise the retail rate of electricity by 25%.¹⁴⁴ The same study indicates that American households will carry this cost burden in taxes and an average increase of \$293 in their annual electric bills.¹⁴⁵

There is also speculation that shale gas operators are pushing blue hydrogen to ensure a future market for gas investments. To protect against losing these investments, and to make the blue hydrogen industry attractive from a business perspective, sizeable subsidies of public dollars will no doubt be required. Indeed, the Inflation Reduction Act has already provided the opportunity for substantial tax credits for hydrogen production and for carbon capture and storage, both of which may benefit fossil fuel-sourced blue hydrogen projects.¹⁴⁶ The argument can be made that these tax dollars would be better spent on lower-emission and no-emission renewable technologies.¹⁴⁷

Many experts believe that some end uses may not be readily electrified or decarbonized through other less polluting technology. For that reason, hydrogen may offer a way to temporarily decarbonize such uses, though green hydrogen made without fossil fuels would be preferable to blue hydrogen in the long term.^{148,149} Some experts also recommend that hydrogen in any form should be deployed only when it serves the most efficient pathway to a decarbonized economy, complementing proven and readily available alternatives, and not viewed as a broad solution for all energy applications.

Concerns Around CCUS

Setting these critical economic concerns aside, the idea that blue hydrogen with carbon capture is a part of the solution to the climate crisis is misleading. A 2021 study by researchers at Cornell and Stanford universities estimates that the greenhouse gas footprint of blue hydrogen is more than 20% greater than burning shale gas

144 O’Leary, S. (2021, October 7). Carbon Capture, Use, and Sequestration Would Decarbonize the Electric System...in the Worst Possible Way. Ohio River Valley Institute. <https://ohiorivervalleyinstitute.org/ccus-report/>

145 Hunkler, B. (2021, October 7). Mapping the Cost of Widespread CCUS Adoption. Ohio River Valley Institute. <https://ohiorivervalleyinstitute.org/mapping-the-cost-of-widespread-ccus-adoption/>

146 Bistline, B., Mehrotra, N. R., & Wolfram, C. (2023, March 29). Economic Implications of the Climate Provisions of the Inflation Reduction Act. Brookings Papers on Economic Activity. https://www.brookings.edu/wp-content/uploads/2023/03/BPEA_Spring2023_Bistline-et-al_unembargoedUpdated.pdf

147 Hurdle, J. (2024, October 18). Appalachian Hydrogen Hub Plan Struggles Amid Economic Worries, Study Says. Inside Climate News. <https://insideclimatenews.org/news/18102024/appalachian-hydrogen-hub-plan-struggles/>

148 Kurrer, C. (2020, December). Briefing: The potential of hydrogen for decarbonising steel production. European Parliamentary Research Service. [https://www.europarl.europa.eu/RegData/etudes/BRIE/2020/641552/EPRS_BRI\(2020\)641552_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/BRIE/2020/641552/EPRS_BRI(2020)641552_EN.pdf)

149 Henry, J. (2024, May 16). Decarbonizing Iron & Steelmaking with Green Hydrogen. Hitachi Energy. <https://www.hitachienergy.com/us/en/news-and-events/blogs/2024/05/decarbonizing-iron-and-steelmaking-with-green-hydrogen>

for heat, largely due to the methane emissions during the shale gas lifecycle.¹⁵⁰ The researchers' analysis also assumes that carbon dioxide is captured and stored indefinitely, which they consider "an optimistic and unproven assumption."

ARCH2 alludes to "permanent storage" of CO₂ in descriptions of its projects.¹⁵¹ CCUS proponents refer to it as a permanent solution, but that may be far from reality. Geologically, faults and fractures—either naturally occurring or produced during injection—can provide pathways for CO₂ to leak from the reservoir back into the atmosphere.¹⁵² There are also concerns about induced seismicity, including earthquakes, from underground injection. Depleted oil fields, a common storage location, are dotted with abandoned and often poorly maintained wells that could serve as additional sources of leaks.¹⁵³

Moreover, the infrastructure specifically designed for storing gas in Pennsylvania, the Rager Mountain gas storage facility in Jackson Township, while not a permanent CO₂ storage field like those in some CCUS projects, temporarily stores methane in underground reservoirs before transporting it for end use. However, for 13 days in November 2022, 1.4 billion cubic feet (bcf) of methane gas vented directly to the atmosphere during an uncontrolled release caused by the corrosion-induced failure of a well casing. This incident alone is estimated to have erased the emissions savings of nearly half of the total electric vehicle sales that year.¹⁵⁴

Similarly, pipelines that transport gas represent a risk to residents' health. In February 2020, a pipeline carrying CO₂ through the rural town of Satartia, Mississippi, ruptured, sending a cloud of CO₂ mixed with hydrogen sulfide across the landscape in a green fog. As CO₂ displaced oxygen in the air, residents and first responders struggled to breathe and lost consciousness. Over 200 people were evacuated and over 45 hospitalized. Emergency response vehicles entering the area, as well as cars evacuating, stalled or could not start, as their combustion engines could not operate without oxygen.^{155,156} The serious health threats from pipelines carrying CO₂ cannot be overstated, and miles of additional CO₂ pipelines will be needed to support CCUS associated with blue hydrogen production.

150 Howarth, R. W., Jacobson, M. Z. (2021, August 12). How green is blue hydrogen? *Energy Science & Engineering*, 9:10. <https://scijournals.onlinelibrary.wiley.com/doi/10.1002/ese3.956>

151 U.S. Department of Energy Office of Clean Energy Demonstrations. (n.d.) Regional Clean Hydrogen Hubs Selections for Award Negotiations. <https://web.archive.org/web/20241230202704/https://www.energy.gov/oced/regional-clean-hydrogen-hubs-selections-award-negotiations>

152 Ramirez-Franco, J. (2024, October 21). The nation's first commercial carbon sequestration plant is in Illinois. It leaks. *Grist*. <https://grist.org/technology/the-nations-first-commercial-carbon-sequestration-plant-is-in-illinois-it-leaks/>

153 Verdon, J. P. & Stork, A. L. (2016, December). Carbon capture and storage, geomechanics and induced seismic activity. *Journal of Rock Mechanics and Geotechnical Engineering*, 8:6. <https://www.sciencedirect.com/science/article/pii/S1674775516301196>

154 Biesecker, M. (2022, November 20). Company: Leak at Pennsylvania gas storage well plugged. *Associated Press*. <https://apnews.com/article/astronomy-science-pittsburgh-pennsylvania-climate-and-environment-2bda071dbd46630eeef508f07babb0fb>

155 Fowler, S. (2020, February 27). 'Foaming at the mouth': First responders describe scene after pipeline rupture, gas leak. *Clarion [Mississippi] Ledger*. <https://www.clarionledger.com/story/news/local/2020/02/27/yazoo-county-pipeline-rupture-co-2-gas-leak-first-responders-rescues/4871726002/>

156 Zegart, D. (2021, August 26). The Gassing Of Satartia. *HuffPost*. https://www.huffpost.com/entry/gassing-satartia-mississippi-co2-pipeline_n_60ddea9fe4b0ddef8b0ddc8f

As CO₂ displaced oxygen in the air, residents and first responders struggled to breathe and lost consciousness. Over 200 people were evacuated and over 45 hospitalized. Emergency response vehicles entering the area, as well as cars evacuating, stalled or could not start, as their combustion engines could not operate without oxygen.

