

h

THE MAGAZINE OF
THE HEINZ ENDOWMENTS

Issue 2 2021



**MOMENT OF TRUTH:
ACTION IS NEEDED
TO ADDRESS
ENVIRONMENTAL
CRISES BEFORE
TIME RUNS OUT.**

ISSUE 2 2021

INSIDE



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This special environment-focused issue of h magazine opens with an essay by Heinz Endowments President Grant Oliphant that describes both the urgency of our current environmental challenges and the Endowments' decades-long advocacy for cleaner and healthier air, water and communities.

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The Heinz Endowments was formed from the Howard Heinz Endowment, established in 1941, and the Vira I. Heinz Endowment, established in 1986. It is the product of a deep family commitment to community and the common good that began with H.J. Heinz, and that continues to this day.

The Endowments is based in Pittsburgh, where we use our region as a laboratory for the development of solutions to challenges that are national in scope. Although the majority of our giving is concentrated within southwestern Pennsylvania, we work wherever necessary, including statewide and nationally, to fulfill our mission.

That mission is to help our region become a just and equitable community in which all of its citizens thrive economically, ecologically, educationally, socially and culturally. We also seek to advance knowledge and practice in the field of philanthropy through strategies that focus on our priorities of Creativity, Learning and Sustainability.

In life, Howard Heinz and Vira I. Heinz set high expectations for their philanthropy. Today, the Endowments is committed to doing the same. Our charge is to be diligent, thoughtful and creative in continually working to set new standards of philanthropic excellence. Recognizing that none of our work would be possible without a sound financial base, we also are committed to preserving and enhancing the Endowments' assets through prudent investment management.

h magazine is a publication of The Heinz Endowments. At the Endowments, we are committed to promoting learning in philanthropy and in the specific fields represented by our grantmaking programs. As an expression of that commitment, this publication is intended to share information about significant lessons and insights we are deriving from our work.

Editorial team Linda Braund, John Ellis, Donna Evans Sebastian, Carmen Lee, Grant Oliphant, Scott Roller, Courtney Tolmer. Design: Landesberg Design

About the cover The hour-glass illustration reflects the time pressures the world faces to address the growing number of environmental crises and preserve the planet.



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A legacy of environmental advocacy



Heinz Endowments President Grant Oliphant traces the foundation's commitment to a cleaner and healthier environment from Chair Emeritus Teresa Heinz's creation of an environment grantmaking program in the 1990s to the Endowments' current initiatives and hopes for the future.

Not far from our offices in Pittsburgh, whose monikers include the City of Bridges, is a span named after one of our region's legendary native daughters, environmentalist Rachel Carson.

Renowned for her groundbreaking book "Silent Spring," she disrupted the prevailing narrative that scientific and technological innovations such as organochlorine pesticides like DDT would allow humanity to conquer nature. Instead, she posited that our species and the world as we knew it could only survive if we coexisted with our environment. Her work formed the basis for all the environmental achievements that have followed.

Ms. Carson grew up in southwestern Pennsylvania during a time when the region's economy relied on heavy industry. Although her rural hometown of Springdale was a nearly 40-minute drive from Pittsburgh's steelmaking powerhouses, there were two coal-burning power plants in her community by the time she left the region for graduate school at Johns Hopkins University in 1929.

In her last major speech, "The Pollution of Our Environment," which she delivered in 1963 to the Kaiser Foundation, Ms. Carson insisted that underlying the many problems of introducing contaminants into the world was "the question of moral responsibility — responsibility not only to our own generation, but to those of the future... the threat is infinitely greater to generations yet unborn; to those who have no voice in the decisions of today, and that fact alone makes our burden a heavy one."

Those words she spoke nearly six decades ago reverberate today. She was intimately familiar with the motivations and justifications that drive people to ignore the impact of their actions on the world around them. And her assessment applied not only to the pesticide industry but, we realize now, also to the decades of pollution from oil, gas, petrochemical, coal and steel production, all of which have contributed to health crises affecting millions and a climate crisis affecting all of us.

Each year we see the accumulating consequences of this arrogance and ignorance as the death and destruction from catastrophic hurricanes, fires, heat waves and ice storms not only increase but also become more unpredictable because of climate change. Responding to the moral responsibility of being good stewards of the environment for current and

future generations requires both study and discipline to learn what the problems are and what's at stake, and then to search for solutions and implement them.

Back in 1994, the Endowments' environment program was established under the leadership of Chair Emeritus Teresa Heinz, who was then chairman of the Howard Heinz Endowment. Mrs. Heinz was clear-eyed about the foundation treading where few others dared to step in the country's industrial northeast.

"Most Americans want to preserve the environment ... but they also want to work. And too many of them have been sold a bill of goods that they cannot do both," she said at that time. "As much as we know about people, and as much as we think we know about the natural world, we still understand little about the nature of our connectedness. It eludes us dangerously... the issues facing us today can no longer be treated as intellectual curiosities. I am convinced that we cannot see solutions only because the problems are broader than our focus."

Those sentiments put this foundation on track to invest in ways to study and address environmental problems with a broader focus so that possible solutions could come into view.

Under Mrs. Heinz's leadership, the Endowments launched programs to improve air and water quality through initiatives such as green building design, green stormwater infrastructure and green space development, including tree planting. The foundation also delved into finding ways to build up regional, social and environmental sustainability and to address pernicious environmental health problems such as childhood lead poisoning.

Then as now, the Endowments understood not only the moral but also the economic flaw in the argument from industry that environmental harm and its impact on human health was a necessary cost of doing business and providing jobs. Externalizing those costs and making them the public's problem was just a convenient, short-term business model that protected industry from having to account for the real costs of its activities. A more honest accounting of those costs

would inevitably demand new ways of doing business — and, indeed, new industries — but it would ultimately make for a more competitive economy that provided more jobs in the future.

The Endowments was an early advocate for regional and statewide climate strategies to seize the economic benefits of a more sustainable economy. These commitments and others led to our foundation taking tough, sometimes unpopular and often prescient positions on issues such as insisting that local industries be held accountable for the pollution they cause and raising questions about the impact of fracking and petrochemical development on the region's environment, economy and health of its residents.

It was only a matter of time before addressing the global threat of climate change became an organizing principle for the Endowments' environment work. Early investments that predated the terminology have found their places within our foundation's framework for combatting climate change while newer grantmaking targets the causes of the global crisis more directly.

This evolution in our approach, for example, reinvigorated our early support of air quality groups such as GASP — Group Against Smog and Pollution — and led to the creation of the Breathe Project, which includes a coalition of air quality organizations that use their combined networks and advocacy to educate local residents about the region's air quality and provide opportunities to take action. Such citizen engagement has contributed to greater regulatory accountability and enforcement that has included getting more local industries to complete Title V operating permits, which contain pollution control requirements under the Clean Air Act, and vigorously backing the Allegheny County Health Department's proposed coke oven regulations that would lower emissions of hydrogen sulfide, a gas that produces a rotten egg smell, at U. S. Steel's Clairton Coke Works, the largest coke producing plant in the country.

Reaction to these and a variety of other environmental health requirements — along with the community activism supporting them — has included U. S. Steel's efforts to

block the regulations it faces while other firms opted to close their local industrial plants rather than deal with additional enforcement. Among those were the Shenango Coke Works, which operated on Neville Island northwest of Pittsburgh until it was shuttered in 2016, and FirstEnergy Solutions Corp.'s Bruce Mansfield coal-fired power plant in Beaver County, which had been the largest in Pennsylvania until it shut down in 2019.

Also, as was the case with origin of the Endowments' environment program, our updated commitment has meant backing up our work with scientific research and facts, along with highlighting the potential for improved quality of life, from healthier communities to the job creation potential of green energy and conservation initiatives.

During the past decade, the Endowments funded extensive scientific assessments that included work by the University of Pittsburgh's Graduate School of Public Health; projects by Pitt's Center for Healthy Environments & Communities, such as the "Pittsburgh Regional Environmental Threat Analysis Report"; pollution reporting technology by Carnegie Mellon University's CREATE Lab; analyses by the Clean Air Task Force; and asthma tracking by allergist-immunologist Dr. Deborah Gentile, medical director of Community Partners in Asthma Care.

In addition, the Endowments was one of the first foundations in the nation to recognize and support work to address the impact that a burgeoning oil and gas industry was having on the environment, public health and the climate. Early grants supported scientific inquiry that would provide numerous and seminal contributions to a now substantial body of peer-reviewed and published reports associating oil and gas operations with adverse outcomes for aquatic and terrestrial ecosystems; respiratory, reproductive and other health metrics; air quality; and community well-being and economic performance.

These investments also included the creation of the Environmental Health Project (EHP), which is a nonprofit public health organization that assists residents in the region who believe their health has been or could be affected by fracking. The organization's health evaluations and air quality monitoring devices

have provided the scientific guidance to equip individuals with the information they need to act and to advocate for changes to protect their communities.

EHP's work has served as the basis for investigations by policymakers such as Pennsylvania Attorney General Josh Shapiro, who relied on the organization's findings for a grand jury report released last year that examined shale gas operations in the state. Both the report and Mr. Shapiro's comments during its public release contended there was evidence that shale gas development damaged public health, and credited EHP for playing a role in protecting the public that, regrettably, government agencies failed to do.

To further plant our stake within the movement to combat climate change, the Endowments partnered with the Climate Reality Project, led by former U.S. Vice President Al Gore, to bring the 36th Climate Reality Corps activist training to Pittsburgh's David L. Lawrence Convention Center in 2017. Nearly 1,400 people from around the world attended, which at that time made it the largest convening since Mr. Gore, along with former Republican Congressman Sherwood Boehlert and others, founded the initiative in 2006. Scientists and other experts instructed participants on how to organize their communities for action on the climate crisis, and the Climate Reality: Pittsburgh & SWPA chapter was established, led by fully certified Climate Reality Leaders who received their first training at the 2017 conference.

The local Climate Reality chapter is just one of the many examples of our support of community and grassroots organizations, along with our funding of the latest science and research, to address environmental challenges. The Endowments has long supported frontline, marginalized and vulnerable groups and communities affected by the causes and realities of climate change. This, in turn, led to our support of advocacy networks borne from those communities that have pushed much of the change in attitude and actions forward, and prevented the scientific findings from being dismissed, ignored or forgotten.

From our early support of grassroots organizations such as GASP to our coordination of the Breathe Project as a coalition

Yet, we are always mindful of the concerns that laid the foundation of our environmental efforts: a desire to improve the health, quality of life, and well-being of the region and its families.

of local advocacy groups, the Endowments has recognized the importance of partnering with communities, especially those most vulnerable to environmental harm. Today, the community and grassroots groups that we seek to empower and work with also include Valley Clean Air Now, Allegheny County Clean Air Now and the Black Environmental Collective.

The Endowments has never shied away from making big bets — strategic and well-informed “bets,” but big nonetheless. Looking forward, we are, in part, betting on science and reason prevailing over division and politics when it comes to the environment and our collective health. Beyond that, we are devoting time and energy to telling stories that elevate the potential of a more sustainable environmental future with opportunities for a clean, innovative and effective economy, and that focus on promoting healthier human lives and communities.

To do this, we have been calling out false narratives such as the failed promise of hundreds of thousands of jobs from natural gas development and fracking in parts of Pennsylvania, Ohio and West Virginia. A study that the Endowments-supported Ohio River Valley Institute released earlier this year found that instead the industry yielded just 5,660 net new jobs in the region. At the same time, we are supporting the work of groups offering alternative economic visions, such as ReImagine Appalachia, which has issued reports showing how investments in modernizing the electrical grid, upgrading manufacturing to be cleaner and more energy

efficient, and developing more sustainable transportation systems could create more than 500,000 jobs in those three states and Kentucky.

That’s why we feel a sense of urgency in our efforts to encourage leaders and residents in our local communities to support diversifying the region’s economy away from fossil fuel extraction and toward increased use of clean energy. We believe this transition will generate jobs through energy and equipment production and the emergence and expansion of local businesses that will thrive in growing local economies.

Yet, we are always mindful of the concerns that laid the foundation of our environmental efforts: a desire to improve the health, quality of life, and well-being of the region and its families. For example, our support of Dr. Gentile’s work included providing funding for her research on children in the Pittsburgh region who have been exposed to industrial emissions. Among her findings were that 22.5 percent of the more than 1,200 schoolchildren in her study had asthma — far higher than the 8.5 percent national rate reported by the Centers for Disease Control and Prevention.

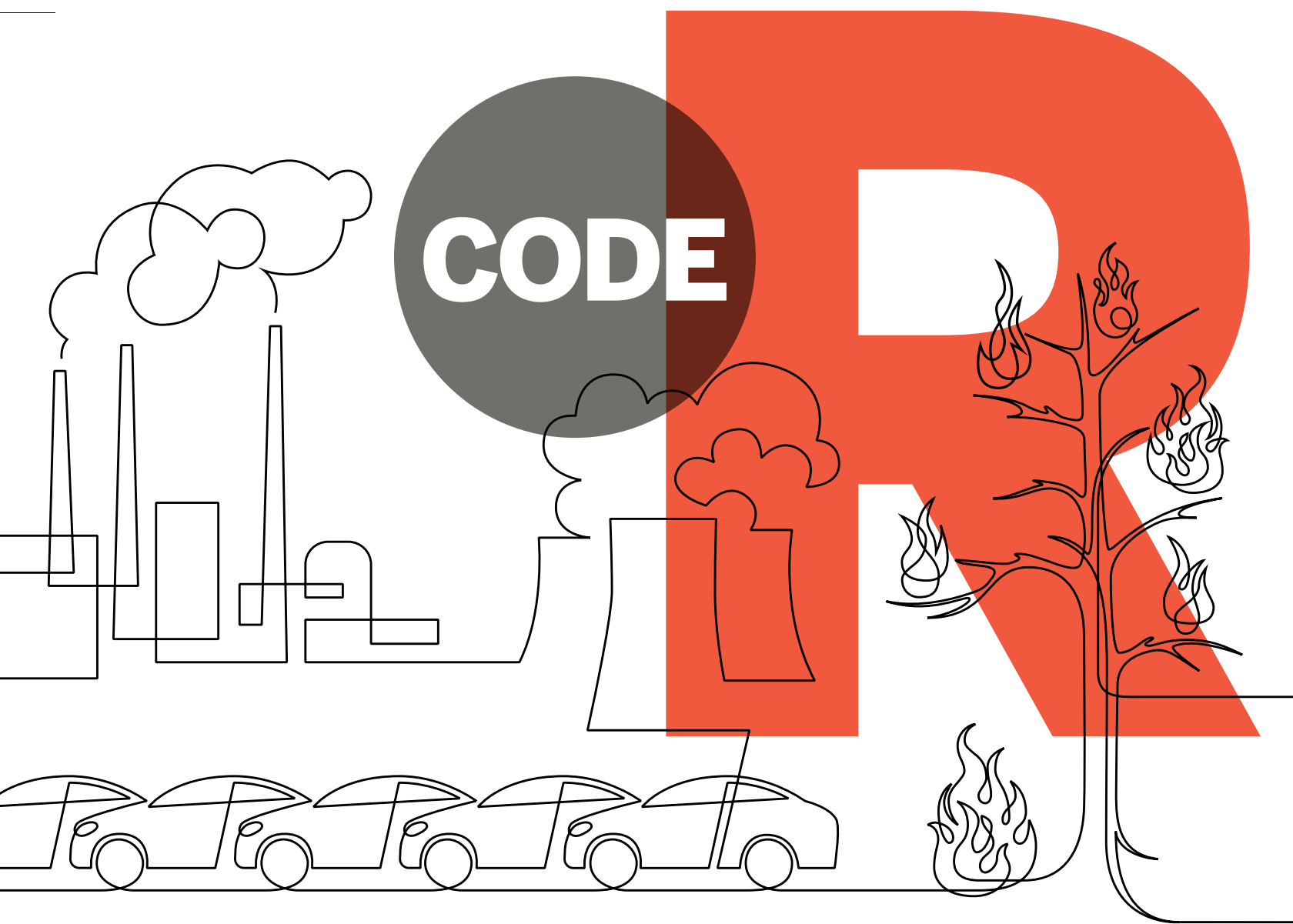
We have also supported research by Dr. Nicholas Muller, a professor of economics, engineering, and public policy at Carnegie Mellon University, and his colleagues that linked air pollution from the fracking industry to 1,200 to 4,600 premature deaths across the northeastern United States between 2004 and 2016. They calculated that those deaths came at a cost to society of about \$23 billion.

