A Green Stimulus and Recovery Platform for Pennsylvania

Putting Pennsylvania Back to Work and Investing in a Sustainable Economy

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PennFuture

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Executive Summary

The COVID-19 pandemic has deeply impacted Pennsylvania's public health, social fabric, and economy. While the initial stay-at-home measures implemented by state leaders to control the spread of the virus have loosened, public health concerns continue. The resulting strain on the state economy is without precedent, including historic unemployment rates, millions filing unemployment claims, and businesses shuttering for months or permanently. The pandemic and economic downturn are disproportionately impacting communities of color and regions already beset by pollution. In response, momentum is building to transform our nation's economy into one that is sustainable, resilient, and equitable.

This green stimulus and recovery platform lays out an agenda to take advantage of Pennsylvania's homegrown sustainable industries—nature-based, outdoor tourism, agriculture, and renewable energy businesses—to put people back to work as well as rebuild a more equitable economy through the lens of sustainability and clean energy. As Table 1 summarizes, **the stimulus proposals call for $2.83 billion in annual investments for the duration of the pandemic and other policy reforms, which we estimate will preserve or create over 389,000 jobs. Additional economic benefits would come from the recommendations on growing and transitioning to a clean energy economy.**

The policy recommendations made in this platform fall under five categories and are summarized below:

Avoid State Budget Cuts that Will Harm Economic Recovery

In times of recession, state policymakers often rely on agency cuts and layoffs to balance the budget against declining revenue, often targeting environmental, conservation, agriculture, and wildlife programs. Turning the budget knife on these programs again will only prolong our current economic decline. State policymakers should reject broad-based austerity measures and instead advance policies that build upon these important agencies to jumpstart the economy.

Preserve Nature-Based Small Businesses from Collapse

Safely Reopening and Supporting Nature-Based Small Businesses. Nature-based small businesses and outdoor recreation are crucial to the Commonwealth's economic recovery, particularly to more rural areas of the state. We recommend state policymakers do the following:

- Create a one-stop shop of recovery guidance for nature-based businesses.
- Develop a *Reopening Pennsylvania Nature Tourism* report on safely reopening during the pandemic.
- Launch an *Explore PA's Natural Beauty Campaign*, targeting in-state residents on how to safely take advantage of Pennsylvania's outdoor amenities during the pandemic.
- Pass legislation allowing small business tax deductions for safety measures and expenses.
- Increase funding for DCNR's *Community Conservation Partnership Program Grants* and temporarily eliminate the matching requirement.
- Provide operating grants of at least $25 million to state *Community Development Financial Institutions* and other regional economic development entities to support nature-based small businesses in regions impacted the most by the pandemic, including low-income black and brown communities and environmental justice areas.
- Re-capitalize the *COVID-19 Working Capital Access Program* by at least $100 million to support nature-based businesses in regions that may not be able to reopen during the summer and fall tourism seasons.

> "PENNSYLVANIA SHOULD IMPLEMENT A MODERN-DAY CONSERVATION CORPS TO PUT PEOPLE BACK TO WORK WITH FAMILY-SUSTAINING WAGES THAT REBUILD OUR NATURAL INFRASTRUCTURE."

Support Small Farmers and Food Producers. Pennsylvania's farmers are in crisis. As a key player in the state economy, but also important stewards of our natural spaces looked at to reduce pollution, we recommend policymakers do the following to support them:

- Develop resources to connect job seekers to opportunities on farms during harvesting.
- Expand the *COVID-19 Working Capital Access Program* by $250 million and increase eligibility to keep small family farms from cutting payroll to avoid bankruptcy during the pandemic.
- Re-capitalize the *Resource Enhancement and Protection* tax credit by $25 million and allow for more flexible credit trading.
- Expand DCNR's *Riparian Forest Buffer* program to $1 million.
- Increase PDA's *Farmland Preservation* program to $76 million to preserve more farmland during the pandemic and offset reductions in county investments.
- Establish an *Agricultural Cost-Share Program* and initially fund it at $25 million per year to invest in farm pollution reduction projects that also improve land productivity.