All infrastructure used in oil and gas development and CCUS is subject to failure and can emit toxic pollutants and greenhouse gases, particularly when not properly maintained. The liability and responsibility of long-term operations and maintenance of CCUS facilities is an important question that has yet to be answered. It is unclear who will bear the responsibility of maintaining these sites if operators go out of business, but taxpayers have shouldered similar costs in the past, leaving a similar financial burden in the realm of possibility.

Shapiro Administration's Response

Many residents of frontline communities have, understandably, expressed disappointment and outrage at the lack of state intervention in blue hydrogen projects that may very well produce serious and long-lasting harm to their families and friends.¹⁵⁷ Many have expressed an expectation for their state officials to defend them when their health and safety are placed at risk and their constitutional rights to clean air and pure water have been violated.

However, to date, Gov. Shapiro has expressed no concern for the environmental and health risks associated with ARCH2, and neither the governor nor his agency secretaries have yet to visit Southwestern Pennsylvania to discuss ARCH2-related health concerns with residents. Further, there is no indication that Gov. Shapiro has delivered these very real concerns to the DOE or called into question either the lack of community transparency DOE has so far exhibited or the dubious science around blue hydrogen technology.¹⁵⁸

157 Marusic, K. (2024, August 5). Appalachian groups express frustration over first \$30 million in federal hydrogen hub funding. Environmental Health News. <https://www.ehn.org/appalachian-hydrogen-hub-frustration-2668865762.html>

158 Huangpu, K. (2023, October 24). Officials celebrate Pa.'s two hydrogen hubs but many details remain shrouded in secrecy. Spotlight PA. <https://www.spotlightpa.org/news/2023/10/pennsylvania-hydrogen-hub-josh-shapiro-carbon-energy-jobs-infrastructure/>

Instead, in press releases and public statements, the governor has repeatedly expressed full support for the ARCH2 venture, going so far as to take credit for helping to bring it (along with another hydrogen hub in eastern Pennsylvania) to the Commonwealth and neighboring states.¹⁵⁹ Further, CNX Resources Corporation—the same operator Shapiro struck a questionable deal with in 2023—has openly asked Gov. Shapiro to lobby on its behalf in Washington, D.C., to bring more hydrogen tax credits to Southwestern Pennsylvania to subsidize its gas drilling and carbon capture business. According to emails made public, that request appears to have been moved forward with the governor’s lobbyists in D.C.¹⁶⁰ Indeed, Gov. Shapiro himself sent a letter to the IRS urging that these tax credits include funding for blue hydrogen projects.¹⁶¹

To date, Gov. Shapiro has expressed no concern for the environmental and health risks associated with ARCH2, and neither the governor nor his agency secretaries have yet to visit Southwestern Pennsylvania to discuss ARCH2-related health concerns with residents.

The Shapiro Administration is also working on several fronts to make it easier for operators involved in CCUS to conduct business, at times subverting the rights of landowners and easing increased operations without adequate environmental and health guardrails in place. In July 2024, Gov. Shapiro signed the Carbon Capture and Sequestration Act, a law that codifies ownership of pore space—the interconnected voids beneath land and waters. While the law assigns the ownership of all pore space to the landowner above the pore space, it also allows the Pennsylvania Environmental Hearing Board to force landowners to store CO₂ if they don’t consent. According to the law: “If a storage operator does not obtain the consent of all persons that own the storage facility’s pore space to the construction and operation of a storage facility, the Environmental Hearing Board may require that the pore space owned by nonconsenting owners be included in a storage facility and subject to geologic storage.”¹⁶² This move amounts to a forced pooling for carbon sequestration if only 75% of surface owners sign leases.

159 Commonwealth of Pennsylvania Office of the Governor. (2023, October 13). Governor Josh Shapiro: Pennsylvania the Only State to Secure Two Regional Clean Hydrogen Hub Projects. <https://www.pa.gov/en/governor/newsroom/press-releases/governor-josh-shapiro--pennsylvania-the-only-state-to-secure-two.html>

160 Carleton, A. (2024, May 24). The Road to a Decarbonized Future or Just Another Lifeline for Fossil Fuels? Capital & Main. <https://capitalandmain.com/the-road-to-a-decarbonized-future-or-just-another-lifeline-for-fossil-fuels>

161 Gov. Shapiro, J. (2024, February 26). Proposed Rules REG - 117631-23, Credit for Production of Clean Hydrogen, Election to Treat Clean Hydrogen Production Facilities as Energy Property. Office of the Governor, Commonwealth of Pennsylvania. https://drive.google.com/file/d/1xMnHftSwj_xzU504vFBBKUSOH1EANCZd/view

162 Commonwealth of Pennsylvania General Assembly. (2024, June 28). Senate Bill No. 831, Session of 2023, An Act Providing for the injection of carbon dioxide into an underground reservoir for the purpose of carbon sequestration, for the ownership of pore space in strata below surface lands and waters of the Commonwealth, for conveyance of the surface ownership of real property; imposing duties on the Department of Environmental Protection and the Environmental Hearing Board; and establishing the Carbon Dioxide Storage Facility Fund. <https://www.legis.state.pa.us/CFDOCS/Legis/PN/Public/btCheck.cfm?txtType=PDF&sessYr=2023&sessInd=0&billBody=S&billTyp=B&billNbr=0831&pn=1793>

With actions such as these, the administration appears to be more interested in promoting the industry than it is in protecting the rights of landowners and the health of Pennsylvanians, some of whom are still dealing with the impacts of legacy pollution from previous decades.

Blue hydrogen, including its CCUS aspect, is a false climate solution plagued with issues throughout its life cycle. Federal and state funding for blue hydrogen projects in ARCH2 will only lead to more shale gas production in Appalachia and beyond. Continued reliance on fossil fuels will continue to raise the risk of disasters that could impact the world and the health of its people.