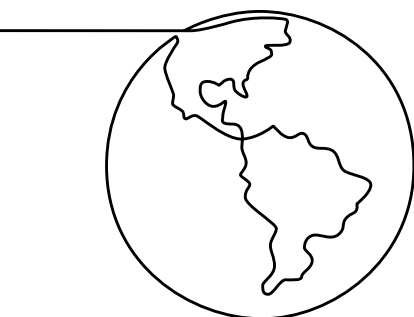
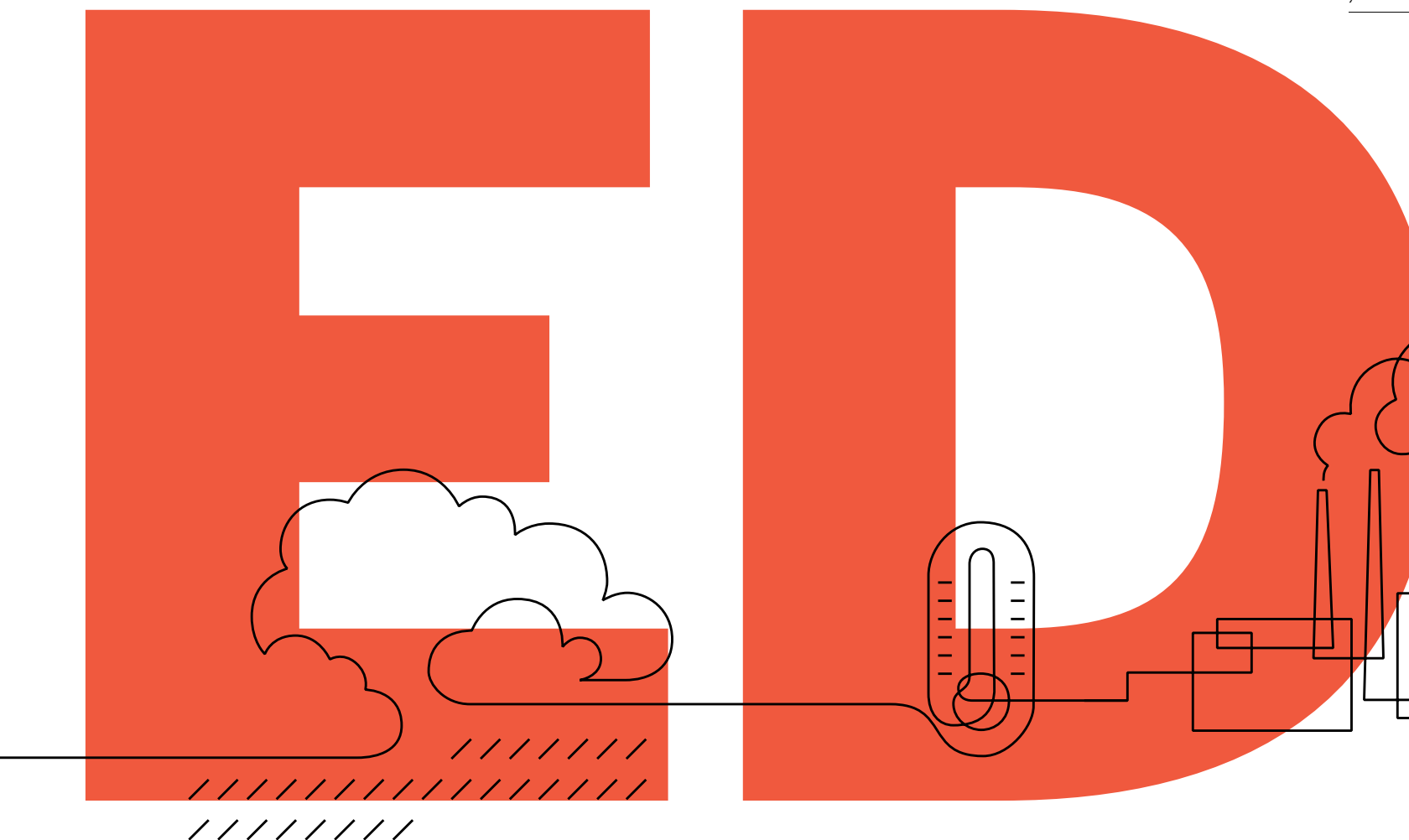
Of course, the human loss is the weightier burden, adding to the incentive to switch to clean energy to reduce cancer, asthma and premature death.

Nearly three decades ago, when Teresa Heinz launched our initial environmental agenda, skepticism abounded that a still-industrial region like ours could have any role in a green future, let alone benefit from it. Moral and social goods such as protecting public health were routinely and often dismissively pitted against economic goods such as jobs. Yet, within a decade, Pittsburgh was on the map nationally for its innovations in green building and design, its reinvention of its riverfronts, and the rise of its technology and innovation-based industries.

Fast-forward to today and even the most vigorous skeptics, including many who just two years ago criticized the Endowments for publicly questioning the wisdom of staking the region’s future on petrochemicals, and who for the last decade argued that fracking was our region’s last best hope for economic prosperity, are suddenly engaged in a very different conversation about decarbonization. The regional spin to that dialogue is still tinged with a mournful nostalgia over fossil fuels, especially the role of natural gas as a source for blue hydrogen, and that’s to be both expected and respected in a region where many people still associate extraction with jobs and opportunity. But suddenly there can be no doubt that a transition is coming, and that the future, economic and otherwise, will belong to regions and countries that dare to lead it rather than waiting to be run over by it.

Today, with the support of Chairman André Heinz, The Heinz Endowments is continuing its legacy of working to improve the environment for the sake of our children, families and communities. Our work in this arena has taught us one very clear lesson: We can and must do this, and we can and must do it together. We can create a cleaner, healthier and more just future for ourselves and generations yet to come. We just have to decide it’s important and then keep pushing, despite the setbacks and obstacles, to ensure that the world and our corner of it are truly inhabitable for us all. **h**





As our country and world have been battered with increasing frequency by wildfires, hurricanes, droughts and other extreme weather conditions, alarm about the connections between different forms of pollution and the dangers to our planet has skyrocketed. Climate change has become more prominent in national and international conversations, and the priority placed on doing more to address environmental challenges through federal legislation — regardless of the final details — indicates how pressing the issue has become.

It is because of this current social and political landscape — as well as the distressing physical realities of the moment — that this special issue of *h* magazine is focused on the environment, particularly climate change, environmental health and progress toward a climate-friendly economy. Some stories describe efforts in the Pittsburgh region to provide cleaner air and water and safer environments for children. Others examine grassroots advocacy and the work to democratize information and influence environmental initiatives.

Finally, looking ahead, this environmental edition of *h* explores what can be done to move beyond the fossil fuel industry to a more clean-energy economy and offers some resources for readers who want to learn more or find ways to get involved. We all have a role to play, and now is the time to step up. *h*



CLIMATE CONNECTION

Before the term “climate change” became commonplace, The Heinz Endowments supported a range of environmental organizations for decades. Many of the groups helped form the basis of the foundation’s eventual climate-focused environmental agenda.
By Don Hopey

Hurricane Michael was a dangerous and destructive Category 5 storm with sustained winds of 160 miles per hour when it made landfall on the Florida panhandle in October 2018. It also blew through Tallahassee, destroying the home of Lily Jarosz's cousin.

Ms. Jarosz, 18, of Irwin, Pennsylvania, a community 27 miles southeast of Pittsburgh, said the Tallahassee storm and other recent severe weather that's hit the Caribbean island of Puerto Rico, where her grandparents were born, sparked her awareness of the impacts of global climate change and her determination to do something about it.

"I chose to become active in the climate change movement mostly because I am Puerto Rican, and I know that the Puerto Rican people have gone through so much when it comes to repeated flooding and storms that are also exacerbated by climate change," said Ms. Jarosz, who graduated from Norwin High School last spring and plans to spend a "gap year" in Puerto Rico learning about sustainable agriculture.

She's a member of the Alliance for Climate Education and Communitopia, two organizations that work to engage and educate high school-age climate advocates and are among the more than two dozen groups focused on various climate-related issues that receive grant support from The Heinz Endowments. The nonprofits also represent part of the evolution in the foundation's strategy to address threats to the environment and human health using a climate change lens.

At the outset of its environmental philanthropy in the 1990s, the Endowments supported organizations working to reduce

polluting emissions from coal mining, coal-burning electric power plants and heavy industry that have adversely affected the region's communities, environment and public health for generations. Philip Johnson, the Endowments' senior program director for Environment & Health, said that, over the last 10 years, grantmaking has gradually shifted and recently grown as the link between those carbon emissions and a warming planet has become more closely tied and more clearly and scientifically recognized as a prime driver of the global climate crisis.

"When I came to Pittsburgh 12 years ago, fracking in the Marcellus Shale had started but no one was paying much attention. The problems however — for the environment, air quality, public health — were already out of the box," Dr. Johnson said. "They weren't framed as climate change issues. They were framed as local health and environmental issues. But the immediate impacts of climate change over the last few years have become really hard to ignore."

By October 2017, when Endowments funding brought Al Gore's Climate Reality Project to Pittsburgh for three days of climate education and grassroots organizing, people were ready to talk about climate change in a way that recognized the region's contribution to it and validated the work done to address it, Dr. Johnson said.

Although its industry has dwindled, Pennsylvania remains the third-largest coal-producing state (behind Wyoming and West Virginia) and, according to the U.S. Energy Information Administration, ranked second to Texas in natural gas production in 2020. The Keystone State also ranked second to Texas in total energy production in 2019, and fourth (behind Texas, California and Florida) in emissions of carbon dioxide, a heat-trapping greenhouse gas, in 2018, which were the latest years for which those totals are available on the U.S. Energy Information Administration website.

Dr. Johnson said that the Endowments, over the past two decades, has supported the building of local, regional and national organizations and networks to address the

region's "outsized pollution impacts." That infrastructure has enabled it to refocus its energy on efforts to control emissions of climate-altering pollutants, including carbon dioxide, nitrogen oxides, methane, black carbon, and hazardous and volatile organic compounds.

"Our grantmaking has changed over the past decades to reflect those priorities, as well as to help elevate them," Dr. Johnson said. "And while the focus should be on the individuals and groups doing the work, it sometimes takes philanthropy to move the needle."

Combining long-term support with new investments

Since 2010, the Endowments' annual grantmaking for its environmental and health programs has ranged from \$8.5 million to \$14.5 million, leveling off recently to about \$10.5 million and including contributions from its Sustainability, Learning and Creativity programs.

During the past decade, grants targeting climate work went to more than two dozen organizations. Part of that list reads like a who's who of local, regional and statewide environmental education and advocacy organizations, and includes the Group Against Smog and Pollution, the Breathe Project, the Green Building Alliance, PennFuture, the Sierra Club, the League of Women Voters PA, Mountain Watershed Association, the Center for Coalfield Justice, PennEnvironment, the Clean Air Council, the Environmental Integrity Project, the Clean Water Fund, Carnegie Mellon University's CREATE Lab, the FracTracker Alliance, and the Southwest Pennsylvania Environmental Health Project.

A number of newer, smaller or lesser known organizations have also received support from the Endowments, including Communitopia, the Alliance for Climate Education, the Alliance for Climate Protection, Creatives for Climate / Sustainability Pioneers, Energy Efficiency Alliance, the Ohio River Valley Institute, Project Drawdown, Reimagine Appalachia, the Rocky Mountain Institute, and Solar United.

The Endowments' support of the Group Against Smog and Pollution began about 20 years ago, when the Pittsburgh-based grassroots group was already 30 years old, said Rachel Filippini, GASP's former executive director. But the foundation's grants over the years were important in growing the once all-volunteer group into one that has seven paid staffers and an expanded program menu that today includes watchdog, legal policy and educational work. "It's safe to say that the funding support from Heinz has been important to moving the ball forward on air quality issues," said Ms. Filippini, who stepped down from her leadership position in September. "We have good, diverse support from a number of foundations and even government groups, but Heinz's support has been absolutely critical."

For some organizations, that support has been more foundational. The Endowments was a co-founder of the Coalition to End Childhood Lead Poisoning, which no longer exists, and more recently helped establish FracTracker, Women for a Healthy Environment and the Environmental Health Project.

"No one was doing any research on the health impacts of fracking and shale gas development," EHP Executive Director Alison Steele said of the time before her group started. "The state Department of Health was doing nothing. We needed to get boots on the ground, just like during any health crisis, to figure out what was going on with public health and the shale gas industry's impacts."

She explained that in recent years, as dozens of peer-reviewed studies have shown correlations between living near shale gas development sites and a host of human health problems, her organization's focus has shifted to development of public health data, preventing exposure and engaging more with public health agencies on policy.

"Our recommendations are informed by a fact-based analysis of what is known and not known," Ms. Steele said. "We can point to gold-standard research that forms the foundation of our work and demonstrates that calling for health protections around shale gas development is a more than reasonable and overdue approach."

As a result, the Environmental Health Project has provided a crucial bridge between

► GASP

Before she became a member of Pittsburgh City Council, the late Michelle Madoff, right, was a co-founder of the nonprofit organization Group Against Smog and Pollution.



Photo courtesy of GASP

Joshua Franzos



combating CLIMATE CHANGE

For the past decade, The Heinz Endowments has been awarding grants that address climate change to more than two dozen organizations, including a range of local, regional and statewide environmental education, grassroots and advocacy groups.

▲ Climate Reality

The Climate Reality Project, founded by former U.S. Vice President Al Gore, above, conducted a three-day training conference in Pittsburgh in October 2017 that was funded by The Heinz Endowments. Nearly 1,400 people from more than 130 countries participated in the event led by Mr. Gore, leading environmental scientists and professional communicators.

◀ Communitopia

Woodland Hills High School juniors Dove Hughey, far left; Grace Moon, center left; and Levi McGraw-Sapp, right, joined Margeaux Everhart, center right, the school's Climate Action team adviser, for a tree-planting activity at the school in October. The project was planned in partnership with the youth environmental group Communitopia and Tree Pittsburgh's One Tree Per Child program.

the science on shale gas industry impacts and the advocacy for more protective practices.

Promoting healthier towns and cities

Siri Lawson, who calls herself “the Brine Lady,” has battled for years against the environmentally damaging but widespread practice of spraying shale gas drilling and fracking wastewater on dirt roads to keep the dust down in rural areas of the state. She credits the support of FracTracker, Environmental Health Project, and Fair Shake Environmental Legal Services with helping her get the word out about health problems the practice caused where she lives in Farmington Township, Warren County, about 148 miles north of Pittsburgh.

The township stopped spraying brine on the roads in 2018 after Ms. Lawson appealed the state Department of Environmental Protection permit that allowed it to do so. The department stopped the practice statewide and admitted in documents it filed with a state Environmental Hearing Board in response to Ms. Lawson’s appeal that the road application of drilling wastewater should be subject to stricter permitting provisions. A loophole in state regulations has allowed it to continue in many areas of the state, even though an August 2021 Pennsylvania State University study found the wastewater to be ineffective at suppressing dust and that it can be harmful to human health, adjacent farms and nearby streams.

“I’ve been yelling about this in the darkness for years, but no one knew about those fights. The environmental organizations have helped me tell my story about the health and environmental impacts of spreading brine,” said Ms. Lawson, who suffers from eye, ear, skin and lung diseases, all, she contends, caused or magnified by the dust. “Without the foundation funding these environmental groups received, there would be no one to push back against the industry. They play a pivotal role.”

Founded by attorney Emily Collins in 2013, Fair Shake is headquartered in Pittsburgh and has offices in Philadelphia and Cleveland. It provides legal representation to individuals and community groups on a wide range of local and regional environmental issues.

Ms. Collins, who serves as Fair Shake’s executive director and managing attorney, said that about 60 percent of the nonprofit law firm’s work is helping individuals like Ms. Lawson resolve local environmental harms cases, while the remainder is representing community groups formed around municipal issues.

For example, Fair Shake represented the North Braddock Residents for Our Future in opposition to a shale gas well pad proposed for U. S. Steel Corp.’s Edgar Thomson Works property that straddles the North Versailles–East Pittsburgh border (the steelmaker eventually backed off the proposal).

“The role we play in the region is one of pursuing our clients’ environmental goals,” Ms. Collins said. “We get a lot of calls about environmental harms already happening. At those times, the office feels like an emergency room.”

The Endowments funded the legal organization’s startup and, along with a handful of other foundations, continues to provide meaningful support today, Ms. Collins said.

“Heinz made Fair Shake happen.”

Educating the next generation

The Endowments also made Communitopia happen. The organization, which started in a coffee shop in 2009 as the Citizens Climate Corps, was run by volunteers until last year. Now, with Endowments funding, the tiny, youth-oriented nonprofit with one-and-a-half paid positions, has big aspirations about reducing greenhouse gas pollution, slowing climate change and fostering resilient communities.

In 2019, Communitopia provided a climate change workshop to an eighth-grade science class in the Woodland Hills School District, which includes several suburban communities east of Pittsburgh. The organization worked with the students and the Woodland Hills Climate Action Team, part of the Pittsburgh Youth for Climate Action program, to urge the district to add climate science to its curriculum. In July of that year, the school board adopted a resolution to that effect that also calls on state and federal lawmakers to take actions to combat climate change and commits the school district to developing

climate-friendly policies and adopting green design standards.

Woodland Hills is the first, and so far only, school district in the state to adopt such a climate action plan, although more than 50 districts have done so nationwide.

“We want to take what is happening at Woodland Hills and scale it for the region — take a process that seems complicated and make it simpler,” said Katie Modic, Communitopia’s executive director and a former teacher.

Ms. Modic recognizes that school districts have many competing priorities and little incentive to address climate change without state policies requiring them to do so, but she praised Woodland Hills as “brave and forward-thinking to do what it did.”

“If you believe that the job of our schools is to nurture our children and prepare them for the world, then the schools really are obligated to address this issue,” she said.