Create a Green Jobs Program to Put Pennsylvania Back to Work

Create a PA Conservation and Economic Recovery Corps (CERC). Pennsylvania should implement a modern-day Conservation Corps (CERC) to put people back to work with family-sustaining wages that rebuild our natural infrastructure:

- Set a goal of hiring at least 15,000 unemployed Pennsylvanians in the first 12 months for at least 6-month terms, which could be extended based on their needs and project needs.
- In addition to unemployed skilled workers, CERC should also provide employment opportunities for students, graduates, youth, and black and brown communities which are being disproportionately impacted by the pandemic.
- Projects would focus on state park and forest maintenance, habitat management, green stormwater infrastructure construction, stream buffer implementation, Main Street beautification, agriculture projects, tree planting, and other natural infrastructure needs.

- CERC would provide family-sustaining wages of at least $24/hour, plus health benefits, paid sick leave, and paid time off.
- Counties should submit lists of CERC-based job opportunities, organized by DCNR's nature-based regions, heritage areas, urban communities, and environmental justice areas so that projects are equitably spread across the Commonwealth.

Address Legacy Drilling and Mining Pollution. Abandoned mines and orphaned oil and gas wells have created legacy pollution issues scarring Pennsylvania's landscapes, polluting its waters, diminishing outdoor activity experiences and holding back economic development. To create jobs and new development opportunities, policymakers should:

- Invest $453 million over 4 years in DEP's Abandoned & Orphan Well Program to clear a backlog of 9,000 abandoned wells that are "shovel-ready."
- Invest $220 million over 4 years in DEP for mine reclamation projects, doubling the number of projects sourced through existing funds.
- By pressuring Pennsylvania's elected federal policymakers, support and pass the RECLAIM Act, which would provide at least $300 million in mine reclamation funding to the state.

Modernize Our Homes and Businesses through Energy Efficiency Projects. Energy efficiency is one of the largest clean energy industries in Pennsylvania and is well situated to implement projects that save homeowners, renters, and businesses money as well as reduce pollution:

- Increase borrowing authority of the *Redevelopment Assistance Capital Program* by $250 million to issue grants for energy efficiency retrofits in schools.
- Re-capitalize the *Pennsylvania Energy Development Authority* by $100 million to provide financial vehicles for large efficiency projects.
- Work with the PUC to convene stakeholders to share best energy practices, develop new tools, and build consensus on advance payment provisions.
- Increase funding for DEP's *Small Business Advantage* program to $10 million and increase project caps for efficiency projects at small businesses.
- Expand the DEP *Small Business Pollution Prevention Assistance Account* to $20 million and expand loan eligibility to multifamily buildings.
- Expand DCED's *Weatherization Assistance Program* by $20 million to support grants to low-income housing retrofits.

Support Shovel-Ready Clean Water Infrastructure Projects. Pennsylvania has significant clean water infrastructure needs, many of which are shovel-ready, providing good-paying jobs, supporting utilities financially impacted by the pandemic, and providing clean water:

- Appropriate $360 million over 4 years to PENNVEST for drinking water and wastewater infrastructure projects, including set-asides for designing and implementing green infrastructure projects.
- Amend Act 30 of 2018 to include green stormwater infrastructure in the definition of "water conservation project," so that clean water projects are eligible for Commercial PACE programs.
- Create a *Green Stormwater Infrastructure Grant* program at DEP, initially funded at $25 million, to support projects in the design phase, including support for municipalities designing local projects.