Liquefied Natural Gas (LNG) Exports

Liquefied natural gas (LNG) has emerged as a source of energy for regions that rely on imported fuel for heat, electricity, and industrial applications. In this process, shale gas is cooled to lower than -260°F and compressed into a liquid that takes up a much smaller space than gas does normally, making it more practical for transport. In 2022, LNG exports exceeded pipeline exports of shale gas for the first time, with Europe becoming the main destination for U.S. LNG.¹⁶³

As of early 2025, there were eight LNG export terminals operating in the U.S. A total of 19 Federal Energy Regulatory Commission (FERC)-approved LNG export terminals are under construction or soon to be in construction with another six identified as “pre-filing” status for FERC permits.¹⁶⁴ One proposed project would use trains and trucks to transport LNG nearly 200 miles from a liquefaction plant in Wyalusing, Pennsylvania, to an export terminal in Gibbstown, New Jersey.¹⁶⁵ In Pennsylvania, the route of these volatile chemicals would go through Bradford, Wyoming, Lackawanna, and Luzerne counties, likely near several heavily populated towns.¹⁶⁶ Another \$6.4 billion facility has been proposed in Chester, Pennsylvania, just south of Philadelphia, in an environmental justice area already severely impacted by legacy pollution.¹⁶⁷ In fact, most LNG terminals are situated near environmental justice communities.¹⁶⁸ To date, both Pennsylvania projects have failed to gain regulatory approval, despite Gov. Shapiro’s general support for the technology.

163 Safety4Sea. (2023, March 24). EIA: Europe was the main destination for U.S. LNG exports in 2022. <https://safety4sea.com/eia-europe-was-the-main-destination-for-u-s-lng-exports-in-2022/>

164 Federal Energy Regulatory Commission. (2024, September 25). U.S. LNG Export Terminals – Existing, Approved not Yet Built, and Proposed. <https://www.ferc.gov/media/us-lng-export-terminals-existing-approved-not-yet-built-and-proposed>

165 Walsh, O. (2023, May 17). ‘Cradle to grave,’ New report estimates natural gas project’s impact. River Reporter. <https://riverreporter.com/stories/cradle-to-grave.97506>

166 The Times-Tribune. (2020, August 26). Suspend permits for Wyalusing LNG project [editorial]. https://www.thetimes-tribune.com/opinion/editorial/suspend-permits-for-wyalusing-lng-project/article_7f4afcb-bc172-5877-8813-024309777593.html

167 Lacy, A. (2023, July 17). Energy Company Plotted Gas Plant in Small Pennsylvania Town — But No One Told Residents. The Intercept. <https://theintercept.com/2023/07/17/chester-pennsylvania-liquefied-natural-gas/>

168 Palmer, B. (2024, February 9). Liquefied Natural Gas 101. Natural Resources Defense Council. <https://www.nrdc.org/stories/liquefied-natural-gas-101>

While the new LNG projects seek to increase export capacity to satisfy European demand, not all countries are on board. For example, Ireland imposed a moratorium of shale gas imports in 2017 due to the environmental damage caused by gas extraction and global climate impacts (though, as of February 2025, the Irish government is considering rolling back that moratorium in light of global energy concerns).^{169,170,171} There is also strong evidence that increasing U.S. LNG exports would subject U.S. consumers to fluctuating international pricing, which would likely raise domestic utility bills.^{172,173,174} Finally, some industry experts speculate that the future growth of demand for LNG exports from the U.S. may not be as strong as many gas exporters believe, with demand falling drastically after 2024.^{175,176}

Health and Safety Risks of LNG

The shale gas infrastructure necessary for LNG production and export releases pollution that harms human health at every stage. If the planned increase in LNG export capacity proceeds, more wells will need to be drilled to supply shale gas to LNG plants, which will require more pipelines and other infrastructure to transport the gas to processing facilities. Additionally, LNG export terminals pose immediate health and safety risks to those living nearby due to the volume of emissions and volatility of the production and transportation process. These risks include:

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- 169 Ireland Department of the Environment, Climate and Communications. (2021, July 14). Policy Statement on the Importation of Fracked Gas Published. <https://www.gov.ie/en/press-release/dbe48-policy-statement-on-the-importation-of-fracked-gas-published/>
- 170 Reuters. (2023, September 15). Irish planning body rejects major LNG terminal, cites climate plan. <https://www.reuters.com/sustainability/irish-planning-body-rejects-major-lng-terminal-cites-climate-plan-2023-09-15/>
- 171 Carolan, M. (2024, September 30). High Court overturns refusal of permission for Shannon LNG terminal in Co Kerry. The Irish Times. <https://www.irishtimes.com/crime-law/courts/2024/09/30/high-court-overturns-refusal-of-permission-for-shannon-lng-terminal-in-co-kerry/>
- 172 Cowan, T. (March 19, 2024). U.S. residential gas consumers bear brunt of LNG exports. Institute for Energy Economics and Financial Analysis (IEEFA). <https://ieefa.org/resources/us-residential-gas-consumers-bear-brunt-lng-exports>
- 173 U.S. Energy Information Administration. (2023, May 23). Issues in Focus: Effects of Liquefied Natural Gas Exports on the U.S. Natural Gas Market. https://www.eia.gov/outlooks/aeo/IIF_LNG/
- 174 Walton, R. (2024, December 18). US LNG exports raise electricity bills, gas prices and emissions, DOE report concludes. Utility Dive. <https://www.utilitydive.com/news/us-lng-exports-raise-electricity-bills-gas-prices-and-emissions-doe-repor/735876/>
- 175 Rystad Energy. (2022, August 23). Spurred by the energy crisis, global LNG investments will now peak at \$42 billion in 2024, a 50% jump from current spending. <https://www.rystadenergy.com/news/spurred-by-the-energy-crisis-global-lng-investments-will-now-peak-at-42-billion-i>
- 176 Cowan, T. (2023, February 6). IEEFA Comments: Environmental assessment for proposed Louisiana LNG project. Institute for Energy Economics and Financial Analysis. <https://ieefa.org/resources/ieefa-comments-environmental-assessment-proposed-louisiana-lng-project>

- **Explosions.** LNG must be kept at extremely low temperatures at all times. When it is not, it produces highly flammable and explosive vapors. Any accidents or incidents at an LNG facility can pose a significant risk to nearby communities.¹⁷⁷ Liquefaction plants—which cool gas to create LNG and to separate out liquids like butane, ethane, and propane from the gas—are also susceptible to explosions, as illustrated by the December 2022 explosion and fire at a plant in Smith Township, Pennsylvania.¹⁷⁸
- **Air Pollution.** LNG plants emit carbon monoxide, sulfur dioxide, and volatile organic compounds (VOCs).¹⁷⁹ Studies have shown that these pollutants are associated with a range of health impacts, including headaches, coughing, dizziness, and other respiratory illnesses. They can also irritate skin, eyes, nose, and lungs. Long-term exposure to these pollutants can lead to heart disease, certain types of cancer, and damage to the reproductive system and internal organs.
- **Water Pollution.** The construction and operation of an LNG facility endangers groundwater and surface water by contamination at nearly every stage of the process, including transport, storage, and handling of materials.¹⁸⁰
- **Noise.** LNG plants utilize sound walls to mitigate—but not eliminate—the noise experienced in communities where plants operate. For example, Dominion Energy’s Cove Point gas liquefaction facility near Lusby, Maryland, is surrounded by a 60-foot sound wall. Still, residents reported being kept awake at night by nonstop noise that sounded like a slow-moving freight train during the facility’s commissioning phase.¹⁸¹
- **Mental Health Impacts.** Living near a major pollution source increases stress, anxiety, depression, and other mental health symptoms.¹⁸² LNG liquefaction plants and export terminals signify years of disruptive, noisy construction followed by a lifetime of uncertainty over the long-term health and safety impacts of the facility.