Alina Zaidi, 17, who lives 17 miles north of Pittsburgh in the suburb of Franklin Park, picked up on that obligation after visiting her grandparents two years ago in New Delhi, India, where the air pollution was so bad the family had to wear face masks when they went outside. And that was in pre-COVID times.

“There was frequent flooding in the area, severe heat and regular power outages. That was all a complete shock to me as it was nothing like what I’d experienced in Pittsburgh,” said Ms. Zaidi, a senior at North Allegheny High School. “That made me realize how real, dangerous and foreseeable climate change is.”

A year ago, she joined Communitopia and Pittsburgh Youth for Climate Action where she met other climate-motivated youth and started the nonprofit Sustainability In Our Schools, which seeks to promote education about climate-change awareness for elementary and middle school students. Pennsylvania is one of four states without approved standards for teaching about climate change and its man-made causes.

“We believe that by changing the mindset of young students and helping them grow up with a belief in the importance of sustainability,” Ms. Zaidi said, “they will subconsciously make sustainable decisions for the rest of their lives, helping our planet.” **h**

A dramatic night photograph showing a massive fire consuming trees and a house. The fire is bright orange and yellow, with thick smoke rising into the dark sky. The house in the foreground is partially obscured by the fire and smoke, with its white railing and columns visible. The overall scene is one of destruction and chaos.

The diagnosis is clear: Climate change is wreaking havoc across the globe.

The impact of climate change is traumatically apparent across the world, especially in causing extreme weather conditions that result in loss of life and property. In August alone, fire and rain caused massive destruction in the U.S. High temperatures and dry conditions contributed to the rapid spread of the French Fire in central California, left, that began on Aug. 18 and scorched more than 26,000 acres. On Aug. 29, Hurricane Ida slammed into Louisiana, right, with some of the strongest winds to hit the state, and then took a catastrophic path up to the northeastern corner of the country, causing massive flooding and damage along the way.



VITAL SIGNS

Now the question is how much public willingness exists in the Pittsburgh region and beyond to mitigate future destruction. By Don Hopey

The global climate crisis has been called the story of our lifetime. That likely is an understatement.

All six of the hottest years on record have occurred since 2014, and 2020 was either comparable to the hottest year, 2016, or in the top three, according to the United Nations' Intergovernmental Panel on Climate Change August report.

Also in 2020, sea levels — topped off by melting glaciers and ice sheets, and expanding warmer water — rose for the ninth consecutive year and now measure 3.6 inches higher than they were in 1993, when satellite tracking began. The rate of that increase has doubled since 2006, the IPCC report said.

The sixth report from the IPCC analyzed 1,400 studies and relied on refined computer modeling to predict that droughts, floods and extreme weather events will become more common and more severe. It concluded, with some significant certainty, that the Earth is hurtling toward some dire and devastating climate impacts and cannot avoid some of them, even if governments act with uncharacteristic focus and unprecedented speed.

“We’ve already seen a lot of climate disruption and are seeing more crazy weather,” said Larry Schweiger, who headed the Western Pennsylvania Conservancy from 1996 to 2004 and the National Wildlife Federation from 2004 to 2014. “It’s happening faster than what was predicted because the scientific fabric is one of caution, but in this case it’s more caution than the situation demands. We’re actually sitting on a ticking time bomb, but we’re not acting like it.”

Around the globe in the last two years, swarms of locusts invaded Kenya; forest fires devastated parts of Greece; and Super Typhoon Goni, the most powerful storm ever to make landfall, whipped the Philippines with 195 mph winds.

In the U.S., heat waves roasted regions of the country and record-setting wildfires burned through bone-dry western forests, sending ash and soot aloft



3.6 inches

Sea levels rose for the ninth consecutive year and now measure 3.6 inches higher than they were in 1993.

to degrade air quality as far away as the East Coast. Wildfires caused the closing of the Boundary Waters Wilderness Area in Minnesota and necessitated the evacuation of canoeists and campers. New York City's subway system was flooded — twice — the second time by remnants of Hurricane Ida, a late summer storm that killed more than 80 people. A string of tornadoes across six states in December caused devastation that left around 100 dead.

In roughly that same time frame, construction was nearing completion on the taxpayer-subsidized Royal Dutch Shell ethane cracker plant in Beaver County, 40 minutes northwest of Pittsburgh. In 2022, it's scheduled to begin producing more than 1.6 million tons of polyethylene plastic pellets annually while, according to its state permit, being allowed to emit each year 2.2 million tons of carbon dioxide, a potent greenhouse gas. That's the equivalent to the emissions from 440,000 vehicles — half of all the cars in Allegheny County — for a year, said Matt Mehalik, executive director of the Breathe Project, an air quality advocacy group. Allegheny County is home to Pittsburgh, Western Pennsylvania's largest city.

"Adding that much climate pollution is significant," Mr. Mehalik said. "It's something the region needs to contemplate before it locks in that much pollution. We risk being labeled a climate-destroying region. We have to be careful."

Additional ethane cracker plants are in various stages of discussion and development just across Pennsylvania's western

border in Ohio and West Virginia. Those could eventually make the tri-state area a petrochemical hub, although the southeast Ohio cracker complex is on "indefinite hold" while financing is sought. And the West Virginia development is even less definite at this time, according to Sandy Buchanan, executive director of the Institute for Energy Economics and Financial Analysis, a Lakewood, Ohio-based nonprofit.

"People cheerleading the Shell plant need to think about how their position will look 10 or 20 years from now," Mr. Mehalik said, "and take into account the heat, the storms, the flooding, and whether it makes sense to go down that path."

In fact, like the rest of the country, the impact of the climate crisis has accelerated in Pennsylvania even as plans for industrial expansion press forward. The increase in storms and flooding has caused major damage across the state while the warming climate has enticed a host of invasive plants and insects to feel at home and proliferate, creating additional environmental concerns.

Plant invaders include giant hogweed, purple loosestrife, multiflora rose and kudzu, "the vine that ate the South." Among the outsider insects are the emerald ash borer, which has decimated the traditional wood stock for baseball bats; the hemlock woolly adelgid, which is killing the Eastern hemlock, Pennsylvania's state tree; and the spotted lanternfly, which threatens economic havoc on the state's apple and stone fruit (peach, plum, cherry) trees and grape vineyards. As non-native black-legged ticks, also known as deer ticks, have proliferated during recent mild winters, the state's incidence of Lyme disease has risen to the highest in the nation.

Christine Graziano, founder and president of Plant Five for Life, said the loss of Pennsylvania trees is occurring as global forest canopies are rapidly shrinking due to agriculture and development. In Allegheny County, she said, that loss translates

94,571 miles

Pennsylvania has 94,571 miles of oil and gas pipelines, and pipeline construction compounds climate change impacts by destabilizing soil, which can lead to landslides and destructive accidents, and by clearing the rights-of-way of native plants and trees.

to the equivalent of about 1,000 trees a day and contributes to soil erosion, flooding, loss of cooling shade during heat waves, and siltation of creeks and rivers that degrades water quality and damages aquatic habitat.

“This loss is meaningful and significant,” Ms. Graziano said, “a contributing factor in compounding and cascading risks and systems failures of which we are already seeing the negative and too often catastrophic results.”

And the harmful results of climate change go beyond direct impacts on air, water and land. After days of heavy rain in September 2018, a landslide triggered the fiery, bomb-like explosion of the Revolution Pipeline in Center Township, Beaver County, that burned for two hours and destroyed a home, caused the evacuation of 25 others, collapsed six high-voltage transmission towers and killed several pets. Two-and-a-half years later, in February 2021, Energy Transfer’s 24-inch pipeline went back into service on a flatter route that avoided the still unstable hillside.

Karen Gdula, who lives on Ivy Lane, just 1,300 feet from the pipeline blast site, said she’s happy the pipeline is on flatter ground and that Energy Transfer agreed to a request by residents that it bury the pipeline 20 feet deep where it crosses another pipeline near the site of the explosion.

“We need to be safe going forward,” Ms. Gdula said. “We recognize the pipeline is here to stay. We’re not protesters. But we let Energy Transfer know about our concerns.”

The FracTracker Alliance, a nonprofit that evaluates the risks of oil, gas, and petrochemical development, released a new analysis this year of data from the U.S. Department of Transportation’s Pipeline and Hazardous Materials Safety Administration and found that from 2010 through August 2021, there were 407 “incidents” nationwide in which natural forces — heavy rain, erosion, lightning, temperature, high winds — caused damage to gas transmission, gas distribution and hazardous liquid pipelines.

Erica Jackson, FracTracker’s manager of community outreach and support, said there are already 94,571 miles of oil and gas pipelines in the state, and pipeline construction compounds climate change impacts by clearing rights-of-way of native plants and trees and destabilizing soil, especially on steep slopes where landslides can occur, damaging wetlands, streams and groundwater.

Terrie Baumgardner, a member of the Clean Air Council and a resident of Aliquippa, two-and-a-half miles from the pipeline explosion site and four-and-a-half miles from the

ethane cracker plant, said that more and stronger storms will likely mean more pipeline problems.

“Once the cracker plant goes online,” she said, “it will need the gas supplied by 1,000 new wells every three to five years, and that means building more gas-gathering pipelines, transmission pipelines and ethane lines.” A warmer climate also means more and longer heat waves and temperature inversions that trap industrial and vehicle pollution in the region’s river valleys where they disproportionately affect disadvantaged communities.

2.2 million tons

In 2022, the Royal Dutch Shell ethane cracker plant in Beaver County is scheduled to begin producing more than 1.6 million tons of polyethylene plastic pellets annually while being allowed to emit each year 2.2 million tons of carbon dioxide, a potent greenhouse gas.

Walter Lewis is president and chief executive officer of Homewood Children’s Village, which supports childhood and community development in that neighborhood, among the areas with Pittsburgh’s highest poverty rates. He said climate change impacts aren’t always recognized by residents as equity or environmental justice issues. But severe storms that cause roofs to leak and basements to flood produce financial hardship for low-income families and can damage whole communities. Extended hot weather can lead to hospital visits for those without air conditioning.

“Those types of things disproportionately affect our community and should be mitigated by addressing the causes of climate change,” Mr. Lewis said. “But in the meantime, we have to do more, especially for the vulnerable in our community.”


He said the Homewood Children’s Village has held workshops on climate change and mitigation for neighborhood residents and worked with the Green Building Alliance to promote home energy efficiency.

“For a lot of people who maybe are having trouble paying their rent or are worried about their next meal, climate change is not on their radar,” Mr. Lewis said. “But as they start talking about the issues that are on their radar, they see the links.” **h**

A man with glasses, wearing a dark t-shirt and tan shorts, stands by a pond holding a fishing rod. The background is filled with lush green trees and foliage reflected in the water.

industry ills

Costs have been outweighing benefits from shale gas fracking in Pennsylvania as the extraction process has taken a heavy toll on the health of residents and the quality of their air, land and water. By Don Hopey



Bryan Latkanich, who asserts that shale gas drilling damaged his property, his health and the health of his son, stands by the pond in front of his Pennsylvania home in rural Deemston Borough, Washington County.

On a normal day, Bryan Latkanich might stroll down to the farm pond in front of his home in rural Deemston Borough, Washington County, to fish with a friend for channel catfish, mudcats and bluegill.

But the former prison guard hasn't had many normal days since late in 2011 when Chevron Appalachia drilled and fracked the first of two shale gas wells on the hilltop just 350 feet above and behind the brick house he built in 2001.

Mr. Latkanich, 50, said he was told by field agents for Atlas Energy and Chevron — which bought his lease from Atlas and sold it to Pittsburgh-based EQT last year — that he could earn millions in lease payments and royalties for the gas under his 33-acre property, 36 miles south of Pittsburgh.

But those expected riches never materialized. Instead, he said, his home's foundation buckled and his well water went bad due to chemical contamination from well pad spills and runoff. He said his health and that of his son, Ryan, also soon cascaded downhill.

The first inkling that something was wrong, Mr. Latkanich said, came as the gas wells were flared in 2012. He said in the aftermath of the well development work, he was admitted to the hospital for an inflamed intestine. He said the exposure also caused him to go sterile and lose hair, medical conditions noted in a 2013 toxicology report by the West Virginia University Institute of Occupational and Environmental Health.

In April 2013, then 3-year-old Ryan emerged from a bath covered in welts and burns. Mr. Latkanich said his son subsequently developed asthma and neuropathy, suffered from headaches and nosebleeds, experienced joint soreness and became incontinent, health conditions listed in his medical history contained in an April 2018 University of Pittsburgh Medical Center toxicology report.

Chevron, in an email response to questions, said its investigation found gas well development operations did not contaminate the Latkanich water well, damage his home or impact the family's health. The company said those accusations "have been disproved," and it made a "business decision" to end gas well operations there. The company said it removed the well pad and restored the property in 2020.

The state Department of Environmental Protection tested the Latkanich well water in 2013, and six more times between February 2017 and March 2019, finally issuing a report in May 2019 saying it found no elevated chemical levels.

However, more sensitive testing by John Stolz, director of Duquesne University's Center for Environmental Research and

Joshua Franzos



Amanda Hrycyna

Education, found bromide, chloride and salts in water well samples, an indication, he said, that brine, or wastewater from the nearby shale gas wells, had contaminated the water supply.

And both the WVU and UPMC toxicology reports found that the Latkanichs' health problems could potentially be linked to exposure to air and water pollutants from the gas wells in the family's backyard. The UPMC report recommended the boy move away from the "significant exposures."

Ryan did so for several months and his conditions improved. The 11-year-old is back home now and has recovered enough to play grade school football. Although Chevron capped the gas wells in March 2020, Mr. Latkanich said his water problems persist.

"I haul water to drink from a spring, but we still use the well water to wash clothes and dishes and shower. We still get rashes and burns occasionally. You just never know," Mr. Latkanich said from a bench on his front porch.

"Anger is an understatement for the emotion I feel. I was a supporter of fracking at first, but now everything I worked for in my life is totally destroyed, and we've been sickened by an industry that grabs for all the money it can and doesn't care about us."

“

We went from peace and quiet to drilling lights and 60-decibel noise day and night.”

Dan Russell, of West Pike Run Township, Washington County

Failed promises and environmental costs

The shale gas industry, which relies on an extraction process known as hydraulic fracturing, or “fracking,” has not lived up to its promises for many in the Marcellus and Utica shale gas lands, a crescent-shaped swath of Pennsylvania that extends from northern tier counties along the New York border through its southwest corner and encompasses three-fourths of the state.

Farmers and other big landowners who own the mineral rights under their acreages have benefited financially from gas leases and royalty payments. They've bought new tractors and pickup trucks, renovated homes and built new ones. Municipalities have seen tax revenue increases. And trillions and trillions of cubic feet of natural gas have been fracked from the Marcellus and Utica shale formations, making Pennsylvania the second-largest gas-producing state, behind only Texas.

But shale gas development didn't create the hundreds of thousands of jobs proponents said it would. And as the shale gas industry moves through its second decade in Pennsylvania, Mr. Latkanich's story of environmental damage, health problems, and mental and emotional woe has become an increasingly common tale and one reflected in the scientific research.

In December 2020, two groups, the Physicians for Social Responsibility and the Concerned Health Professionals of New York, published their seventh “Compendium of Scientific, Medical, and Media Findings Demonstrating Risks and Harms of Fracking,” an aggregation of more than 2,000 studies and papers documenting that shale gas development is both risky and harmful.

According to the 475-page compendium, there is an “ongoing upsurge in reported problems and health impacts” from all parts of the shale gas extraction, processing and distribution system. And public health harms now scientifically linked to those operations include cancers, asthma and other respiratory diseases, rashes, heart disease, and mental health problems. Multiple studies of pregnant women living near those sites found links to higher rates of birth defects, preterm births and low birth weight.

“Our examination,” the report stated, “uncovered no evidence that fracking can be practiced in a manner that does not threaten human health directly and without imperiling climate stability upon which public health depends.”

Philip Johnson, The Heinz Endowments' senior program director for Environment & Health, recalled a time not long

(of the many) environmental concerns about fracking

AIR POLLUTION A gas flare, far left, burns at a fracking site in rural Bradford County, Pennsylvania, on Jan. 9, 2012. Depending on the type of gas burned and the temperature of the fire, flaring, or burning off excess gas, can release pollutants into the air, according to the environmental activist group Earthworks.

WATER POLLUTION Ray Kemble of Dimock, Pennsylvania, left, holds two samples of well water that he says were contaminated by fracking in his community.

NOISE POLLUTION A fracking site in West Virginia, right, shows the effects that the large, heavy trucks that are part of the fracking preparation and extraction process can have on local roads.



Bill Hughes, photo courtesy of FracTracker Alliance

ago when Western Pennsylvania was “so enamored by shale gas it was difficult to be against it.”

“The industry captured the social license, but that’s changed,” he said. “It’s slipping away from them. Now those saying there are no health impacts from shale gas development are laughed out of the room.”

He cited a December 2019 study by Carnegie Mellon University researchers that found that while the Marcellus Shale gas buildout from 2004 through 2016 produced jobs and economic benefits estimated at \$21 billion, all the drilling and fracking cost the region more than double that amount in environmental, public health and climate damage.