	Total Investment	Jobs Preserved or Created
Preserve Nature-Based Small Businesses		
Support Nature-Based Tourism Businesses	$130 million	250,000
Support Small Farmers and Food Producers	$340 million	102,000
Green Jobs Program		
Conservation and Economic Recovery Corps	$905 million	15,000 (Minimum)
Legacy Drilling and Mining Pollution	$673 million	8,480
Shovel-Ready Energy Efficiency Projects	$397 million	7,940
Shovel-Ready Clean Water Infrastructure	$385 million	5,775
TOTAL, Jobs and Stimulus Proposals	**$2.83 billion**	**389,195**

Table 1. Summary of investment and job preservation and creation estimates of the green stimulus portion of the recovery platform.

Double Down on Pennsylvania's Resilient Clean Energy Economy

The following policy proposals are recommended as part of a broader economic recovery package to strengthen and expand Pennsylvania's rapidly growing clean energy industries.

Enable Community Solar. Pass legislation that allows for community solar, increasing by 50 to 75 percent the number of PA residents with access to solar power if they choose to do so. This would create good paying skilled labor jobs as well as reduce pollution. Current bipartisan bills exist to do so, including HB 531 and SB 705.

Incentivize Grid-Scale Solar. Amend the state Alternative Energy Portfolio Standards Act to ensure that a certain percentage of energy credits are obtained through competitively-bid long-term contracts as well as increase the share of electricity the state must source from renewable energy. Current bills exist to do so, including SB 600.

Expand Energy Efficiency Opportunities. Pennsylvania's energy efficiency laws have saved ratepayers significant money while reducing energy consumption and pollution. With a few tweaks, these laws could open up additional economic develop and job creation opportunities, including:

- Remove the investments caps in Act 129 to allow for more energy efficiency projects at no net cost to consumers.
- Enact legislation to require the PUC to inquire if investment in available energy efficiency measures could achieve the same goals in proposed electric utility rate increases.
- Amend Act 30 of 2018 to include multi-family residential units as eligible to participate in commercial PACE programs so that landlords can retrofit apartment buildings, creating jobs as well as improving the quality of life for renters.

Invest in Clean Transportation. The market for electric vehicles is growing and is expected to grow rapidly by 2030. Targeted investments in infrastructure would allow PA to take part in this growth, including:

- Prepare a transportation electrification opportunity assessment and set a statewide goal for vehicle electrification of at least 50 percent above business-as-usual by 2030. Existing bipartisan legislation exists to do so, including SB 596.
- Implement a cap-and-invest program to fund clean vehicles and infrastructure investments. One such initiative is the Transportation Climate Initiative Regional Policy Development Process.

Convene a Green Recovery Summit for Municipal Officials

Governor Tom Wolf should convene a statewide *Green Recovery Summit* of local and county officials to develop and adopt a sustainable and equitable economic recovery framework. The convening would develop a priority list of clean infrastructure projects so that state agencies can take quick action as well as provide a consensus framework document that will guide future stimulus and recovery investments at the local level.

Next Steps and Paying for State Stimulus and Recovery Policies

It is widely expected that the federal government will continue to leverage its historically low interest rates and borrow funds to support state and municipal recovery efforts. Pennsylvania's policy leaders, particularly Governor Wolf, should not be passive in these efforts and should work with state congressional leaders to shape future federal stimulus plans. Federal stimulus investments will provide funds for the types of programs recommended in this agenda as well as fill other state budget holes, freeing up flexibility to invest further in stimulus and recovery efforts. Certainly, federal stimulus dollars will not provide full funding for recovery efforts and state policymakers will have to develop new revenue options. This agenda provides a list of potential revenue options as part of a broader recovery reform platform.

Introduction

“...THIS REPORT LAYS OUT A POLICY ROAD-MAP... TO PUT PEOPLE BACK TO WORK AND BUILD A MORE RESILIENT AND SUSTAINABLE ECONOMY .”