177 Bussewitz, C. (2022, June 9). Fire at LNG terminal in Texas jolts residents, fuel markets. Associated Press. <https://apnews.com/article/russia-ukraine-texas-new-york-business-climate-and-environment-8059ee475affb4f1b8e4e23fc0d2da40>

178 Washington Observer-Reporter. (2022, December 30). Explosion, fire at natural gas cryogenic plant rattles Smith Township. <https://www.observer-reporter.com/news/2022/dec/30/explosion-fire-at-natural-gas-cryogenic-plant-rattles-smith-township/>

179 Jones, T. L. (2023, February 6). LNG export terminals pose a growing and invisible threat: air pollution. Floodlight. <https://floodlightnews.org/lng-export-terminals-pose-a-growing-and-invisible-threat-air-pollution/>

180 Tagliaferri, C., Clift, R., Lettieri, P. & Chapman, C. (2017). Liquefied natural gas for the UK: a life cycle assessment. The International Journal of Life Cycle Assessment, 22, 1944–1956. <https://doi.org/10.1007/s11367-017-1285-z>

181 Zou, D. (2018, February 27). LNG plant noise complaints, ‘small’ oil leak reported. Southern Maryland News. https://www.somdnews.com/recorder/spotlight/lng-plant-noise-complaints-small-oil-leak-reported/article_e2f69705-2f69-5d23-92a3-da7dba4a7c26.html

182 Environmental Health Project. (n.d.) Toolkit: Mental Health & Wellness. <https://www.environmentalhealthproject.org/toolkit-mental>

Climate Impact of LNG

The process of supercooling shale gas takes an extensive amount of energy, with each enormous facility in the liquefaction train requiring multiple gas turbines and emissions stacks. Consequently, LNG terminals are major emitters of CO₂, a greenhouse gas that causes global temperatures to rise.^{183,184} Planned releases of methane and unintentional leaks occur at every point in the process from extraction to processing to end-uses, which range from regasification for home heating or electricity to combustion by vessels powered directly by LNG.¹⁸⁵ According to a briefing by Global Energy Monitor, “Even if all emissions from LNG export terminals were captured and stored, that would address only a small fraction of the total emissions from LNG.”¹⁸⁶

Shapiro Administration’s Record on LNG

Gov. Shapiro’s position on LNG is confusing, at best. On the one hand, Attorney General Shapiro was one of 15 attorneys general to sign a January 2020 letter to the U.S. Department of Transportation (DOT) strongly opposing the transportation of LNG by rail, calling the practice unsafe and potentially catastrophic. In a separate statement, Attorney General Shapiro said, “Liquefied natural gas has almost never been allowed on rail cars in bulk, because it’s extremely dangerous—it’s explosive!”¹⁸⁷ The attorney general’s actions would seem to have been a response to the proposed controversial Wyalusing/Gibbstown LNG project, which planned to transport LNG by rail between the two points.¹⁸⁸ In September 2023, the Pipeline and Hazardous Materials Safety Administration of the DOT reversed itself and suspended authorization of LNG transportation in rail tank cars.¹⁸⁹

183 Chemnick, J. (2022, September 8). Why so many LNG terminals are adopting carbon capture. E&E News. <https://www.eenews.net/articles/why-so-many-lng-terminals-are-adopting-carbon-capture/>

184 Climate Analytics & NewClimate Institute. (2022, November). Climate Action Tracker: Massive gas expansion risks overtaking positive climate policies. https://climateactiontracker.org/documents/1094/CAT_2022-11-10_GlobalUpdate_COP27.pdf

185 Milman, O. (2024, October 4). Exported gas produces far worse emissions than coal, major study finds. The Guardian. <https://www.theguardian.com/us-news/2024/oct/04/exported-liquefied-natural-gas-coal-study>

186 Global Energy Monitor. (2021, July). LNG Industry Plans to Capture Carbon, Carbon Capture and Storage at LNG Export Terminals Would Address Only a Small Fraction of This Fuel’s Emissions. https://globalenergymonitor.org/wp-content/uploads/2021/07/GEM_2021_LNG_Carbon_Capture_Plans.pdf

187 Chinn, H. (2021, August 21). No ‘bomb trains’: 14 states aim to take new rule on LNG transport off the rails. WHY? <https://whyu.org/articles/no-bomb-trains-14-states-aim-to-take-new-rule-on-lng-transport-off-the-rails/>

188 Walsh, O. (2023, May 17). ‘Cradle to grave,’ New report estimates natural gas project’s impact. River Reporter. <https://riverreporter.com/stories/cradle-to-grave,97506>

189 U.S. Department of Transportation, Pipeline and Hazardous Materials Safety Administration. (2023, September 1). Final Rule: Suspension of HMR Amendments Authorizing Transportation of Liquefied Natural Gas by Rail. <https://www.phmsa.dot.gov/news/final-rule-suspension-hmr-amendments-authorizing-transportation-liquefied-natural-gas-rail>

On the other hand, in his first two years as Pennsylvania's governor, Gov. Shapiro has publicly supported LNG projects. In January 2024, the Biden Administration put a temporary halt to licensing new LNG export projects so that it could examine how these exports affect climate change, the economy, and national security.¹⁹⁰ On CBS' "Face the Nation," Gov. Shapiro publicly urged President Biden to end the moratorium soon because it would hurt Pennsylvania jobs.¹⁹¹ Gov. Shapiro now seems eager to pave the way for LNG exports from new terminals that would need to be built in Pennsylvania, New Jersey, or elsewhere on the East Coast, jeopardizing the health of residents in those areas.

With Gov. Shapiro making few other public comments on LNG, it is difficult to know exactly where the governor stands on this issue. However, it appears that, for as much lip service as the governor pays to jobs and purported economic benefits related to shale gas, he and his administration have not yet considered the negative economic impacts created by adverse health and safety outcomes for Pennsylvania residents.



A JUST TRANSITION TO RENEWABLE ENERGY

Public health experts know that the best way to protect residents from carbon pollution in Pennsylvania—and the world in general—is to move away from fossil fuels and ramp up renewable energy production, such as solar, wind, geothermal, and others. This transition to sources of renewable energy must happen quickly to lessen the severe weather impacts due to climate change that are devastating lives and property across the globe. Further, for a successful just transition, we would expect any comprehensive energy plan, especially in a state like Pennsylvania, which has a long history of extractive industries, to consider the enormous health costs associated with continued or expanded fossil fuel development.