And a July poll by the Ohio River Valley Institute, a regional think tank, shows that Pennsylvanians across all demographic measures and by wide margins are deeply concerned about the air, water and health impacts of shale gas development and want it to end.

“Our recent research shows there is very little data to support the contention that the Appalachian natural gas boom has been or can be an engine for economic prosperity,” said Joanne Kilgour, executive director of ORVI, which receives funding support from the Endowments. “This poll confirms what other polls have been finding: that public support for fracking in Pennsylvania is eroding precipitously.”

A section of the polling questions was based on the findings of a two-year statewide grand jury investigation and a June 2020 report by Pennsylvania Attorney General Josh Shapiro that concluded air and water pollution from shale gas operations had sickened nearby residents, their pets and livestock. Other findings were that the state’s environmental and health departments had failed in their duty to regulate the industry and protect public health. The report credited the Southwest Pennsylvania Environmental Health Project for “stepping in to fill the void.”

“The AG’s report on fracking took a strong angle,” said Andrew McElwaine, the Endowments’ vice president for Sustainability. “And we felt it addressed a lot of concerns folks have about health issues and their ability to get relief for them.”

From shattered peace to public defiance

Lois Bower-Bjornson, a dance instructor living in Scenery Hill, Washington County, has seen up close fracking’s fall from favor. The 12-acre property where she lives with her husband and four children is bordered by four gas well pads. She works part time for the environmental nonprofit Clean Air Council, driving regulators, health professionals, elected officials and journalists — including those from Fox News and Al Jazeera — on gas land tours to meet rural residents affected by the industry.

“Entire towns could be built on the coal economy and its family-sustaining jobs. Then oil and gas came in and promised to do what coal did, but it didn’t deliver,” Ms. Bower-Bjornson, 56, said. “Now our exposure is all around. It’s always there.”

One of her semi-regular tour stops is at Dan Russell’s cedar-sided home on Elm Road, a twisting, narrow, graveled climb in rural West Pike Run Township, Washington County, just down the hill from where he was born and just up the road from Rice Drilling’s Lusk well pad, where four wells were drilled and fracked in 2012. Nine years later, he’s frustrated by the truck traffic, the near collisions, noise, drilling vibrations, air pollution and dust.

“We went from peace and quiet to drilling lights and 60-decibel noise day and night,” said Mr. Russell, 58, who has spoken at several community meetings in opposition to the drilling. “Now they’re talking about putting 10 more wells on that pad, and that means another five years of hell while they’re drilled and fracked. It messes your head up.”

Mr. Russell, whose mood bounces from resignation to defiance, said the shale gas operations have cut into the social fabric of pastoral West Pike Run Township.

“I’ve got friends over the hill who have benefited from fracking, but these companies are not good neighbors,” he said. “They’ve found gold here, and we’re not going to stop them.”

“But this place is my roots, and to get run out would bother me a lot. I started fighting this in 2011–2012 and now it’s full blown. I don’t know if I can fight this again, but why give it up now?” **h**

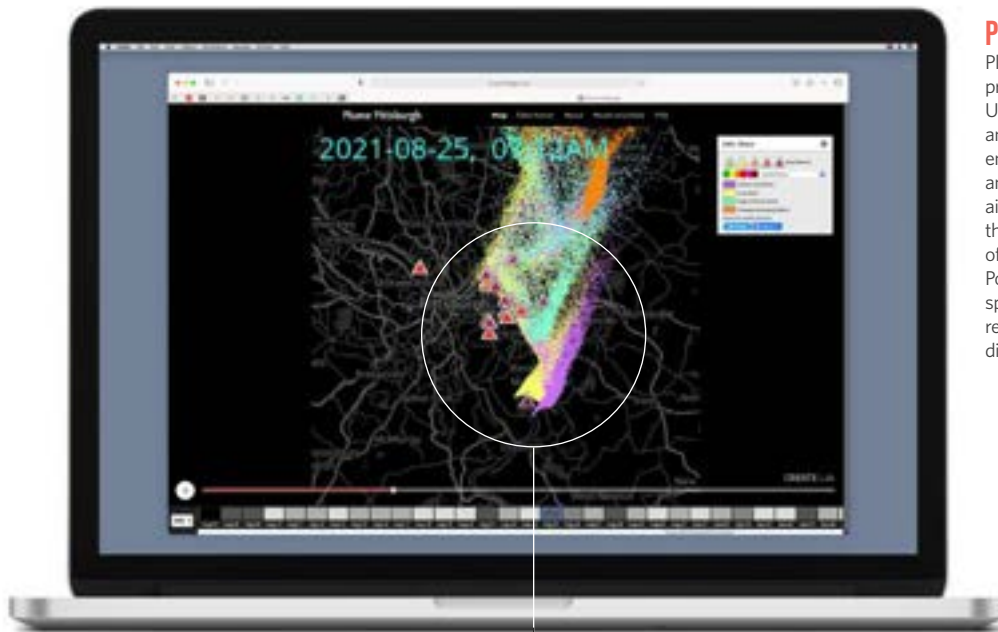
Innovative technologies and nonprofit networking have become vital tools for increasing community awareness and participation in efforts to address the Pittsburgh region's long-standing air quality problems. By Jeffery Fraser

FIGHTING FOR

AIR







PLUMEPGH

Plume Pittsburgh (PlumePGH), produced by Carnegie Mellon University's CREATE Lab, is an online model of industrial emissions data in real time and allows viewers to see that air pollution has effects beyond the immediate surroundings of an industrial plant.

Pollution has the potential to spread throughout the entire region as weather and wind direction change.

U. S. Steel's Clairton Coke Works, located about 15 miles south of Pittsburgh, is the largest coke-making facility in North America.



It's a warm late-summer morning. Emissions from the U. S. Steel coke plant at Clairton in Allegheny County's Monongahela River Valley hang low in the atmosphere. Dense with fine particulates, sulfur dioxide and other pollutants, they snake northward, mixing with emissions from mills in Dravosburg and Braddock.

The thickening plume rides the breeze through Pittsburgh city neighborhoods and the boroughs and townships beyond: Uptown, Hill District, Oakland, North Side, Homewood, McKees Rocks, Ross, Forest Hills, Penn Hills, Monroeville and Plum among them.

Shortly after midnight, residents begin reporting foul odors in and around the plume's path. One or two, at first. Then, dozens more.

This isn't an extraordinary pollution event. Such plumes are common in Allegheny County, particularly when temperature inversions prevent pollution from thinning at higher altitudes, which can occur more than 150 days in a year. What is extraordinary is the level of surveillance that betrays the presence of air pollution in the region.

It's all there to see in living color at plumepgh.org — and you don't need a degree in any of the sciences to grasp what is happening.

The Plume Pittsburgh (PlumePGH) online model, developed by the Carnegie Mellon University CREATE Lab, draws from industrial emissions data; odor reports from the crowdsourcing app Smell Pittsburgh (SmellPGH); and real-time weather data to map the travels of pollution from major industrial sources by the hour, minute and second, every day.

One thing PlumePGH makes clear is this: What happens in the industrial Mon Valley doesn't stay in the Mon Valley.

"Many people were in deep denial of that," said Philip Johnson, senior program director for Environment & Health at The Heinz Endowments. "The idea that what happens in the Mon Valley stays there simply isn't true. You can't argue that when confronted with sensors, meteorological data and human smell."

PlumePGH is one of several novel technologies that have been developed with

support from the Endowments over the past 10 years. It's part of a strategy to bring research and innovation to bear on improving the air quality in southwestern Pennsylvania, where the legacy of pollution dates to the advent of steel and other heavy industry along its rivers more than a century ago.

The public has been slow to grasp that legacy, allowing misconceptions to linger. Among them: The absence of soot that had hung heavily over the region when its steel mills roared is a clear sign the air has been restored to health, or that because it's better, the health risks are trivial. Such notions ignore levels of less-visible pollutions, such as fine particulates, that are among the highest in America and impose greater health risks than are found in other regions.

Southwestern Pennsylvania residents felt air quality in the region wasn't too bad back in 2011, when the Endowments surveyed them. Only 15 percent said "a lot of work" was needed to fix the problem. And more than half were unaware that the air quality of the region was among the worst in the United States.

Such misconceptions were confirmed by other surveys. More than 52 percent of southwestern Pennsylvania residents believed the region's air quality was "not a problem at all" in a 2012 survey by Pittsburgh Today and the University of Pittsburgh University Center for Social and Urban Research.

Dr. Johnson recalled what former Houston, Texas, Mayor Bill White observed about Pittsburgh when he visited in 2011. Mr. White had made air quality a priority of his administration.

"He said to me, 'You know what the big difference between Houston and Pittsburgh is? In Houston, we admit we have an air pollution problem and we know it's killing us. In Pittsburgh, you are in denial and refuse to believe it.'"

Supporting science that sheds light on the region's air quality issues and the public health risks they pose was seen as a way to erode the misperceptions that persisted. In

2011, the Breathe Project was launched as a clearinghouse of scientific evidence related to pollution and health.

Among the first reports were regional risk assessments done by University of Pittsburgh public health researchers that helped define the air pollution in the region and the risks to people who regularly breathe it. Today, the Breathe Project database holds nearly 250 reports and scientific studies on air pollution. It also offers tools, such as the Breathe Meter, which compares air quality in Pittsburgh to other regions. Spoiler alert: 88.5 percent of U.S. metro regions have cleaner air.

The research includes some of the first studies to define the relationship between local air quality and health problems that many residents have quietly endured for years.

Amanda Jones, 19, grew up in the Larimer neighborhood of Pittsburgh. Asthma was her constant companion, as it was for the five other members of her family.

"If it was a bad air quality day, I'd still go to school," she said. "If I didn't feel good, I wouldn't go out for recess and just sit in the classroom and know it wouldn't be a good day.

"It wasn't just my family. There was a lot of kids who had asthma at school. We all had inhalers. When you left the house, it was, 'Make sure you have your inhaler.' When you were in school, it was, 'Whose inhaler is this?' We had to write our initials on them. In that kind of environment, it becomes the norm."

Dr. Deborah Gentile documented that what Ms. Jones experienced is not uncommon in the region's schools, particularly those exposed to industrial emissions. In a study supported by the Endowments, Dr. Gentile found that 22.5 percent of the more than 1,200 schoolchildren in the study had asthma — far higher than the 8.5 percent national rate reported by the Centers for Disease Control and Prevention.

Some 70 percent of the local children with asthma lived in places near industrial plants, where levels of fine particulates in the air exceed the annual limit of 5 micrograms per cubic meter recently set by the World Health Organization.

"That should be an eye-opener," said Dr. Gentile, medical director of Community



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Dr. Deborah Gentile
medical director,
Community Partners
in Asthma Care

Partners in Asthma Care. "It is astounding that children who live near these sources of pollution are exposed to such high levels. It obviously has translated into disease.

"Kids spend a lot of time outdoors playing. Their lung surface area is much larger than an adult's, so more of their lung surface is exposed to pollution. Kids, as part of development, breathe at a faster rate than adults, and that exposes them to more air pollution."

The findings are among the information that continues to be shared in local asthma summits. The idea of the summits, Dr. Gentile said, is to raise awareness among health care providers of the region's high rate of pediatric asthma and that air pollution can be a trigger.

"In medicine, we traditionally think of respiratory infection, tobacco smoke and allergens as triggers," she explained. "We know air pollution can trigger asthma, but it's not one of those things physicians always consider when they're taking a patient's history."

The summits are examples of the broadening of the Endowments' air quality strategy. As the research began to deepen the understanding of the region's air quality issues, sharing the science in ways that inform public discourse and support community advocates for change gained importance.

The Breathe Project focused on building networks that afforded local citizens a voice in improving their air. Within a few years, more than 50 organizations ranging from grassroots citizens groups to university researchers and health care providers were on board.

The Endowments didn't have to look far for someone to develop novel tools to support them. Researchers at the CREATE Lab, who had already come up with low-cost portable home air quality monitors, were asked to develop high-resolution cameras that could capture real-time industrial emissions.

A group of residents in Allegheny County's northern boroughs were eager to give the new camera a try. They lived across the Ohio River from the Shenango coke plant on Neville Island. And they had been urging the county Health Department and company to curb the emissions wafting into their neighborhoods with little success. One resident allowed researchers to set up a camera in her attic to get a direct view of the coke works.

The camera not only captured smokestack emissions but also other fugitive emissions escaping throughout the plant.

"The narrative had been, 'Yes, you're smelling something, but it isn't coming from our facility. It is coming from somewhere else,'" said Randy Sargent, director of visualization at CREATE Lab. "From that vantage point, we were able to capture these super-high-resolution videos that ended up changing the narrative."

Citizens presented the video evidence at a November 2015 town hall meeting in Ben Avon, a suburban community north of Pittsburgh, that was attended by David Arnold, then the acting regional director of the U.S. Environmental Protection Agency Air Protection Division.

"What I see in the video is totally unacceptable," he told the audience. One month later, the plant's Michigan-based owner announced it would close the coke works

THE PUBLIC

INVOLVING

after local and federal regulators reopened an investigation of pollution violations that had already led to \$1.75 million in fines.

CREATE Lab researchers were only beginning to arm a growing army of citizen scientists with new tools. They developed the SmellPGH app, enabling residents to report odors in real time, widening the air quality monitoring network beyond what county and state agencies deploy.

PlumePGH maps those crowd-sourced reports alongside estimates of emissions from four major industrial polluters and plots their course using actual meteorological data. And developers are working on making it possible for PlumePGH to predict the course of pollution days ahead of time, Mr. Sargent said.

“They are powerful, truth-telling tools,” said Andrew McElwaine, vice president of Sustainability at the Endowments. “You can’t deny what is captured on film, what is tracked in real time with PlumePGH and the crowd-sourced data.

“The ability to say ‘It’s sometimes bad here but you should have seen it in 1950’ becomes irrelevant with the tools we have showing how people and their health are being impacted day after day, year after year.”

The tech tools are gaining popularity. The SmellPGH app alone has collected more than 54,000 bad air reports, some 19,000 of which were reported this year, said Ana Hoffman, CREATE Lab’s director of air quality engagement.

And as southwestern Pennsylvanians become more engaged in advocating for cleaner air, they are changing the dynamic in the battle against pollution, said Matthew Mehalik, executive director of the Breathe Project.

“What the Breathe network, the campaigns of community members, and the data and the health studies are pointing to is that the next generation of leadership is going to have to address air quality as an important regional concern,” Mr. Mehalik said. “And polluters are increasingly less able to use the shadows of uncertainty and misperceptions as a way to forestall change.” **h**

Innovative technology, especially apps and websites that are accessible and simple for many people to use, has made it easier to educate the public about the Pittsburgh region’s air quality and motivate individuals to seek ways they can help address pollution problems.

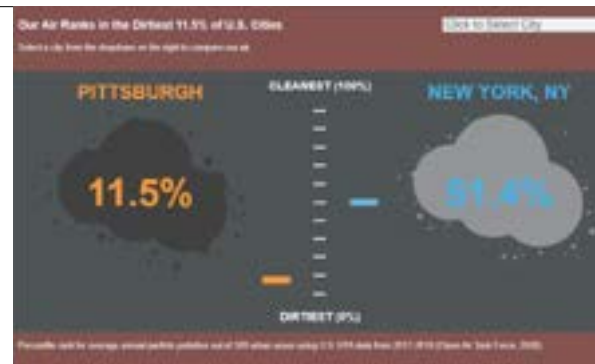
BREATHE CAMS

Breathe Cams are high-resolution, zoomable, 24-hour live camera feeds of Pittsburgh’s skyline, the Mon Valley and the Ohio River Valley that enable viewers to see the amount of pollution in the air and discover more about what they are breathing. These images can be found on the Breathe Project website: www.breatheproject.org



BREATHE METER

Breathe Meter compares Pittsburgh’s percentile rank for average annual particle pollution against 327 other urban areas using U.S. EPA data from 2017–19. The Breathe Meter is housed on the Breathe Project website: www.breatheproject.org



SMELPGH

SmellPGH is an app developed by Carnegie Mellon University’s CREATE Lab that crowdsources smell reports so that pollutants can be tracked as they travel through the air across the Pittsburgh region. The Allegheny County Health Department receives all SmellPGH odor complaints as they are submitted and can then use this information to better monitor the region’s air quality and identify pollution sources.



FRACTRACKER

FracTracker Alliance provides information and resources on oil and gas drilling and their related health and environmental problems state-by-state, across the U.S., and in some countries outside of the U.S. www.fractracker.org



Air pollution is more than an inconvenience or eyesore. It's a cocktail of dangerous particles, including the most microscopic, that can ruin the health and lives of individuals and families, as the following personal accounts reveal. By Jeffery Fraser

AIR SICKNESS

Thaddeus Popovich, 75, lives about 13 miles north of Pittsburgh in the suburb of Franklin Park and used to be a resident of Ben Avon, another suburban community nearly eight miles north of the city. In Ben Avon, he lived across the Ohio River from the former DTE Energy Shenango coke plant, which closed in 2016 and was razed in 2018. He is co-founder of Allegheny County Clean Air Now (ACCAN), a citizens group advocating for better air.