The social, economic, and environmental impacts of the COVID-19 health crisis are profound and are reshaping how we work, recreate, and live our daily lives. As of the drafting of this report, there have been over 90,000 cases of the disease in the Commonwealth and over 6,750 deaths.[1] Over 2 million workers have filed for unemployment insurance since the beginning of the pandemic, creating the largest unemployment rate—16.1 percent—in state history in April (Southwick, 2020). The state eased lockdown restrictions in May, resulting in a modest unemployment improvement of 13.1 percent, but millions remain out of work (Southwick, 2020). Some of the hardest hit areas in the state are black and brown communities where essential and low-wage workers reside, and preliminary reports show these are also areas with higher air pollution that exacerbate the impact of the disease (Wu et al., 2020). Many of Pennsylvania’s 67 counties are reopening their economies, albeit with significant limitations.[2] The deep and rapid decline in Pennsylvania’s economy is nearly double that of the Great Recession, with state gross domestic product (GDP) declining by at least 6.2 percent in 2020 (Independent Fiscal Office, 2020).

With these historic circumstances in mind, this report lays out a policy roadmap that leverages Pennsylvania’s growing nature-based, clean energy, and sustainable industries to put people back to work and build a more resilient and sustainable economy. The policy proposals described herein have four overarching goals:

1. **Safely and equitably restarting the state economy in a way that limits the pandemic, reduces pollution, and protects human health.**
2. **Avoiding state budget cuts that will negatively harm economic recovery and nature-based businesses.**
3. **Targeting short-term economic stimulus investments that put Pennsylvanians back to work and provide family sustaining wages.**[3]
4. **Advancing long-term economic recovery investments to support environmentally sustainable infrastructure and industries that underpin resilient and equitable communities.**

In total, this policy platform is estimated to require $2.83 billion in annual investments for the duration of the crisis and recovery, which would preserve or create as many as 389,000 jobs in the Commonwealth, including nearly 37,000 immediate, shovel-ready jobs, while also reducing pollution, promoting our natural resources, and advancing public health. To put this in context, it would fill 45 percent of the 849,000 jobs lost during the pandemic, as of May 2020 (U.S. Bureau of Labor Statistics, 2020).[4]

Stimulus and Recovery Investments are Necessary to Rebuild the State Economy

The federal government has passed over $3 trillion in stimulus funds through the CARES Act and additional supplementals to cushion the immediate health and economic pain caused by shelter-in-place orders. Nonetheless, it will require years of federal, state and local investments to recover from the COVID-19 crisis and make our society and economy emerge stronger and more resilient.

These much-needed investments offer a historic opportunity for Pennsylvania to reshape its economy and transition toward a financially stronger, environmentally sustainable, and more equitable Pennsylvania. Pre-pandemic, Pennsylvania's economy showed signs of weakness (Gelinas, 2020). While statewide job growth remained steady through February 2020 and the unemployment rate was low, the state tracked worse than the national average. Even at this high level of employment, Pennsylvania had one of the worst racial inequity rankings for its economy (McCann, 2020). Employment was beginning to shrink as the United States' trade war with China continued to impact steel and agriculture producers.[5] Many communities, particularly in western and northeastern counties, remained left behind and experienced continued economic decline since the Great Recession (Alter et al., 2019). The oil and fracked gas industry was also reeling, portending to a steep decline and bankruptcies.[6] And according to a recent assessment by the *Brookings Metropolitan Policy Program*, Pennsylvania's ability to innovate and advance new industries and entrepreneurship had "gone flat" and faced significant challenges (Maxim and Muro, 2019).

> "THE COVID-19 CRISIS IS EXACERBATING AND DEEPENING THESE ECONOMIC ISSUES SO RAPIDLY THAT IT REQUIRES SWIFT AND SIGNIFICANT ACTION BY STATE LEADERS."

The COVID-19 crisis is exacerbating and deepening these economic issues so rapidly that it requires swift and significant action by state leaders. It is largely expected that the federal government will implement additional rounds of economic stimulus and recovery packages to stem the impacts from the COVID-19 pandemic, as well as address problems caused by the complicated execution of initial subsidies to businesses and residents (Leonhardt, 2020). Pennsylvania will have to do the same to pass balanced state operating budgets and spend federal investment dollars, in addition to passing state-specific stimulus and recovery measures.