Investing in Green Energy

In a plan he released while campaigning for the governorship, then candidate Shapiro pledged to "expand clean energy by signing legislation to generate 30% of Pennsylvania's energy from renewable sources by 2030 and set a goal for the Commonwealth to reach net-zero emissions by 2050."¹⁹² It is unclear whether the governor has been working on this plan, which would require legislative support from the Pennsylvania General Assembly. Perhaps the administration considers the PA PULSE (solar) program as contributing to this campaign pledge, though PULSE impacts only energy used by state government agencies and not the state as a whole. In 2022, Pennsylvania generated less than 4% of its in-state energy from renewable

190 Niquette, M. & Woodhouse, S. (2024, March 1). Pennsylvania governor urges Biden administration to limit time on LNG export ban. WorldOil/Bloomberg. <https://www.worldoil.com/news/2024/3/1/pennsylvania-governor-urges-biden-administration-to-limit-time-on-lng-export-ban/>

191 Kail, B. (2024, May 5). President Joe Biden faces increasing pressure over pause of new LNG export approvals. Pittsburgh Post-Gazette. <https://www.post-gazette.com/news/election-2024/2024/05/05/biden-natural-gas-exports-lng-pause-energy-pennsylvania/stories/202405050080>

192 Shapiro for Governor. (2022, July 25). Josh Shapiro Releases Plan to Boost Pennsylvania's Economy by Cutting Red Tape and Spurring Innovation. <https://joshshapiro.org/news/josh-shapiro-releases-plan-to-boost-pennsylvanias-economy-by-cutting-red-tape-and-spurring-innovation/>

sources, with wind power responsible for almost half of that total and solar power adding just 12% of the state’s renewable energy (or under 0.5% of state’s total energy generation).¹⁹³ As of 2024, while these numbers were improving slightly, whole energy usage from renewables continues to lag other states.

One area that Gov. Shapiro could attempt to induce legislative action on renewable energy is with community solar projects, which allow residents to buy power generated from a large solar farm or array located within their service area.¹⁹⁴ As of February 2025, community solar projects are unlawful in Pennsylvania, while most other states allow them. In March 2023, members of the Pennsylvania House and Senate introduced bipartisan bills to establish community solar programs, helping address energy spikes caused by volatile gas prices. The House passed the bill a year later, while the Senate continues to review it.^{195,196} An economic study done by researchers at Pennsylvania State University found that community solar projects could create up to 12,000 total jobs and generate a \$1.8 billion economic stimulus for the state.¹⁹⁷ While this legislation remains pending, Gov. Shapiro could voice public support for it and urge its passage in the Senate.

As stated earlier, while Gov. Shapiro talks often of “clean energy” solutions, his definition of “clean” includes many fossil fuel-based energies, including shale gas production, blue hydrogen, and LNG. Perhaps the governor has borrowed terminology from the U.S. Department of Energy, which continues to include shale gas and blue hydrogen production in its definition of “clean.” This way of thinking is very much like the greenwashing tactics the oil and gas industry employs to ensure continued public favorability for its polluting products.^{198,199} If Gov. Shapiro insists on including fossil fuels in his definition of “clean energy,” then it is imperative to make the distinction between technologies that are called “clean” but sometimes represent hazards to residents’ health and technologies that do not carry that same level of risk.

193 U.S. Energy Information Administration. (2023, December 21). Pennsylvania State Profile and Energy Estimates, Profile Analysis. <https://www.eia.gov/state/analysis.php?sid=PA#:~:text=In%202022%2C%20wind%20energy%20was,of%20Pennsylvania's%20in%2Dstate%20electricity>.

194 U.S. Office of Energy Efficiency & Renewable Energy. (n.d.). Community Solar Basics. <https://www.energy.gov/eere/solar/community-solar-basics>

195 Commonwealth of Pennsylvania General Assembly. (2024). House Bill 1842; Regular Session 2023-2024, An Act providing for community solar facilities; imposing duties on the Pennsylvania Public Utility Commission, electric distribution companies and subscriber organizations; and providing for prevailing wage and labor requirements. https://www.legis.state.pa.us/cfdocs/billinfo/bill_history.cfm?year=2023&sind=0&body=H&type=B&bn=1842

196 Commonwealth of Pennsylvania General Assembly. (2024). Regular Session 2023-2024 Senate Bill 550, An Act amending Title 66 (Public Utilities) of the Pennsylvania Consolidated Statutes, providing for community solar facilities. <https://www.legis.state.pa.us/CFDOCS/billInfo/billInfo.cfm?year=2023&sInd=0&body=S&type=B&bn=550>

197 Kelsey, T. W., Stone III, W., Alter, T. R., Zipp, K. Y., Gurklis, A. & Halerz Schmidt, C. (2020). Potential Economic Impact of Community Solar in Pennsylvania. Pennsylvania State University Center for Economic and Community Development. https://aese.psu.edu/research/centers/cecd/publications/economic-impact/economic-impact-of-community-solar_sept-2020_psu-cecd.pdf

198 EarthJustice. (2023, October 13). For Big Oil and Gas, Greenwashing is the New Climate Denial. <https://earthjustice.org/article/for-big-oil-and-gas-greenwashing-is-the-new-climate-denial>

199 Carrington, D. (2022, February 16). Oil firms’ climate claims are greenwashing, study concludes. The Guardian. <https://www.theguardian.com/environment/2022/feb/16/oil-firms-climate-claims-are-greenwashing-study-concludes>

Gov. Shapiro has himself acknowledged that Pennsylvania has fallen behind the nation in terms of investing in green energy sources like wind, solar, and hydropower.²⁰⁰ Yet, the Shapiro Administration’s further promotion of shale gas, petrochemicals, and fossil fuel-sourced hydrogen fails to improve that record. As communities on the front lines of shale gas development know, this continuation of investments in polluting industries serves only to prolong the unwelcome health risks experienced by thousands of Pennsylvania families.

Despite some relatively minor success in renewable energy programs (see “Where the Shapiro Administration Has Made Progress” above), Gov. Shapiro has seemed reluctant to make bold commitments to renewable energy production, scaling up manufacturing of renewable technologies, or wide implementation of renewable solutions in the Commonwealth. Indeed, Gov. Shapiro’s 2024 and 2025 budget addresses showed a dearth of references to climate change or the environment, let alone protecting residents’ health from fossil fuel pollution.^{201,202} Similarly, any public comments Gov. Shapiro or his administration made following budget passage have zeroed in on fossil fuel emissions reductions, such as capping abandoned wells, while ignoring a broader effort to plan for and execute a comprehensive renewable energy plan.