I knew of pollution growing up in Beaver County. There used to be a drive-in theater in Baden and between double features we could see the open-hearth furnace. It looked like fireworks. Of course, in those days, I don't think any of us thought about pollution. What's the saying? Where there is smoke, there's money?

My work took me to Asia—to all of the major cities in China—and to Kosovo and Croatia. I found out how dirty places could be, air-wise and water-wise. It really hit me in Kosovo. They had one power plant, and they'd turn off the scrubbers to save electricity. The pollution was so thick I could chew it. During that period, I had bronchitis two or three times. It's interesting how it takes a while before you realize, "I'm getting sick because of the air."

When I returned to Pittsburgh, I moved to Ben Avon. I didn't know about the air quality. Shame on me. I was like a lot of Pittsburghers. The air was better than it used to be. But I'd go out in the morning and think, what's that god-awful smell? Like rotten eggs. I'm not going to exercise here. I'm going to North Park or a YMCA gym.

One stinky night, my whole bed started shaking. I went to [UPMC] Presbyterian Hospital and told the nurse, there must be an earthquake. She said no, that's your heart agitating your body. That happened during a spike in pollution at Shenango. I talked to my cardiologist and a researcher at CMU [Carnegie Mellon University]. The conclusion was that in my case, since I lived a half-mile from the coke plant, the air quality was affecting my health. It was probably 40–50 percent of the problem. The rest was my lifestyle.

That was a telling moment for me. I had to stay away from dirty air. My cardiologist said, "If you can move away from that coke plant, please do." And I did. I moved north to Franklin Park. But I could afford to move. A lot of people in environmental justice areas, particularly around coke plants, can't afford to move. They're stuck.

Even before my heart surgery, I thought, why isn't anyone doing anything about this? Having been in sales and marketing most of my career, I'm not too shy. We—the ACCAN group—rolled up our sleeves to have our voices heard.

We'd go to county council meetings and board of health meetings and testify; go to local municipalities, get them to pass resolutions to get the health department to get Shenango under control. We went to the local [state] legislators' offices. Anyone who'd listen to us. We wanted to fix the problem. Some of us bought one share of DTE Energy stock and went to shareholder meetings and gave testimony so we'd be on the record.

Many times, you get the impression your voice doesn't mean anything. But it does. If you put together a Greek chorus, it can make a difference.



"The air was better than it used to be. But I'd go out in the morning and think, what's that god-awful smell? Like rotten eggs. I'm not going to exercise here."

Thaddeus Popovich



Doreen Johnson, 64, lives about 15 miles south of Pittsburgh in the City of Clairton, which is home to the U.S. Steel Clairton coke plant. She has two grown daughters and a son.

I was born and raised in Clairton. As children, we experienced black ash, which would cover everything. We called it black rain. It would be all over the cars. My mother and other women would hang clothes on the line to dry, but the clothes would all get dirty. So, they stopped. The air is still really bad here.

My father died from lung cancer. I had a cousin who died of emphysema. He had it bad. If he blew his nose, everything that came out was black. They had to revive him a couple of times. And he was a young man. I knew a few ladies who lived in Blair Heights [neighborhood of Clairton] who died from lung cancer.

One of my daughters has lupus. My son has asthma. The first time I knew he had asthma, he was around three years old. We were putting up Christmas decorations, and he was screaming and screaming. I thought something was sticking him. At that time, I didn't have a car. We had jitneys. I called the jitney man to run me to the emergency room. That was when he was diagnosed with asthma.

When we got home, I ended up having to take him right back. As he got older, his asthma seemed to have gotten tamed, it was suppressed. All he needed was an inhaler. But four years ago, he came to my house and he couldn't breathe. I think he was having an asthma attack, but he wouldn't let me call an ambulance to come and get him.

I have four grandchildren who have asthma. One granddaughter, who is 14, has severe asthma. She was diagnosed at the age of 10 months. She has two different kinds of inhalers. She's been in the hospital maybe about four or five times and in the ICU three times. She's been transported to [UPMC] Children's Hospital from her doctor's office and from Jefferson Hospital at least three times.

Two years ago, I took her to the emergency room because she was having trouble breathing. They gave her treatment and then they released her. I brought her home. And she couldn't have been home more than 15 minutes, when she said, 'Grandma, I can't breathe.' I could hear her gasping for air. And I couldn't help her. I was so scared.

It was on a Saturday. I called my daughter and told her to come get her and take her to her doctor. My daughter was at the doctor's office no more than 15 minutes and she called me. I said, you don't even have to tell me. They're going to transport her to Children's. My daughter said, yes. My daughter stayed with her at Children's. I was so scared. When my daughter would call me from the hospital, I was afraid to answer my phone.

My granddaughter doesn't go outside. She doesn't do too many activities because of the asthma. We were watching some of the Olympics, watching the girls run, and she said, 'I can't do that.' I don't want her to say 'I can't' because of her condition.

She's very intelligent. She sits in the house. She writes stories, writes books. Stories she makes up. Not only does she write books, she draws her own illustrations. She really got into it. The teachers at her school took interest in her books. Now, she tells me, she wants to be a producer. She does have goals. But she is limited as far as being outside and going places, especially here.



“I’d love to leave here, but I’d want to take my family with me, to give them a better life. I don’t want my granddaughter to be sick all the time.”

Doreen Johnson

I have asthma, too. And I've been diagnosed with neurosarcoidosis, which affects my nervous system. I get dizzy. When I first noticed it, I thought it was my sinuses, but it wasn't. There's a [convenience store] about two blocks from the mill. It's hard for me to go down there. The closer I get, the sicker I get.

I bought at least three air purifiers. I have one in my bedroom. I have one in my living room. It helps me somewhat. But sometimes, I get an evening — I don't know what kind of work they'd be doing down there [at the Clairton coke plant], but I'd be in my bed about to go to sleep and I'd feel dizzy. I also have an ultrasonic humidifier. And I bought another air purifier and gave it to my daughter for my granddaughter to put it in her room.

I'm on medication. I'm getting tired of all the medications. I have an inhaler, too, and I know when to use it. But one of the best things for me was when we had to wear masks (during the pandemic). When I have that mask on, I can't smell the pollution. Even though they say we don't have to wear masks now, I still wear mine — and I'm vaccinated — because the mask helps me, living here.

Someone told me that my family should move, that we need to get out of here. I'm like, that's easier said than done. Who has the money to just uproot and move and start all over? And who's to say we'd all be able to move to the same place?

I take care of my grandchildren. Both of my daughters work. I work, too, but I work part time at the Clairton Family Center while the kids are in school. Right now, unless the Lord blesses me with a windfall, this is where I'll be. I'd love to leave here, but I'd want to take my family with me, to give them a better life. I don't want my granddaughter to be sick all the time.



THE MAIN PROBLEM

FROM LEAD PIPES TO STORMWATER OVERFLOWS, PROVIDING SAFE, CLEAN WATER TO THE PITTSBURGH REGION HAS BEEN A CHALLENGE FOR YEARS, AND CLIMATE CHANGE HAS MADE CONDITIONS MORE DIFFICULT. HOWEVER, GOVERNMENT OFFICIALS AND ADVOCACY GROUPS ARE PUSHING FOR CHANGES THEY HOPE WILL MAKE A DIFFERENCE.

BY ADAM SMELTZ

“

UNTIL YOU HAVE A KID, YOU DON'T FOCUS ON CERTAIN THINGS...YOU'RE A NEW PARENT; YOU'RE TERRIFIED. ALL YOU KNOW IS, THERE'S LEAD IN YOUR WATER AND IT'S GOING TO AFFECT YOUR CHILD'S DEVELOPMENT."

Claire Pro, Pittsburgh resident

Joshua Franzos



Clair Pro helps her 3-year-old daughter, Mary, drink a glass of water as they sit on the front stoop of their home on Pittsburgh's South Side.

There was a period when Claire Pro didn't think twice about whether lead might seep into her drinking water.

Even as a longtime Pittsburgher — first as a college student and more recently as an entrepreneur — she hadn't fretted over the contaminant that can leach from the city's long-buried service lines.

Then her daughter arrived.

In the three years since, just confirming whether a lead pipe feeds her family's more than a century-old house has turned into an unanswered struggle, Ms. Pro said.

"I'm sure the warnings had been fed across my face. But until you have a kid, you don't focus on certain things," she said, lamenting her failures since 2018 to have her water line replaced. "You're a new parent; you're terrified. All you know is, there's lead in your water and it's going to affect your child's development."

Lead exposure is tied to a range of neurological effects and intellectual disabilities, especially in children, as well as high blood pressure, heart and kidney ailments, and fertility concerns.

While her home water-test results didn't reach a federal threshold for lead mitigation, that's little comfort when researchers consider no level of the toxic metal to be safe, Ms. Pro said. By the fall, she still wasn't sure when contract workers for the Pittsburgh Water and Sewer Authority might dig up her line as they have for neighbors close by.

If lead turns up in Ms. Pro's water line and PWSA hasn't already scheduled her street for a water-main replacement, an authority reimbursement program would compensate her — at least in part — for swapping out the connection herself, according to the authority.

"I am sympathetic to PWSA to a point," Ms. Pro said. "They have to deal with these heavier rains and stormwater flooding, too. At the same time, I'm imagining my 3-year-old could be in the third grade by the time I get a new service line."

Acknowledging the problem

Pittsburgh's lead crisis began drawing national headlines in 2016, when the public water authority faced regulatory scrutiny over unreported changes to its additive for preventing pipe corrosion. While officials eyed those changes as a potential contributor to high lead readings, the levels had been climbing for more than a decade before they eclipsed a key federal threshold that year, then-interim PWSA Executive Director David Donahoe said in the Pittsburgh Post-Gazette story "PWSA ordered to replace lead service lines after elevated levels found in drinking water." Mr. Donahoe cited old infrastructure that can let the metal seep into tap water.

Now, five years since lead counts in the PWSA service area reached the trigger point for corrective action, the authority's push to remove service lines containing lead has become instructive for regional groups targeting long-term

improvements in water quality and safety, according to advocates and policymakers.

In part, they said, that's because PWSA line replacements mirror a common challenge in the area: overhauling the water supply, runoff and sewage infrastructure from another era, built before planners knew or thought as much about health and environmental factors — especially climate change.

But lessons from the lead crisis go beyond mechanics. While imperfect, particularly at the start, the line-replacement campaign has benefited from bringing customers into the planning process, encouraging collaboration and prioritizing people most at risk of harm, observers have noted.

“When we have a public authority that is responsible, that is democratically responsible to the community and to the ratepayers themselves, we have an opportunity to create a system that works for people and provides water as a human right,” said Jennifer Rafanan Kennedy, acting executive director of Pittsburgh United.

The coalition of community advocacy groups organized the Our Water Campaign, which has encouraged better protections for low-income PWSA customers. The authority's practices now match a number of Our Water requests, including a moratorium on wintertime service shut-offs and the provision of complete lead-line replacements when customers alone can't afford to remove privately owned sections of the lead connections. City and state legislation in 2017 enabled the latter accommodation.

Getting the lead out

In fact, community input pushed the authority “to make sure we were making the right policies” early in the replacement work, said Will Pickering, the authority's CEO.

Lead monitoring gave rise to the state Department of Environmental Protection's pipe-replacement mandate, which was limited to service lines — the thin pipes that carry fresh water from a main beneath the street into houses and other buildings. When lead turns up in tap water, a lead service line is often the culprit.

Regulations required PWSA to replace 7 percent of its lead service lines every year until compliance checks showed lead levels below the federal action limit for two testing cycles. The authority reached that bar in mid-2020, when it notched its lowest lead readings in more than 20 years. Authority leaders attributed much of the progress to orthophosphate, an additive now introduced at the treatment plant to prevent contamination.

PWSA remains committed to swapping out all known service lines containing lead by 2026, Mr. Pickering said, and new federal rules are likely to toughen overall standards for addressing lead pipes.

“We recognize that the lead is still a risk. I still see it as a high priority,” he said. “Keeping our foot on the gas makes sense so we can remove this risk, fulfill regulatory requirements and move on to other needs.”

Some \$17 million from the federal American Rescue Plan Act is expected to accelerate PWSA's line replacements next year. By late August, the authority had replaced some 8,700 publicly owned lines and 5,700 privately owned lines since mid-2016. It estimated that roughly 8,000 more publicly owned lead lines and nearly 11,000 private lead lines remain among the authority's roughly 80,000 tap-water customers.

Another 30,000 or so PWSA customers receive only sewage conveyance from the authority. Most of them rely on an investor-owned utility — Pennsylvania American Water — for tap water. Pennsylvania American spokesman Gary Lobaugh said the company “soft-launched” in fall 2021 a lead-line replacement program in several Pittsburgh neighborhoods and expects an “entire rollout” in 2022.

“Due to the in-home and face-to-face coordination this program requires between our employees, contractors and customers, we have delayed this program's full public communications rollout for the health and safety of all involved because of the COVID-19 pandemic,” Mr. Lobaugh said in a statement.

Lead in tap water can emerge also from household plumbing, such as fixtures and fittings, said Michelle Naccarati-Chapkin, executive director at Women for a Healthy Environment. Because water test results can vary day to day, the health advocacy nonprofit urges people to explore whether lead lingers anywhere in their plumbing.

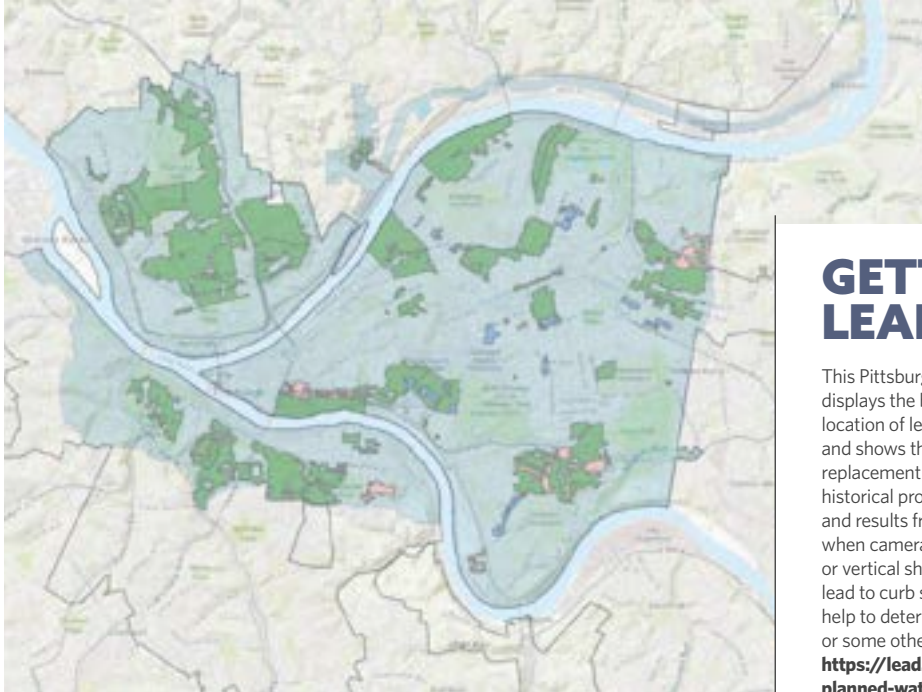
“We try to emphasize filtering as much as possible,” Ms. Naccarati-Chapkin said. Her organization has helped provide thousands of drinking-water filters to households affected by lead.

In a report this year, the group found that 80 percent of 28 water systems in Allegheny County identified lead in their drinking water. Another eight water providers did not respond in full to the nonprofit's request for information.

“People in this region say things have gotten much better than they used to be. But we're still one of the most heavily impaired regions in the country when it comes to pollution, especially air and water,” said Philip Johnson, the Endowments' senior program director for Environment & Health.

The Endowments supports a number of organizations, including Pittsburgh United and Women for a Healthy Environment, that build greater context and information into dominant local narratives around environmental issues. These groups “give people the facts and data to address the challenges we face,” Dr. Johnson said.

Such public education and awareness played vital roles in equipping the public to hold policymakers accountable



GETTING THE LEAD OUT

This Pittsburgh Water and Sewer Authority map displays the best available information on the location of lead service lines in the PWSA system and shows the status of the authority's line replacement process. The information is based on historical property data; construction records; and results from curb box inspections, which is when cameras are sent down into the curb boxes, or vertical shafts in front yards or sidewalks that lead to curb stops. The cameras take pictures that help to determine whether pipes are made of lead or some other material.

<https://lead.pgh2o.com/your-water-service-line/planned-water-service-line-replacement-map/>

to goals during the PWSA lead crisis, said Matthew Barron, senior program officer for Sustainability at the Endowments. But effectively addressing other shortfalls of water infrastructure, especially stormwater management, demands an extra component: collaboration across municipalities and utilities' service territories, he explained.

"There just really aren't strong convening bodies that are multi-county or regional around issues like this here," Mr. Barron said. "Because water doesn't respect municipal or county boundaries, it's very hard to come up with holistic solutions."

Fostering cooperation

One effort to help the region overcome the disjointed nature of local government is the nascent Southwestern Pennsylvania Water Network. The Water Center at the University of Pennsylvania is leading the project, which seeks to build a network of water experts, leaders and communities across 10 adjacent counties.

Politics of the past "should no longer be allowed to impede our region's social, economic or environmental futures," said Howard Neukrug, the center's executive director, adding that collaboration is needed "to tell the story of our water-rich heritage and how we plan to continue to be stewards of our three great river sheds."

"When considering the region's water quality and resource priorities during this period of increasingly life- and property-threatening floods and storms, we must jointly prioritize our region's many water challenges," he said.

Whatever form the water network takes, members will confront the regional fallout of climate change. Especially in flood-prone spots, the inundation of stormwater is likely to become more intense and perhaps more frequent, said Carnegie Mellon University Professor David A. Dzombak, the school's department head in civil and environmental engineering.

36

There are 36 water systems in Allegheny County, each of which can have a different operational procedure and can be privately or publicly owned.

Source: Women for a Healthy Environment: Something's in the Water — A System Analysis on Quality and Transparency in Allegheny County Community Water Systems, April 2021 — Revised June 2021.

80%

Lead was detected in 80 percent of 28 water systems in Allegheny County, Pennsylvania, which encompasses Pittsburgh, in 2019. Eight other water providers did not fully respond to requests for information.

Source: Women for a Healthy Environment: Something's in the Water — A System Analysis on Quality and Transparency in Allegheny County Community Water Systems, April 2021 — Revised June 2021.

4x

Among children tested for elevated blood lead levels before the age of 6, nearly four times as many Black and Hispanic children tested positive for lead poisoning compared to white children (4.5 percent vs. 1.2 percent).

Source: Pennsylvania Department of Health's 2018 Childhood Lead Surveillance Annual Report

“We’re getting more water and some more intense storms,” Dr. Dzombak explained. “We’ve long had, and will have in the future, flooding challenges because of the amount of rain and our topography that concentrates water rapidly — because of the hills and the valleys.”

The Pittsburgh area’s nearly 40 inches of annual precipitation should keep ticking upward, underscoring needs for runoff management to handle the flow, he said. Annual precipitation in the city averaged some 45.36 inches from 2016 to 2020, up from an average of 35.5 inches from 1916 to 1920, according to data he compiled with Yuchuan Lai, a Carnegie Mellon postdoctoral researcher.

Some of that water can engulf southern neighborhoods, overwhelming thoroughfares as streams channel urban runoff. The group Watersheds of South Pittsburgh is pursuing a plan to ease floods, improve waterway quality and reintroduce more green space.

“If you improve land use, you’re going to improve water quality. It’s as simple as that,” said Executive Director Lisa Werder Brown. “What happens on the land could improve not only the water quality but also the water quantity running off. Reduced flooding would save an enormous amount of money.”

Findings from Three Rivers Waterkeeper, which tracks the region’s river-water quality across 125 miles of frontage, show improvement but continued pollution surges when bad weather hits or significant snowmelt runs off, Executive Director Heather Hulton VanTassel said.

That’s due to combined sewers, which allow household sewage to mix with precipitation runoff and dump the blend into local waterways. It tends to happen amid heavy rain.

“For that moment, the water isn’t very safe,” said Dr. Hulton VanTassel, whose organization helps identify and hold businesses accountable for runoff violations. “Some parts of our watersheds have slightly more updated sewer systems that can handle the strong events or might not overflow. Other areas aren’t so updated.

“As we increase development uphill and runoff flows downstream, the river-water quality will depend on the infrastructure in place to handle that water.”

Reinforcing nature’s infrastructure — trees — is likewise critical in promoting water quality, said Matt Erb, the director of urban forestry at Tree Pittsburgh. As of 2015, trees in Allegheny County removed more than 4.5 billion gallons of stormwater a year, he said, and about 54 percent of the county was covered by trees in 2015.

But that tree canopy has been shrinking, having lost some 11,000 acres countywide from 2010 to 2015, according to Tree Pittsburgh. As part of its work, the nonprofit is quantifying the stormwater benefits of trees, educating the public about their impact, and collaborating with municipal governments on tree preservation and growth.

Kristina Serafini, Tribune-Review



FLOOD DAMAGE

Remnants of Hurricane Ida that first hit the U.S. in Louisiana traveled northeast, resulting in heavy rains that caused extensive damage in other states, exemplified by this car that sat in flood water in Pittsburgh’s Brookline neighborhood on Sept. 1.



GRAY AND GREEN INFRASTRUCTURE

The Allegheny County Sanitary Authority, or Alcosan, and its 59-acre wastewater treatment plant, left, are located on Pittsburgh’s North Side and serve 83 municipalities, which include nearly 900,000 county residents. Alcosan is collaborating with the Pittsburgh Water and Sewer Authority and city officials on a comprehensive stormwater management plan that includes green infrastructure installations such as the one pictured below at the intersection of Herron and Centre avenues in the city’s Hill District neighborhood. This project includes a linear bioswale — a shallow, vegetated depression that captures and treats stormwater runoff — with two underground storage tanks, underdrain piping, concrete paver stones, a new manhole and a catch basin.



RAIN CHECK



WE'RE GETTING MORE WATER AND SOME MORE INTENSE STORMS."

David A. Dzombak, Carnegie Mellon University professor and head of the department of civil and environmental engineering

"We're clearing a lot of land for really the same amount of residents," he said. "Looking at land-use policies is really important to try to preserve some of the tree canopy that we have."

Blending green with gray

Preventing combined-sewer overflows will depend partly on "green infrastructure," or mechanisms such as rain gardens and urban tree canopies, that hold rainwater in place by letting it absorb into the ground or flow more gradually toward "gray infrastructure." The concrete and metal stormwater channels then whisk runoff farther away, toward treatment plants or into waterways.

In addition to its regional work, the University of Pennsylvania's Water Center is collaborating with PWSA, city officials and the Allegheny County Sanitary Authority, or Alcosan, on a comprehensive stormwater management plan. Alcosan provides wastewater treatment for 83 communities.

Alcosan's federally mandated Clean Water Plan is on track to reduce combined-sewer overflows by some 7 billion gallons a year, largely by introducing massive underground tunnels near the region's Allegheny, Monongahela and Ohio rivers to store and transport excess runoff for treatment over longer periods.

A treatment plant expansion along the Ohio River, already in progress, should be finished by 2027, Alcosan spokesman Joey Vallarian said. Related tunnel construction, beginning alongside the Ohio, should start in 2025. The entire \$2 billion project should be finished by 2036, Mr. Vallarian said.

At Pittsburgh United, Ms. Rafanan Kennedy hopes municipalities and water utilities that depend on Alcosan will push "for more of the solutions they want as customers" — namely "greener plans" than the Alcosan endeavor, she said. Capacity in the Alcosan plan hinges on dry-weather data that don't reflect the latest climate and rainfall projections, she contended.

"If you build a tunnel but then you have more rainfall than the tunnel can capture, it's not going to be a working solution by the time it's built," Ms. Rafanan Kennedy said. "We've been fighting for climate-resilient solutions distributed in neighborhoods that grow and work better over time than

fixed, gray-engineering solutions. Once those are built, it may be too late — they might already be unable to solve the problem."

And if the Alcosan project fails to fulfill federal expectations for clean waterways, ratepayers will remain "on the hook" for additional work, she added. "We'll have to pay more, and we still won't have the benefits that people have been fighting for for over a decade: good local jobs to maintain green infrastructure, reduce flooding, and enable more community amenities and cleaner air."

Mr. Vallarian countered that the inverse is true, too — that "we [would] still have to spend more" if Alcosan were to rely solely on green infrastructure and that approach were to prove insufficient. The authority "would never be able to afford the cost of designing a system for every eventuality" but believes the Clean Water Plan, which includes "continuous adaptability" to account for new data, will be effective, he said.

Further, Mr. Vallarian said Alcosan's Green Revitalization of Our Waterways program had issued nearly \$44 million in grants for 126 projects — across 48 municipalities and municipal authorities — by late summer. Some \$15.6 million of that money was for green infrastructure, he said.

"Right now we own only 90 miles of pipe. There's 4,000 other miles of sewer pipe out there [under other utility agencies] that we don't own," Mr. Vallarian said. "Alcosan, as a regional sewage conveyance and treatment authority, does not have the authority to go to one of our partner municipalities and say, 'You have to put green infrastructure in.' Instead, we offer to partner with them to find the most cost-effective solutions that remove water from the system."

At PWSA, Mr. Pickering said that planners are balancing new green infrastructure with more conventional means to ease combined-sewer overflows. Some 70 percent of the authority's sewer lines are classified as combined systems, according to Alex Sciulli, the PWSA board chairman.

He expects that PWSA's stormwater-related capital spending "will jump dramatically in the next decade."

More rate increases will be necessary to sustain infrastructure and overall water quality, he said, calling for the business community to support a separate stormwater fee that will help to fairly distribute the stormwater infrastructure burden. PWSA included a stormwater fee in its budget for 2022.

Pittsburgh Mayor Bill Peduto and Mr. Neukrug, a former CEO of the Philadelphia Water Department, also endorsed the idea, with Mr. Peduto, who leaves office at the beginning of January, noting the need for local government cooperation too.

"We can't build our way out of [stormwater issues] only by building bigger pipes," Mr. Peduto said. "There needs to be a reconciliation among local governments to minimize the amount that goes into the system." **h**



clean space

With a lack of consistent state and federal environmental regulations for schools and child care centers, programs like The Heinz Endowments–funded 1000 Hours a Year are providing guidance and resources to make learning spaces safer and healthier. By Joyce Gannon | Illustrations by Donna Grethen





Since Growing Garden Child Care Center in Tarentum opened its doors seven years ago, owner and director Heather Wells has aimed to create a green and environmentally safe space for the children and teens who attend its before- and after-school programs and summer camps.

Students at the center, which is about 21 miles northeast of Pittsburgh, remove their shoes when they enter the facility to reduce tracked-in dirt and pollutants. The staff stocks non-toxic soaps and cleaning products. Paints are checked for harmful chemical ingredients. Students drink from BPA-free water bottles, and arts-and-crafts supplies are frequently recycled for future use.

Ms. Wells, raised in West Deer Township, not far from Tarentum, considers herself “a country girl” who was taught to respect the environment and that “you don’t waste.”

Naturally, she was intrigued when she learned about 1000 Hours a Year, an initiative funded by The Heinz Endowments that works to eliminate environmental hazards in early learning centers and schools in 10 counties in southwestern Pennsylvania.

Launched in 2017, 1000 Hours was created through a partnership of Pittsburgh nonprofits Women for a Healthy Environment and the Green Building Alliance. The Endowments has awarded nearly \$800,000 to the initiative. 1000 Hours uses the funds to provide mini-grants to schools and centers to cover costs of assessments for air quality, lead

and radon exposures, and remediations to infrastructure and equipment to bring them into safe compliance levels.

Exposure to lead, radon, and other toxins and pollutants can affect children’s neurological development and aggravate allergies, asthma and other conditions. A priority of 1000 Hours is outreach to schools and centers in low-income and minority neighborhoods where aging buildings and housing stock can put children at a disproportionate risk for exposure.

“We’re focusing on environmental justice and a holistic approach for addressing environmental health,” said Michelle Naccarati-Chapkis, executive director of Women for a Healthy Environment. Schools and learning centers were eager to participate in 1000 Hours because its launch came in the wake of a devastating crisis in Flint, Michigan, where elevated lead levels were discovered in that city’s water supply, she explained.

“Children spend a minimum 1,000 hours a year in school buildings or at early childhood centers,” said Jenna Cramer, executive director of the Green Building Alliance. “Those are places that impact children’s health. But often exposures [to environmental hazards] aren’t front of mind or can be overwhelming or scary for schools and centers to address.”

1000 Hours “gives schools and learning centers more agency,” she added. “It’s not just a big awareness campaign on lead and radon ... with the mini-grants, we made it impactful. We bring in the people to test, remediate and hold your hand through this really big process.”

“It lowers the entry point for schools and centers to do something about it.”

FILLING THE POLICY GAPS

1000 Hours a Year is just one of several programs in the Pittsburgh region aimed at making buildings healthier environments in local communities. Among the different initiatives supported by the Endowments and other Pittsburgh foundations are the Women for a Healthy Environment’s Healthy Homes programs, which assess lead exposure, mold and radon, and distribute cleaning kits and other resources to make homes safer for children and families, and the Green Building Alliance’s Green & Healthy Schools Academy, which provides programming and opportunities for students and staff to engage in green and sustainable initiatives in schools.

These programs and others are helping to fill significant gaps in making schools and early-learning centers safer environments for children since there are no federal mandates to test schools and child care centers for lead or radon, and regulations among states vary widely.

Pennsylvania is among those that don’t require radon testing for schools, and while the state requires schools to test for lead in drinking water, there are no mandates for remediation.

“Pennsylvania falls short on passing policies that protect school building occupants,” Ms. Naccarati-Chapkis said.

An August 2021 report from Women for a Healthy Environment found that nearly 90 percent of 65 school districts surveyed statewide tested drinking water in the last decade. Of those, 91 percent found lead contamination in their drinking water but only 9 percent conducted remediation. The survey also found that 20 percent of schools tested for radon. Among those, 38 percent found hazardous levels but only 40 percent followed up with remediation.

The survey conducted by Women for a Healthy Environment represented only 13 percent of the state’s approximately 500 school districts. But it concluded that testing and cleanup practices were inconsistent, and that districts that didn’t follow up with remediations were constrained by a lack of funds and resources. Also, districts with higher percentages

of low-income and special education students were less likely to conduct tests, the report said.

Pittsburgh City Council is considering a bill that would require regular lead safety assessments for older rental properties that have children present, which would include day care facilities as well as homes and would call for steps to be taken to reduce the threats from the neurotoxin. These would include installing filters in city-owned drinking and cooking facilities and encouraging the use of filters in all schools and child-occupied spaces.

A handful of bills introduced in the Pennsylvania Legislature would strengthen mandates for environmental testing, including one that would establish a lead abatement grant program and an abatement assistance fund. Another, co-sponsored by state Rep. Austin Davis of McKeesport, southeast of Pittsburgh, would require medical providers to inform parents about the dangers of lead, encourage testing for small children, and require the state Department of Health

Healthy Learning

1000 Hours a Year helps provide child care centers and schools with indoor environmental resources such as water filters and air purifiers that reduce dust, dirt and other airborne contaminants.



to keep a database of blood tests and conduct awareness campaigns about lead poisoning.

Mr. Davis represents many Mon Valley towns south of Pittsburgh where older schools and housing stock can be sources of lead paint chips, dust and other harmful pollutants.

“We have high rates of blight, and lead in paint and soil becomes more prevalent,” he said.

Enacting more legislation for testing and remediation of hazardous substances “is huge because we need to make sure our kids are healthy and give them the best start in life possible,” he said.

LEARNING IN HEALTHIER SPACES

To date, the Women for a Healthy Environment’s 1000 Hours program has performed assessments and remediations for more than 200 schools and early learning centers in the Pittsburgh region. From 2017 to 2019, the organization provided testing and remediation in 40 percent of public school districts in Allegheny County.

Growing Garden is among the educational centers that have benefited from the initiative.

A spring 2021 assessment found the center to be “really high in compliance” in categories such as non-toxic learning materials, floor textures and cleaning products, Ms. Wells said.

Tests for lead in water found levels within state and federal compliance guidelines but higher than what 1000 Hours recommended as safe.

“They wanted levels at zero,” Ms. Wells said.

1000 Hours provided funds to purchase a water filter used for drinking water stored in the center’s refrigerator and covered the costs of installing lead filters in two sinks. It also provided the center with two air purifiers that reduce dust, dirt and other airborne contaminants.

Housed in a century-old building in a once-thriving industrial town along the Allegheny River, Growing Garden sits a couple of blocks from railroad tracks and less than two miles from a steel mill. Those factors add up to environmental challenges and “a lot of dust and dirt,” Ms. Wells said.

Besides helping to eliminate toxins and musty smells in the center, the purifiers have added extra protection for students and staff during the COVID-19 pandemic.

Participation in the 1000 Hours program also has become a real-time learning tool for Growing Garden’s 17 enrolled students, Ms. Wells added. They better understand why it’s important to drink filtered water “and now they get why they take their shoes off when they come in the door,” she said.

Also benefiting from the initiative is the Woodland Hills School District, which comprises some of Pittsburgh’s eastern suburban communities.

Assessments by 1000 Hours resulted in recommendations to install lead filters and individual bottle fillers at water fountains in the district’s six school buildings.

When schools reopened after state-mandated closures during the pandemic, “we pushed even harder to get [the water stations] in place,” said Robert Finney, the district’s director of facilities.

The assessments also found high lead levels in pipes that service the high school cafeteria.

Lead filters were installed and kitchen faucets replaced during high school renovations completed this past summer.

“It puts everyone’s minds at ease to know we’ve been tested,” Mr. Finney said. “It’s positive for our staff and for the kids who will take over when we’re no longer here.”

Women for a Healthy Environment is planning for that next generation. Using data it collects about schools and early learning centers through 1000 Hours, the organization is formulating proposals for future state legislation that would

Healthy Living

Healthy Homes programs developed by Women for a Healthy Environment assess lead exposure, mold and radon, and distribute cleaning kits and other resources to make homes safer for children and families.



require radon and lead testing and follow-up remediations at schools, Ms. Naccarati-Chapkis said.