Gov. Shapiro’s Ten-Year Economic Plan

In early 2024, Gov. Shapiro presented his “Ten-Year Strategic Plan for Economic Development in Pennsylvania.”²⁰³ The 10-year plan contains many economic approaches beneficial to Pennsylvanians, but it fails to mention one major component: a clear strategy for expanding sustainable, clean, and renewable energies, which would serve to protect public health and create economic prosperity.

Although Gov. Shapiro’s 10-year economic plan promotes a wide swath of energy options, some of them can never be considered clean, which is true of any energy option that continues to rely on fossil fuels such as shale gas. The taxpayer-burdensome blue hydrogen hub is one example of misplaced energy policy that will continue Pennsylvania’s dependence on fossil fuels.²⁰⁴ As stated earlier, such a hub would increase demand for fracked gas, multiplying the number of wells drilled and pipelines laid while creating even bigger health risks for nearby communities. Pouring immense government subsidies into fossil fuel-driven solutions—as Pennsylvania did

200 McDevitt, R. (2023, March 6). Pennsylvania ranks near bottom of states in renewable energy generation. StateImpact Pennsylvania. <https://stateimpact.npr.org/pennsylvania/2023/03/06/pennsylvania-renewable-energy-rank/>

201 WGAL. (2024, February 6). Gov. Josh Shapiro’s full budget address. <https://www.wgal.com/article/governor-josh-shapiro-full-budget-address-2024-2025/46661649>

202 Commonwealth of Pennsylvania Office of the Governor. (February 4, 2025). Governor Shapiro’s 2025-26 Budget Address as Prepared for Delivery. <https://www.pa.gov/governor/newsroom/2025-press-releases/governor-shapiro-2025-26-budget-address-as-prepared.html>

203 Pennsylvania Department of Community & Economic Development on behalf of the Commonwealth of Pennsylvania. (2024). A Ten-Year Strategic Plan for Economic Development in Pennsylvania, 2024-2033. https://pagetsitdone.com/wp-content/uploads/EconomicDevelopmentStrategy-DCED_2024_FINAL.pdf

204 O’Leary, S. (2022, March 18). The Ohio River Valley Hydrogen Hub: A Boondoggle in the Making. Ohio River Valley Institute. <https://ohiorivervalleyinstitute.org/the-ohio-river-valley-hydrogen-hub-a-boondoggle-in-the-making/>

with the economically underwhelming and highly polluting Shell petrochemical plant in Monaca, Pennsylvania—is expected to create additional adverse economic impacts for taxpayers and communities.²⁰⁵ Additionally, available evidence shows that shale gas development has a depressing effect on the economy in Pennsylvania. For example, since the inception of the Shell cracker, employment in Beaver County has dropped to its lowest level in this century.²⁰⁶

Gov. Shapiro has himself acknowledged that Pennsylvania has fallen behind the nation in terms of investing in green energy sources like wind, solar, and hydropower. Yet, the Shapiro Administration’s further promotion of shale gas, petrochemicals, and fossil fuel-sourced hydrogen fails to improve that record.

So far, as his 10-year economic plan shows, Gov. Shapiro has indicated little intention to slow the permitting of new wells in any meaningful way or to hold operators more accountable for the leaks, spills, and routine pollution they emit. Instead, he has introduced energy initiatives, such as the aforementioned Pennsylvania Reliable Energy Sustainability Standard (PRESS) initiative, which on the surface appears to promote a clean-energy economy but does so only partially because it includes polluting industries, such as shale gas development and fossil fuel-based hydrogen. For this reason, PRESS will continue to put the public at risk of a host of health harms.²⁰⁷

In a less-publicized move, Gov. Shapiro has sought to reallocate dollars in a \$2.6 billion tax credit account—which former Gov. Wolf promoted and signed into law to help industries involved in using fracked gas for petrochemical production, fertilizer manufacturing, hydrogen production, milk processing, and biomedical research—and allow the funds to be used for any energy production that conforms with clean energy guardrails.²⁰⁸ While the change would likely expand the range of companies qualifying for tax credits to include those producing energy from renewable and nuclear sources, the tax credits would continue to be available to companies producing energy sourced from fossil fuels. The governor has circulated this draft legislation; however, as of February 2025, the General Assembly was not expected to act on it soon thereafter.

205 Messenger, N., Hipple, K. & Keller, A. (2024, January 25). Pennsylvania’s Bad Bet, Why Shell Didn’t Save Appalachia with Plastics. Ohio River Valley Institute. <https://ohiorivervalleyinstitute.org/pennsylvanias-bad-bet/>

206 De Place, E. & Stone, J. (2023, June). UPDATED: A Cautionary Tale of Petrochemicals from Pennsylvania. Ohio River Valley Institute. <https://ohiorivervalleyinstitute.org/updated-a-cautionary-tale-of-petrochemicals-from-pennsylvania/>

207 Commonwealth of Pennsylvania Office of the Governor. (2024, March 13). Governor Josh Shapiro’s Energy Plan Builds on Pennsylvania’s Legacy of Energy Leadership by Protecting and Creating Energy Jobs and Lowering Electricity Costs for Consumers. <https://www.pa.gov/en/governor/newsroom/2024-press-releases/governor-josh-shapiro-s-energy-plan-builds-on-pennsylvania-s-leg.html>

208 Caruso, S. & Huangpu, K. (2024, October 14). Nobody is using \$2.6B in Pa. tax credits. Gov. Josh Shapiro wants a rewrite to boost electricity production. Spotlight PA. <https://www.spotlightpa.org/news/2024/10/pennsylvania-josh-shapiro-tax-credit-electricity-semiconductor-fuel/>

The Jobs Question

A just transition to renewable energy must take into consideration the economics of families that rely on jobs as well as the cost of shifting away from fossil fuel-powered appliances, utilities, and vehicles. However, it should never be assumed that fossil fuel jobs are more plentiful or higher paying than renewable energy jobs, or that replacing appliances, utilities, and vehicles that rely on fossil fuels with those that run on renewables will be, in the long term, more expensive.

The growth in renewable energy employment is rapidly outpacing that of new fossil fuel employment. For example, according to the U.S. Department of Energy, renewable energy technologies, such as solar and wind, accounted for nearly 87% of net new electric power generation jobs from 2021 to 2022.²⁰⁹ Similarly, the number of jobs in battery electric vehicles increased by 27% from 2021 to 2022, the fastest growth of any energy technology. The increase in employment in the battery electric vehicles segment was nearly 17 times greater than the growth in gasoline and diesel vehicle jobs.

It should never be assumed that fossil fuel jobs are more plentiful or higher paying than renewable energy jobs, or that replacing appliances, utilities, and vehicles that rely on fossil fuels with those that run on renewables will be, in the long term, more expensive.