“With aging school buildings in Pennsylvania, we have environmental hazards,” she said. “We have to make an investment in them, and we believe the time is now. We know when we have healthy buildings, we have children who achieve greater academic performance.”

EXTENDING AN ENVIRONMENTAL LEGACY

Endowments support of the 1000 Hours initiative is part of the foundation's long history of working to reduce environmental risks for children and families. In 1990, Teresa Heinz, now chair emerita of the philanthropy, co-founded the Alliance to End Childhood Lead Poisoning.

“Mrs. Heinz really embraced that body of work,” said Andrew McElwaine, the Endowments’ vice president for Sustainability. “She has a passionate interest in the impacts of the environment on women and children.”

Over the past 20 years, the alliance broadened its mission to become the Alliance for Healthy Homes and later merged with the Columbia, Maryland-based National Center for Healthy Housing. Among other organizations engaged in environmental advocacy for children and families that have been supported by the Endowments are Get the Lead Out, Pittsburgh, the Community Justice Project, Pittsburgh United and Conservation Consultants Inc. (CCI), a nonprofit that conducted energy-efficiency assessments at homes.

“Mrs. Heinz was ahead of her time, working to get the resources needed to be certain that lead abatement was part of that service at CCI in the early 1990s,” Mr. McElwaine said.

CCI merged in 2020 with Rebuilding Together Pittsburgh, which provides home rehabs and works to remove environmental hazards in residential properties.

Beginning in 1995, Mrs. Heinz sponsored a series of free summits that focused on women's relationship to health and environmental issues and attracted thousands of attendees, eventually leading to the formation of the Women for a Healthy Environment organization as a way to more deeply and consistently educate and involve women in issues that impact their health and environment. In 2006, the Endowments funded a report by Rand Corp. and the University of Pittsburgh Office of Child Development that assessed lead level screenings and reporting procedures for children in Allegheny County.

Healthy Legacy

Energy efficiency has been among the efforts supported by The Heinz Endowments through groups like Conservation Consultants — today merged with Building Together Pittsburgh — to make homes more environmentally sustainable for families.



That report recommended “more diligent state and local involvement” in the process.

Eight years later, the Endowments staff revisited the report's recommendations and helped spur the eventual creation of Lead Safe Allegheny, said Phil Johnson, the Endowments’ Environment & Health senior program director. The coalition includes government agencies, community and nonprofit organizations, health care providers, and others who work to make housing and other properties lead-safe and lead-free.

“The neat thing about public health is that when exposures can be eliminated, you’ve eliminated the problem,” Dr. Johnson said. “Not many fields have a formula that’s so clear and present.”

“The Heinz Endowments was lucky to have the work and vision that Mrs. Heinz created decades ago . . . We are a region where there are really strong non-government organizations and community leaders who wake up and do this work every day. And there’s still a lot of work to do . . . We hope that as a region, we’ll place more emphasis and priority collectively on how children are going about their lives and what protections they have.”

And Dr. Johnson called the 1000 Hours initiative and other efforts by Women for a Healthy Environment and Green Building Alliance on behalf of children and families “flagship work . . . and really impressive platforms that any city would be proud to have.” **h**



“There were pretty dramatic stories, including [from] people who had moved from other areas...having their asthma aggravated, asthma that hadn’t been a problem for years.”

Angelo Taranto > Secretary/Treasurer, Allegheny County Clean Air Now

change MAKERS

As local residents of the Pittsburgh region become more concerned about environmental conditions, grassroots organizations and other groups are providing individuals with opportunities to get involved and to add more diverse perspectives to the environmental movement.

By Elwin Green | Photos by Elan Mizrahi

In June 2014, the Neville Island Good Neighbor Committee decided to change the group's name.

For years, the committee had sought greater regulation of the Shenango coke processing facility on Neville Island. The plant, almost 10 miles northwest of Pittsburgh, was owned by Detroit-based DTE Energy and spewed pollutants into the air near and far.

"We were trying to be good neighbors," said Angelo Taranto, 73, who lived in Emsworth, one of the affected communities at the time. "The owners of the Shenango Coke Works were not."

The group became Allegheny County Clean Air Now, and the sense of urgency conveyed by the new name was demonstrated by a ramping up of its efforts. Having already filed complaints with the Allegheny County Health Department, the group got health department members to attend its meetings and hear from residents directly.

"There were pretty dramatic stories," said Mr. Taranto, now secretary and treasurer of ACCAN, "including [from] people who had moved from other areas ... having their asthma aggravated, asthma that hadn't been a problem for years."

ACCAN members bought shares of DTE stock and began attending shareholder meetings, where they questioned company officials about the lack of response to their concerns. They wrote letters to the editors of local publications.

And they formed a partnership with Carnegie Mellon University's Community Robotics, Education and Technology Empowerment (CREATE) Lab that resulted in the lab installing a video camera to monitor the coke works' emissions — and to stream live video over the internet, 24/7, for public viewing.

At a November 2015 meeting, with more than 150 people in attendance — including representatives from the U.S. Environmental Protection Agency — CREATE Lab staff

presented videos documenting pollution events. The next month, DTE announced the coke works' closure, which occurred in January 2016.

The company cited market conditions as the reason for the closure. "We do believe our activism had a lot to do with it," Mr. Taranto said.

In any case, area residents have seen improved health outcomes, said Dr. Deborah Gentile, medical director at Community Partners in Asthma Care.

In 2014, she led a study of 146 children in Avalon's and Bellevue's K-5 schools that showed more than a quarter — 25.3 percent — had been diagnosed with asthma, a rate much higher than state and national averages of 6 to 7 percent.

In a 2017 follow-up study of 153 children, 19.1 percent reported physician-diagnosed asthma — still a high number but significantly less than in 2014.

ACCAN's story is just one example of southwestern Pennsylvania communities learning to have more of a say in what happens to and around them concerning the environment. Sometimes that takes the form of education and activism at the narrowly local level. At other times, citizens organize across a broader geography.

Building advocacy regionally

The Center for Coalfield Justice, based in Washington, Pennsylvania, works in two counties south of Pittsburgh, Washington and Greene, to help residents gain the knowledge and skills to hold fossil fuel companies to account in their resources extraction.

Executive Director Veronica Coptis grew up in the area, but that still makes her a relative newcomer among neighbors whose families have lived there for generations. For her, their tenure makes it all the more important that they be equipped for, and included in, decision making.

"I just think it's imperative and critical that those folks are coming from the communities because what we are fighting is outside companies coming and exploiting our communities," she said. "And the environmental movement at large has replicated that same problem sometimes in frontline communities, by having outsiders come in with their issue agenda and not actually understanding complex dynamics on the ground in the community."

The Center for Coalfield Justice resisted that impulse by reconfiguring staff, which once consisted primarily of Pittsburgh commuters. Now eight of its 10 staffers are local residents.

But beyond that, the group's entire approach to issues, such as the impacts of longwall mining, coal refuse and slurry, fracking, and coal ash, centers on developing resident leadership.

“We fully believe that we’re only advancing our communities if we’re equipping our residents, our neighbors and our communities to be able to identify the problem, analyze the power dynamics, and find and develop the tools they need to make it work for them, no matter what the issue is,” Ms. Coptis said.

The center has cultivated such leadership by offering residents training on such topics as how to testify before government bodies, how to question officials and candidates for office about their plans to help the region transition away from a fossil fuel–based economy, and what powers specific government officials, such as planning commissioners, actually have.

Expanding representation generationally

Such training may be viewed as part of a larger process of providing more information to more people than those people have had in the past, or, to put it another way, democratizing information. For some, the phrase may suggest that information was deliberately withheld.

But that need not be the case. Heinz Endowments Equitable Development Program Officer Karen Abrams described how information access could be limited simply by defaulting to habitual behavior.

“The institutions that are supposed to address these things are not responsive to people of color, Black people specifically, in this region,” she said. “On the flip side of that, historically the institutions that are supposed to be responsive to community concerns — whether they’re grassroots nonprofits, or government agencies, or colleges and universities — are not in the practice of hiring people who are from these communities... and who can relate to these communities in ways that they can’t.”

The lack of community members in agency spaces combines with the lack of agency community members feel in their own spaces to create a disconnect, a failure to communicate.

“There is a community of [Black] people who talk about environmental issues but not in the ways that folks in power talk about environmental issues,” Ms. Abrams said.

The Black Environmental Collective works to bridge that gap between environmental organizations and Black people who care about the environment but also want to pursue environmental justice.

Founder Dr. Jamil Bey formed the group four years ago after attending a University of Pittsburgh event featuring Jacqui Patterson, then the senior director of the NAACP Environmental and Climate Justice Project. In an audience of about 115 people, eight were Black.

“That told me that we as a people were not organized around those issues,” he said. So, the Black people at the event

“We fully believe that we’re only advancing our communities if we’re equipping our residents, our neighbors and our communities to be able to identify the problem, analyze the power dynamics, and find and develop the tools they need to make it work for them, no matter what the issue is.”

Veronica Coptis > Executive Director, Center for Coalfield Justice

asked Ms. Patterson for a breakfast meeting the next day. She agreed, and they reached out to their networks. Less than 12 hours later, 19 people showed up for a breakfast meeting. The ensuing conversations resulted in the group establishing priorities for its members’ work going forward.

They recognized that, like the residents served by the Center for Coalfield Justice, Black citizens were often underrepresented in environmental groups that came to work in their communities. So, they prioritized grooming young people to join those organizations “so that they could be more responsive and respectful around these priorities,” Dr. Bey said.

To that end, the Black Environmental Collective created a training program, focused on young adults ages 18 to 22, that has placed more than 30 people on the boards of such environmental organizations as Grounded Strategies (formerly G-TECH Strategies), Landforce and Allegheny Clean Ways.

Alyssa Lyon, who had been sustainable communities director at the Green Building Alliance, became the collective’s director in March and hopes to launch an enhanced version of the board development process in the first quarter of 2022.

The new process will include what she called “two other prongs.” The first prong will focus on the board candidates’ mental health and wellness by helping them to consider such questions as: “Is this board good for you?” “How do you deal with microaggressions?” “How do you deal with being possibly the only Black person on your board?”

The second prong will help recruiters develop strategies not just for recruiting board members from diverse backgrounds but also for retaining them.

“The boards that are coming to us have been traditionally white,” she said. “Now, since being Black is ‘in,’... people are looking to diversify their boards. The problem is, they’ve never really truly closely interacted with people of color that way.

“So how can we equip those board members and have honest conversations about how they can recruit and retain board members of color?”

Finally, she hopes to add a process for following up to see how new board members are doing six months to a year later.

As a Heinz Endowments grantee, the collective’s work to help environmental organizations diversify their

boards is in line with the Endowments' commitment to promoting diversity.

"As I work through my conversations with each group we fund," said Phil Johnson, the Endowments' senior program director for Environment & Health, "I always do check-ins with them on diversity, diversification training, and what I would call indicators of the group's movement in the direction of having their staff and leadership be more representative of the communities that they work in. Over the past three to five years, it's become much more of a priority for groups in the region."

Creating diversity intentionally

PennFuture, a statewide environmental advocacy organization, completed its current strategic plan in 2018, a plan that placed an emphasis on diversity and equity.

"The plan captured a set of aspirations," said President and CEO Jacquelyn Bonomo. "Where it became real was how we go about the implementation of those aspirations."

George Floyd's murder "added an urgency to the work," she said, sparking internal conversations about "the history of the environmental movement promulgating white supremacy."

In June, as protests against police brutality and white supremacy surged worldwide, PennFuture opened an office in Erie to launch its "Our Water, Our Future" campaign.

"When we landed in Erie and put together this clean water agenda, we had to struggle pretty mightily to build relationships and trust with communities of color ... We wanted to give them a voice and perspective in this agenda that we were formulating."

Perhaps the most important expression of the desire to dismantle racism is the current composition of PennFuture's board of directors. Thirteen of 18 seats are filled. One board member is Indian and one African American. But the empty seats are the most telling.

"We are holding those five other spaces open with the aspiration to fill them with additional diversity," Ms. Bonomo said.

That intentional holding of space is a sign of hope for a future in which efforts to disempower, if not eliminate, racism continue to increase across many sectors, including environmental advocacy.

As Ms. Abrams put it, "It's an exciting time. It's a scary time. There has to be a way for us all to work together." **h**



**"PEOPLE ARE LOOKING TO DIVERSIFY THEIR BOARDS.
THE PROBLEM IS, THEY'VE NEVER REALLY TRULY CLOSELY
INTERACTED WITH PEOPLE OF COLOR THAT WAY."**

Alyssa Lyon > Director, Black Environmental Collective

FUTURE





While advocates for a cleaner environment still struggle to advance a more climate-friendly economy in this country, there are glimmers of change in the Pittsburgh region despite its industrial past and present.
By Craig Pittman

Next to the Texas oil patch and the coal mines of Kentucky, the Pittsburgh region may be the hardest place in America to sell the idea of converting from fossil fuels to clean energy.

Blame history and geography. In 1853, Samuel Kier established the nation's first petroleum refinery in Pittsburgh, and six years later Edwin Drake drilled the nation's first oil well in Titusville, about two hours north of the city. Then Pittsburgh's famous steel mills ran for decades on coal from the Connellsville field an hour south.

But Pennsylvania's oil boom ended by the early 1900s. The steel mills mostly closed in the 1980s. In the early 2000s, Pennsylvania became "the Saudi Arabia of natural gas" thanks to the fracking boom — but that boom quickly deflated, and the thousands of jobs promised by pro-fracking politicians failed to materialize or went to out-of-state companies.

The region is still home to the largest coke-producing plant in the country, U. S. Steel Corp.'s Clairton Coke Works, which supports two active mills. The stubborn desire for domestic oil and gas production from shale also has persisted despite

disappointing job numbers, well closures and financial losses. However, the volatility of the shale market, especially during the COVID-19 pandemic, has planted seeds of a sustainable energy revolution that are starting to sprout in the rocky soil of the Keystone State.

"It's amazing," said Amanda Woodrum, co-director of ReImagine Appalachia, a coalition of environmental, economic and community leaders and groups. "Clearly there's a hunger for an alternative vision of the future."

Ms. Woodrum speaks enthusiastically of switching shuttered steel mills into manufacturing plants for electric vehicles, mining rare minerals from coal slurry ponds, and rebranding Pennsylvania's and Ohio's Mahoning Valley — long known as "Steel Valley" — as "Voltage Valley."

To make a lot of that happen, though, will require "a significant federal investment," she said, tying the effort to President Joe Biden's infrastructure bill, which passed in November after months of wrangling in Congress. Even before new federal measures are implemented, notable changes have been taking place on the state and local level.

The entire roof of Mill 19 at the Hazelwood Green development in Pittsburgh is covered with 110,000 square feet of high-powered solar panels. The rooftop solar array on the former steel mill site is one of the largest in the country and will produce over 2 million kilowatt hours per year, enough to power the entire existing facility.



Changes in perspective

Three years ago, the Pittsburgh City Council voted 8–0 for a plan to reduce the city’s greenhouse gas emissions by 50 percent by 2030. The plan calls for the city to switch to 100 percent renewable energy, convert its vehicle fleet to one that’s powered by something other than gas or diesel, and divest from fossil fuel companies.

The eagerness for pivoting away from fossil fuels comes from a recognition that “if we keep to the status quo, we’re going to lose 100,000 jobs,” explained Grant Ervin, who serves as Pittsburgh’s chief resilience officer. “But if we make this switch, we can create 400,000 jobs over a 10-year period across four states.”

The job-creation aspect of the switch has attracted a partnership with unions, which have always brought their own political clout to the equation. Although the unions tend to be strong supporters of gas pipelines, “we have not received any pushback... even though we are situated in the middle of oil and gas country,” Mr. Ervin said.

What reluctance he’s seen, he said, comes from people who fear making a transition to something different from the way things were in the past — even though the practices of the past clearly won’t work anymore.

Similar sentiments are coming from smaller communities in the region that need new industry to replace what’s disappeared.

In years past, big fossil fuel interests would dictate to those communities what they could have, explained Kelly Yagatich, Pittsburgh regional organizer for the Climate Reality Project, an international advocacy organization.

“Now we’re seeing a shift toward communities saying, ‘This is what we don’t want,’” Ms. Yagatich said. “And in the last couple of years, it’s evolved into asking, ‘What do we want in our communities?’ It’s a way of thinking about economic development in a different way.”

Obstacles along the path

Pennsylvania used to be at the forefront of the drive toward renewable energy. But then it stumbled.

A decade ago, it was among the top six states in the nation for solar power capacity. In the intervening years, though, other states have caught up with and surpassed it. These days it has fallen to just 22nd out of the 50 states, according to the nonprofit Pennsylvania Solar Center, even though the cost of solar has fallen by more than one-third.

Efforts to boost solar have run into some obstacles. For instance, by a 2–2 vote in June, township supervisors near Gettysburg killed (at least temporarily) a plan by Florida-based NextEra Energy Resources to build 330,000 12-foot-high swiveling solar panels on 1,000 acres of 18 different farms. Neighbors of those farms opposed the project.