Frequently, when Gov. Shapiro talks about energy jobs, he defends employment in the oil and gas sector and in industries that use fossil fuels as feedstock, such as petrochemicals and blue hydrogen, without acknowledging the more significant growth in the renewable technologies sector. In a March 2023 budget address, Gov. Shapiro said:

*We must reject the false choice between protecting jobs and protecting our planet. I believe we can do both—we can embrace the Commonwealth’s role as an energy leader, create good paying jobs, and fulfill our constitutional obligation to protect Pennsylvania’s clean air and pure water.*²¹⁰

For Gov. Shapiro, however, the jobs he seeks to protect are often fossil fuel jobs. Based on his actions, it appears that he believes the shale gas industry should be allowed to operate at full capacity as long as it is regulated. Better regulations and enforcement would surely help reduce harm, but continued reliance on fossil fuels will not fully protect the health or economic wellbeing of frontline communities. In fact, in areas where most shale gas is extracted, job and income growth have lagged the national

209 U.S. Department of Energy. (2023). United States Energy & Employment Report 2023. <https://web.archive.org/web/20240721030239/https://www.energy.gov/sites/default/files/2023-06/2023%20USEER%20EXEC%20SUMM-v2.pdf>

210 Shapiro, S. (2023, March 7). Governor Shapiro’s 2023 Budget Address as Prepared. Commonwealth of Pennsylvania Office of the Governor. <https://www.pa.gov/en/governor/newsroom/press-releases/governor-shapiro-s-2023-budget-address-as-prepared.html>

average, and population loss has worsened.²¹¹ Several economists have noted that the shale gas industry has vastly overestimated the number of permanent jobs the industry has created, especially those that have gone to Pennsylvania residents.²¹² When it comes to protecting public health (a critical component of which is economic health), there must be a clear distinction between fossil fuel industry jobs and renewable industry jobs.

In areas where most shale gas is extracted, job and income growth have lagged the national average, and population loss has worsened. Several economists have noted that the shale gas industry has vastly overestimated the number of permanent jobs the industry has created, especially those that have gone to Pennsylvania residents.

A Clean and Sustainable Path Forward

Other states have made great progress in embracing the renewable energy economy by leveraging federal dollars to boost job creation and put their communities on a path to greater economic prosperity.²¹³ Pennsylvania is on the verge of being left behind, but that does not have to be its legacy. With its strong roots in manufacturing, its expertise in technology and medical research, and an existing workforce that is energy-oriented, Pennsylvania has what it takes to become a renewable energy leader, creating sustainable jobs, reducing health impacts and health care costs, and saving lives.

We urge Gov. Shapiro to make good on his campaign promise to break new ground on a truly clean, long-term, and sustainable economy. A commitment to working together with impacted residents, community groups, and economic and health advocates would be a welcome first step to protecting the health of all Pennsylvania residents from oil and gas pollution.

211 O'Leary, S. (2021, February 8). Fracking Counties Economic Impact Report. Ohio River Valley Institute. <https://ohiorivervalleyinstitute.org/new-report-natural-gas-county-economies-suffered-as-production-boomed/>

212 Phillips, S. (2024, October 2). Fracking in Pennsylvania hasn't gone as well as some may think. StateImpact Pennsylvania. <https://www.wesa.fm/environment-energy/2024-10-02/fracking-pennsylvania-data-numbers-effect>

213 Kirk, K. (2023, February 23). Which state is winning at renewable energy production? Yale Climate Connections. <https://yaleclimateconnections.org/2023/02/us-state-with-most-renewable-energy-production/>



WHAT THE SHAPIRO ADMINISTRATION CAN DO TO BETTER DEFEND PUBLIC HEALTH

As we have discussed, the Shapiro Administration has taken some meaningful initial steps toward better protecting the health of Pennsylvanians from oil and gas pollution. However, the governor and his administration can do much more to protect the constitutional right of Pennsylvanians to clean air and water and to bring about a just transition away from fossil fuels and toward renewable energy. Based on this assessment of Gov. Shapiro's first two years in office, EHP suggests the following specific actions his administration can take:

1. INCREASE SETBACK DISTANCES FROM SHALE GAS INFRASTRUCTURE.

Setback distances (protective buffers) between shale gas operations and occupied buildings are currently governed by Pennsylvania Act 13 (2012), which established certain legal requirements around this industry.²¹⁴ The governor can use his leadership position to urge the General Assembly to pass legislation mandating greater setbacks, thus amending Act 13, for not just one gas operator but for all operators. As attorney general, Shapiro publicly called for legislative action on this issue. As governor, he has yet to do so.

As outlined earlier, EHP recommends setback distances of at least 1 km (about 3,300 feet or 0.6 miles) for small facilities and at least 2 km (about 6,600 feet or 1.25 miles) for large facilities and from schools, nursing homes, and other structures accommodating vulnerable populations, while noting that no distance has been determined "safe."²¹⁵ As a result, the industry should not be allowed exemptions or waivers to these distances for any reason.

2. PUBLICLY DISCLOSE ALL CHEMICALS USED IN SHALE GAS DEVELOPMENT.

Gov. Shapiro can press the legislature to require operators to disclose chemical blends, even if they are considered proprietary or a trade secret. This disclosure should ideally be made to the public generally or, at a bare minimum, to government agencies, public works administrators, emergency preparedness and response teams, and medical practitioners treating affected patients, all of whom require this data—something that is not currently the case. Gov. Shapiro can also urge the legislature to consider the full lifecycle of all toxic pollutants involved in shale gas development when requiring operators to disclose what they put into the ground and what comes back out during operations.

²¹⁴ Commonwealth of Pennsylvania General Assembly. (2012, February 14). Oil and Gas (58 PA.C.S.) - Omnibus Amendments, Act of Feb. 14, 2012, P.L. 87, No. 13. <https://www.legis.state.pa.us/cfdocs/legis/li/uconsCheck.cfm?yr=2012&sessInd=0&act=13>

²¹⁵ Environmental Health Project. (2023, February). Position Statement on Setback Distances. https://www.environmentalhealthproject.org/_files/ugd/a9ce25_6e404d6e33594312abc9d51317908d47.pdf

3. DEVELOP A COMPREHENSIVE HEALTH PLAN FOR PREVENTING FOSSIL FUEL POLLUTION EXPOSURE.

The Shapiro Administration must take a more proactive and higher profile role in defending the health of Pennsylvanians from oil and gas pollution. A comprehensive health response, as championed by Attorney General Shapiro, would require Gov. Shapiro, at a bare minimum, to:

- Consider the vast amount of research showing serious health impacts from shale gas development, acknowledge the inherent health risks in these operations, and task his agencies with taking appropriate action to reduce these risks. This research includes the findings of the Pennsylvania Health and Environment Studies (Pitt Studies), which Gov. Shapiro has yet to acknowledge. The Shapiro Administration must give credence to this body of research and act accordingly to protect Pennsylvanians from shale gas pollution.
- Direct the Pennsylvania Department of Health (DOH) to openly and actively engage residents on the risks of exposure to shale gas pollution and how they can best protect themselves and their families from harm. While the DOH has recently taken a more open approach to confronting health harms experienced by communities on the front lines of shale gas development, much more could be done with adequate support from above. The DOH needs a clear mandate from the governor to create and distribute comprehensive resources, actionable guidance, and adequate response/investigations near existing facilities. A comprehensive approach could also include providing Health Impact Assessments and evaluating additional considerations for Environmental Justice communities before the permitting and development of new facilities.
- Empower the DEP to regulate the shale gas industry with stronger rules that include punitive damages should an operator fail to meet these requirements and tough enforcement when they do not. The DEP must hold industry accountable, throughout the entire shale gas lifecycle, for leaking toxic pollution and waste that harms residents and hastens climate change. Such actions include requiring accurate and timely monitoring and reporting of regular emissions and upsets, providing public access to collected data, and strictly enforcing rules and regulations with fines and other meaningful punitive consequences. Other high-priority items should include closing hazardous waste loopholes, monitoring radioactivity at shale gas sites and landfills, and requiring safer transport of the contaminated waste created from drilling sites. Further, state agencies should be required to regulate gathering lines, which are used to transport shale gas hundreds of miles, reducing opportunities for leaks, explosions, and other health risks throughout.

A comprehensive health response must include an honest recognition of the health impacts associated with shale gas development and sufficient provisions for fully funded and staffed agencies with strong enforcement authority. Holding profit-motivated industries to account is one role governments must assume to best defend residents' health.

4. ADDRESS CUMULATIVE EMISSIONS WHEN PERMITTING SITES.

As part of its permitting process, the DEP should cumulatively analyze emissions—all sources of air pollution in a given area—to accurately assess air quality and to limit shale gas development in airsheds that are already burdened with pollution. Currently, shale gas facilities are permitted for air pollution emissions as stand-alone entities. Permits do not require consideration of additional existing or proposed emission sources in the local airshed. Emissions from a new facility, when combined with other existing emission sources, may result in dangerous exposure levels in the ambient air, which may cause adverse acute and chronic health impacts. For that reason, such considerations must be included in the permitting process.

5. INCREASE FUNDING FOR STATE AGENCIES TO BETTER FULFILL THEIR MISSIONS.

Gov. Shapiro must put forward—and the General Assembly must approve—state budgets that include adequate funding to agencies like the DOH and the DEP so that they can effectively do their job of protecting Pennsylvania’s resources and the health of residents. While the increase in DEP funding approved in the 2024-2025 budget and the request for more DEP funding in the 2025-2026 budget are a start, more funds must be channeled to the enforcement arm of DEP and to effective monitoring of public exposure to pollutants from the shale gas industry and other sources. Similarly, the DOH must be fully funded to do the difficult but essential work of addressing health concerns from impacted residents and disseminating timely guidance.

6. INITIATE MORE TRANSPARENCY AND INTERACTION WITH IMPACTED COMMUNITIES.

In addition to some of the steps above designed to reduce health harms in the first place, Gov. Shapiro must call on the DOH and the DEP to work more closely and transparently with communities. These efforts should provide potentially impacted residents with health-protective strategies to combat pollution exposure and ensure that the voices of residents, especially those experiencing environmental and health harms, are heard. These residents should know whom to contact when they have an issue or where to go for relevant information, and the appropriate agency should acknowledge, act upon, and respond to any resident’s communication in a timely manner. Residents should also expect the DOH to continue to inform medical providers about health risks from shale gas development so that they can share guidance with patients to help mitigate those risks. Prioritizing the Environmental Justice Office of the DEP is a good beginning, but more can be done to provide opportunities to listen to the concerns residents have about the impacts they are experiencing, as well as giving communities a greater voice and more agency in developing measures that will protect residents from harm.

7. TAKE A PRECAUTIONARY APPROACH TO PETROCHEMICALS, BLUE HYDROGEN, AND LNG.

Industries that use fossil fuels require proactive and comprehensive public health protections. If allowed to operate at all, these industries must be compelled to effect stringent emissions detection and reporting, working with communities to reduce exposure and to alert the public of the content of its releases, whether planned or accidental. Government agencies must be intrinsically involved in making sure industry complies with pollution standards, holding operators accountable when they do not comply. Further, health impact assessments and other community health monitoring must be put in place to ensure residents' health is protected today and into the future. Residents must be informed fully about health risks to which they are or will become exposed, communities must be given a say as to whether this development happens within their borders, and clear channels of communication between governmental agencies, industrial operators, and community leaders must be established and supported as long as shale gas development is allowed to operate.

8. WORK BOLDLY AND CREATIVELY TO TRANSITION AWAY FROM FOSSIL FUELS AND TOWARD RENEWABLE FORMS OF ENERGY.

The Shapiro Administration must take bold steps to raise Pennsylvania from its lowly position of lagging the rest of the country in renewable energy creation to one where renewable energy becomes a primary health-protective driver of the state's economy. The continued reliance and emphasis on fossil fuel-sourced industries will only put the state farther behind this goal. A just energy transition must begin today, and it must have the full force of Gov. Shapiro's voice and the full attention of his administration and the agencies that work for him. Only then can the Shapiro Administration say that it is truly working to protect the health and wellbeing of all Pennsylvanians.



CONCLUSION

The field of public health is characterized by swift action to reduce the risk of harm, sometimes based on limited information available at the time. Thanks to years of study after study, we no longer have limited information about the adverse health impacts of shale gas development, but we have yet to see leaders in our state—including the Governor’s Office, state agencies, and the General Assembly—take meaningful action to protect Pennsylvanians from health harms brought on by continued reliance on fossil fuels.

Gov. Shapiro has had ample time to introduce agency policies and use his position of power to influence legislators and other decision makers when it comes to protecting residents from health risks associated with shale gas development. The governor still has time during this term to address this vital issue. However, many residents continue to deal with the serious health consequences of a polluting industry operating where they live, work, play, learn, worship, and heal. We call on Gov. Shapiro to acknowledge the health risks associated with shale gas and become a leading force in protecting Pennsylvanians from these very real harms.

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Pennsylvania is not in the position to wait for more information and “one more study” before acting. Such a continued delay will only allow more people to be harmed by this polluting industry. Additional well-constructed, unbiased, independent studies, if and when they are conducted, will undoubtedly add more reliable information to the existing body of public health knowledge, but their absence should not preclude immediate action to protect residents of the Commonwealth when ample relevant, useful information is already available. As then Attorney General Shapiro demanded in the Grand Jury Report, the governor must take swift action to address the recommendations put forth there, as well as incorporating other health-protective measures, to defend the health of communities and families all across Pennsylvania. We call on Gov. Shapiro to do that now.