Other promising efforts that lost their luster include a state law passed in 2004 that set up percentages for various types of energy that utilities were expected to meet, including alternative energy, said John Walliser, senior vice president for legal

FUELING A CLIMATE-FRIENDLY economy

Clean energy sources are being used increasingly in Pennsylvania despite its heavy industry legacy. Some business and government leaders at the local and state levels have adopted more climate-friendly practices as part of their operations.

The South Chestnut Wind Power Project in Farmington, Pennsylvania, nearly 70 miles south of Pittsburgh, has the capacity to generate 46 megawatts of energy with 23 wind turbines. Wind energy generated at South Chestnut is sold to Just Energy and Hudson Energy, leading competitive retail suppliers in Pennsylvania.

Three years ago, Pittsburgh City Council voted 8-0 for an updated climate action plan that included a call to reduce the city's greenhouse gas emissions by 50 percent by 2030. Part of that effort involved beginning a process to switch the city's vehicle fleet to one free of fossil fuel, which resulted in the installation of solar charging stations for the growing number of electrical vehicles.



and governmental affairs at the Pennsylvania Environmental Council, an advocacy and education group.

"That law, at the time, was pretty progressive," Mr. Walliser said. "But that was almost 20 years ago."

Looking back at it from a current perspective, the law wasn't as helpful as it could have been, said Sharon Pillar, founder and executive director of the Pennsylvania Solar Center.

The percentage it set for alternative energy was only 8 percent by 2021, and it includes some things not normally classified as renewable, such as waste coal, Mr. Walliser explained. The percentage allotted for solar was a mere one-half of 1 percent. The state hit those modest goals this year, he said, "so now there's an effort to get the law renewed and extended."

However, the Pennsylvania Legislature is dominated by politicians who are more comfortable with fossil fuel producers than with the cleaner alternatives and have proposed a number of bills reflecting their preferences.

Yet, Ms. Pillar is still hopeful that the Pennsylvania Legislature will act soon to update the requirement so the state can be competitive again because even legislators with fossil fuel ties can see the economic impact of boosting the percentages for alternative energy sources. She said that adjoining states have set far higher goals for alternative energy use. New York, for instance, is going for 75 percent.

"Investors in solar want to come to Pennsylvania," she said, "but those old goals are holding them back. There's an enormous amount of job-growth potential here."

Updating the law would help expand the state's wind power too, she said.

Much of the wind-power industry, which has put most of its power-generating windmills along high ridge lines, has also taken up doing solar, she explained. Both stand to create lots of new jobs in the fields of installation, construction, engineering, sales and financing, she said.

Changing the law would also help meet the goals set by Gov. Tom Wolf in an executive order he signed two years ago: a 26 percent reduction from 2005 levels of greenhouse gas emissions statewide by 2025 and an 80 percent reduction by 2050.

In March, Gov. Wolf unveiled a new clean energy initiative that will set up seven new solar energy arrays totaling 191 megawatts to be built around the state. Together, they will generate nearly half of the electricity needed by state government buildings and facilities — the largest solar commitment by any government in the U.S. announced to date.

Although Gov. Wolf is a proponent of fracking, which has cast a shadow on his climate credentials, he also has been pushing for the state to join the Regional Greenhouse Gas Initiative (RGGI), a market-based collaboration among nearly a dozen Northeast and Mid-Atlantic states. RGGI sets a limit on carbon emissions from power plants, then requires them to purchase a credit to offset each ton of carbon dioxide they emit.

"Climate change is one of the most critical issues we face, and I have made it a priority to address ways to reduce greenhouse gas emissions," Gov. Wolf said in a statement in September after the Pennsylvania Independent Regulatory

Review Commission approved “cap and trade” regulations to limit carbon dioxide emissions.

Legislative leaders, concerned about the impact on the dying coal industry, have resisted Gov. Wolf’s call for joining the carbon-trading program. They even passed a bill that would block the state from joining, a bill that the governor vetoed.

Although some state leaders are reluctant to let go of how things ran in the past, more and more Pennsylvanians can see that that’s not going to carry the state to prosperity, and cleaner skies, in the future, Ms. Yagatich said.

For example, in a Data for Progress poll released in July by the Ohio River Valley Institute, a regional think tank, a representative sample of Pennsylvania voters expressed concerns about fracking and support for more restrictions on it. Sixty-three to 82 percent supported tighter regulations

Investors in solar want to come to Pennsylvania, but those old goals are holding them back. There’s an enormous amount of job-growth potential here.”

Sharon Pillar, founder and executive director of the Pennsylvania Solar Center

on different aspects of fracking operations. Only 31 percent wanted fracking to be maintained in the state while 25 percent said it should end as soon as possible and 30 percent said it should be phased out over time. And an overwhelming number of the respondents were concerned about pollution in general, with 86 percent saying they were worried about air pollution and 90 percent indicating concern about water pollution.

“It’s very much an uphill battle,” Ms. Yagatich said. “A lot of this work is very difficult. But I feel like momentum is building. We’re trying to upend the idea that people don’t have a choice.”

Sean O’Leary, a senior researcher with the Ohio River Valley Institute, agreed. “A lot of people in Pennsylvania are concerned about climate change, but people are also taking stock of what coal and natural gas mean to the state,” he said. “They’re becoming convinced that the state has gotten a bad deal.”

Still Moving Forward

Several major companies in the region have switched their businesses to solar power, including Crayola, Ikea and Johnson & Johnson. Snack maker Snyder’s-Lance has hooked up one of the largest solar installations in the state, producing 3 megawatts (MW) of power, according to the Solar Energy Industries Association.

And as of July, Pittsburgh International Airport became the first airport in the world to be completely powered by its own microgrid, which uses both natural gas and solar energy generated on the facility’s own property. The airport draws power from nearly 10,000 solar panels and gas from wells drilled on its property to provide 20 MW of energy, well in excess of its current demand of 14 MW.

One of the biggest success stories for alternative energy, Ms. Pillar said, is what’s happened at the Mill 19 building in Hazelwood Green. The property was purchased in 2002 by four area foundations, including The Heinz Endowments, which remains a co-owner.

Mill 19 was once home to one of the region’s most productive steel mills, employing some 5,000 people. In recent years, though, all that stood there was the 180,000-square-foot frame of the old mill, rusting away.

With funding from the Richard King Mellon Foundation, the Regional Industrial Development Corporation converted the mill into a center for innovation and research with tenants such as Carnegie Mellon University, Aurora Innovation, and the autonomous vehicle company Aptiv and its joint venture with Hyundai, Motional.

Atop the building now are 110,000 square feet of high-powered solar panels that can produce over 2 million kilowatt hours (kWh) per year. It represents the largest solar array in Allegheny County and is the largest single sloped-roof array in the United States.

“What was once a rusty old steel mill is now a model for our region’s innovative, cleaner future,” Donald Smith, president of RIDC, said when the solar array was switched on last fall.

The places where solar shows greatest promise, though, are in the region’s rural areas, according to Ms. Pillar. People are jumping on solar not because it helps battle climate change, she said, “but because it makes economic sense.”

“There are hundreds of acres of farms in the region that are now under lease for solar installations,” she said. “We’ve lost thousands of family farms over the last 10 years, but this will help to save them.” **h**

HOW YOU CAN

The environmental challenges facing our planet are daunting, but all of us can do something. Here are some organizations that can provide information about actions you can take to reduce your own carbon footprint and to get involved in efforts to preserve our environment and fight climate change. The list is by no means exhaustive, but it's a start — and getting started matters.

AIR QUALITY

Breathe Project

www.breatheproject.org

Community Partners in Asthma Care

www.facebook.com/CPAC412

Allegheny County Clean Air Now

www.accan.org

Clean Air Council

<https://cleanair.org/>

GASP

www.gasp-pgh.org

WATER QUALITY

Pittsburgh Water and Sewer Authority

www.pgh2o.com

The Water Center at the University of Pennsylvania

<https://watercenter.sas.upenn.edu>

Watersheds of South Pittsburgh

<https://wospgh.org/>

Three Rivers Waterkeeper

www.threeriverswaterkeeper.org/

Allegheny County Sanitary Authority

www.alcosan.org/

Get the Lead Out, Pittsburgh

<https://gettheleadoutpgh.org/>

CLIMATE CHANGE AND ENVIRONMENTAL PROTECTION

Environmental Health Project

www.environmentalhealthproject.org/

The Climate Reality Project

www.climateproject.org/

ReImagine Appalachia

<https://reimagineappalachia.org/>

Pennsylvania Solar Center

<https://pasolarcenter.org/>

Pennsylvania Environmental Council

www.pecpa.org/

PennFuture

www.pennfuture.org/

HEALTHY BUILDING ENVIRONMENTS

Women for a Healthy Environment

www.womenforahealthyenvironment.org/

Green Building Alliance

www.go-gba.org/

ENVIRONMENTAL TECHNOLOGY AND INNOVATION

FracTracker Alliance

www.fractracker.org/

CREATE Lab,

Carnegie Mellon University

www.cmucreatelab.org/

Department of Civil and Environmental Engineering, Carnegie Mellon University

www.cmu.edu/cee/

COMMUNITY AND GRASSROOTS GROUPS

Center for Coalfield Justice

<https://centerforcoalfieldjustice.org/>

Black Environmental Collective

<http://www.blackenvironmentalcollective.org/>

Communitopia

www.communitopiapgh.org/

Pittsburgh United

<https://pittsburghunited.org/>

Homewood Children's Village

<https://hcvpgh.org/>



CHANGING ENDOWMENTS LEADERSHIP

CREATIVITY HEAD STEPPING DOWN

In November, Heinz Endowments Creativity Vice President Janet Sarbaugh, the foundation's longest-serving employee, announced she will step down from her position in the late spring of 2022. During her nearly 40-year tenure at the Endowments, Ms. Sarbaugh has been a stalwart of arts and culture expansion and innovation in the Pittsburgh region. After relinquishing her full-time position, Ms. Sarbaugh will remain with the Endowments for a period as a consultant, with direct responsibility for the Creative Development Awards recognizing individual artists. The Endowments will conduct a national executive search for her successor with the goal of identifying her successor by the second quarter of 2022.



STAFF UPDATES

The National Academies of Sciences, Engineering and Medicine has reappointed Endowments Senior Program Director for Environment & Health Philip Johnson to serve on the Environmental Health Matters Initiative Committee for a second term. In August, the National Academies also appointed Dr. Johnson to serve on the planning committee for Communities, Climate Change, and Health Equity. This committee is charged with designing and implementing a series of workshops to explore the current state of knowledge about climate-related health disparities and the specific actions to take when working with communities to improve climate-related health outcomes and invest in health equity.

Creative Learning Program Officer Mac Howison is the incoming co-chair of the Grantmakers for Education Arts Education Impact Group along with Jessica Mele of the Hewlett Foundation. Mr. Howison will serve a two-year term leading this national peer learning and leadership group.

Equity & Research Vice President Carmen Anderson was among the nine honorees at the first Excellence in Community Engagement Awards ceremony sponsored by the Pittsburgh-Mon Valley Black Women's Roundtable. The Pittsburgh group is a local branch of the national Black Women's Roundtable, an empowerment program of the nonprofit National Coalition on Black Civic Participation. Pittsburgh-Mon Valley Black Women's Roundtable is also part of Sisters Saving Ourselves Now, a regional organization dedicated to addressing issues facing women of color, with a specific focus on underserved women. Ms. Anderson and the other award recipients were recognized for their work on racial and social justice.

Joshua Franzos



PRESIDENT DEPARTING

In December, Heinz Endowments President Grant Oliphant announced that he is leaving the foundation at the end of February to assume a new role as chief executive officer of the San Diego-based Conrad Prebys Foundation, effective March 2022.

For three decades, Mr. Oliphant has been dedicated to philanthropic and public service stewardship in Pittsburgh, including eight years as head of the Endowments. He served as president and CEO of The Pittsburgh Foundation from 2008 to 2014. Before that, he held a variety of senior management posts at the Endowments, including communications director and later vice president of programs. His other previous positions have included communications director for Teresa Heinz, the Endowments' Chair Emeritus, and the Heinz family's extensive philanthropic activities, and press secretary for the late U.S. Sen. John Heinz from 1988 until the senator's tragic death in 1991.

As Endowments president, Mr. Oliphant reshaped the foundation's grantmaking around the core ethos of building a more just community through a focus on three strategic grantmaking areas—Sustainability, Creativity, and Learning. Under his leadership, the foundation became known nationally for its courageous use of its voice and the excellence of its grantmaking on behalf of better environmental policies, more sustainable and equitable economic practices, stronger supports and policies for military veterans, a rejuvenated commitment to the arts, and the advancement of a truly inclusive society.

During Mr. Oliphant's tenure, the Endowments also played a leading role, alongside its key philanthropic partners, in helping the Pittsburgh region to respond to the pandemic by meeting its emergency needs while setting the stage for later recovery. A national search will begin soon for the Endowments' next leader.

CAREER AND ADULTHOOD PREP

The Pittsburgh Readiness Institute's well-attended summer program kickoff, shown below, was among the indications that it is settling in as a regional educational institution thanks to funding of \$1.6 million over two years from the Endowments. The foundation created the youth career preparation initiative before the pandemic in partnership with the Consortium for Public Education and designed it to be a new and innovative education model that helps youth and young adults meet the employment and civic demands of a constantly changing society.

The institute launched with an 18-week pilot that began in late October 2020 and included 47 high school juniors from eight economically and racially diverse school districts from across the region who participated in a virtual curriculum. This summer, 45 rising seniors from 22 Allegheny County high schools met in person for six weeks at Penn State Center Pittsburgh, located at the Energy Innovation Center in the Lower Hill District. They participated in programming led by more than 30 adults who served as education, industry and community collaborators, and took part in a variety of off-site events and virtual activities.

Future plans include a speaker series, an after-school program for Pittsburgh high school students, a summit event, and the launch of Readiness Institute workshops on three rural Penn State campuses. The goal is for a total of 400 to 500 students to participate annually in the institute's programs and to have the option to choose different levels of involvement, whether that includes the summer program, school-year workshops, community opportunities for career and citizenship development, or some combination.



The Readiness Institute at Penn State



ROUNDHOUSE INCUBATOR UNVEILED

The 19th-century railroad Roundhouse at Hazelwood Green opened its doors in September as a high-tech incubator for startups, marking the completion of a \$13.7 million renovation by GBBN Architects that was funded by the Almono partnership of The Heinz Endowments and the Richard King Mellon and Claude Worthington Benedum foundations.

The 26,000-square-foot Pittsburgh facility is the newest innovation hub of OneValley, a Silicon Valley-based global entrepreneurship organization, and is designed to support entrepreneurs, accelerate startups and promote organizations that foster innovation. The building features a solar-paneled roof, a tall glass-door entrance, large windows, two levels of office and coworking spaces, and a variety of on-site amenities.

The Roundhouse is the second building on the 178-acre Hazelwood Green development site to be repurposed. The other is the massive Mill 19 building next door, which has one of the country's largest solar arrays on its roof and serves as a robotics hub.

CULTURAL TREASURES

Among the major funding opportunities to buttress the region's creative sector is a total of \$5.4 million the Endowments awarded in December to 16 cultural organizations who were the first grant recipients through the Pittsburgh's Cultural Treasures initiative. The Endowments launched the three- to five-year, \$10 million program after being invited to join the America's Cultural Treasures program created by the Ford Foundation to celebrate cultural institutions and organizations led by people of color. As was the case with other regional partners selected for the national initiative, Ford contributed \$5 million in matching funds to the Pittsburgh effort.

Receiving awards ranging from \$150,000 to \$1 million were the Hill Dance Academy Theatre, left, where Associate Artistic Director Michia Carmack helps young dancers like Faith Harris train; 1Hood Media; Afrika Yetu; Afro American Music Institute; August Wilson African American Cultural Center; Balafon West African Dance Ensemble; BOOM Concepts; Kelly Strayhorn Theater; Kente Arts Alliance; Legacy Arts Project; Manchester Bidwell Corporation; New Horizon Theater; PearlArts Studios; Pittsburgh Playwrights Theatre Company; Ujamaa Collective; and Women of Visions.



Eric A. Smith, CREW Productions, LLC

h HONORS

The Press Club of Western Pennsylvania honored h magazine and its writers with four awards as part of the organization's annual Golden Quill competition recognizing excellence in journalism in Western Pennsylvania and nearby counties in Ohio and West Virginia. One of those entries, a four-part "Preserving Our Democracy" package that looked at efforts to prepare residents for the 2020 election and census, also won the Ray Sprigle Memorial Award — or best of show honor across all categories — for Division 7, which included nonprofit and institutional magazines. The award is named after a Pittsburgh Post-Gazette reporter who won the Pulitzer in 1938 for uncovering that Alabama Senator Hugo Black, newly appointed to the U.S. Supreme Court, had been a member of the Ku Klux Klan.

The h magazine winning entries and their categories, titles and writers—all in Division 7—were:

Ray Sprigle Memorial Award

"Preserving Our Democracy"
Jeffery Fraser, Donovan Harrell

Public Affairs/Politics/ Government

"Preserving Our Democracy"
Jeffery Fraser, Donovan Harrell

Business/Technology/Consumer

"Signs of the Times"
Elwin Green

Education





"Living in a Global Pandemic: Education"
Donovan Harrell, TyLisa Johnson



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