Stimulus and Recovery Investments Should Prioritize Green Projects and Industries

There is a growing consensus that prioritizing recovery investments in sustainability, clean energy, and nature-based industries offers a powerful mix of benefits: immediate job creation opportunities, retention of good-paying jobs, long-term prosperity, and lower pollution. Numerous statements, reports, and proposals have been released during the pandemic by bipartisan political, business, academic, and financial leaders across the country making the same fundamental point: governments should stimulate economic growth that will create jobs as well as provide significant co-benefits, like reducing air pollution, addressing climate change, and providing clean water.

Over 150 multinational companies, many with headquarters, facilities, and workers in Pennsylvania, issued a statement calling for governments around the world to "prioritize a faster and fairer transition from a gray to a green economy by aligning policies and recovery plans with the latest climate science" (Science Based Targets Initiative, 2020). CEO's and representatives from 330

U.S. Fortune 500 firms, trade associations, and small-and medium-sized businesses are also calling on Congress to "back a better economy by infusing resilient, long-term climate solutions into future economic recovery plans" (Ceres, 2020). A group of economists and leading academics and policymakers proposed an ambitious green stimulus bill to promote economic recovery and reduce pollution (Bozuwa et al., 2020). A coalition of financial investors representing trillions of dollars in investments have called for a "green recovery from the COVID-19 pandemic" (Holder, 2020).

This momentum for a green recovery is based on the growth of these industries during the last decade. Low-carbon economic growth has outpaced growth under business-as-usual policies, such as subsidizing fossil fuels (Mountford, 2020). Clean energy industries represent 3.3 million American workers, outnumbering fossil fuel jobs by 3 to 1 (Rickets et al., 2020). Increasingly, sustainable and nature-based industries are future-proof, rapidly growing segments of the economy. For example, the Dow Jones Sustainability Index (DJSI) has outperformed the S&P Global BMI by 4.48 percent as of June 2020, meaning companies that have stronger environmental and social performance are not only producing better results, but are weathering the pandemic more so than their polluting competitors (S&P Global Market Intelligence, 2020).

A green recovery would also provide a diverse mix of skilled jobs. According to analysis by the Pew Research Center, green industries require jobs that are characterized by analytical skills (e.g. programming, science, and mathematics), but also jobs that are characterized by labor-intensive skills (e.g. installation, maintenance, and equipment operation) (Kochhar, 2020). Green industries like solar installations and energy efficiency retrofits are emphasizing employment from traditional, existing skill categories like engineering, electricians, and laborers.

The same holds true for Pennsylvania. Nature-based, outdoor recreation industries represent over 250,000 jobs while generating over $29 billion in economic activity to the state each year (Outdoor Industry Association, 2017). The agriculture sector produces 280,000 jobs and generates $135 billion annually (TeamPA, 2018). And the clean energy sector is creating over 90,000 jobs, growing five times faster than the overall employment growth in the state (E2, 2019). Pennsylvania is well positioned to leverage its growing green economy to ensure that the recession is short-lived and people are put back to work as quickly as possible.

Avoid State Budget Cuts That Will Negatively Harm Economic Recovery

The COVID-19 crisis is going to put a significant strain on Pennsylvania's state government, increasing calls for budget cuts, special fund transfers, and state worker layoffs. Policymakers should reject pressure to cut their way out of the recession and instead learn from the Great Recession recovery: deep spending and public sector job cuts will put a drag on economic growth, further entrench racial inequality, and create a ripple effect through the economy, including environmental protection (Fischler, 2020).

The Independent Fiscal Office estimates the Commonwealth will lose $3.9 billion in revenue because of pandemic-related lockdown measures (IFO, 2020). A gradual reopening of the state economy will further depress revenue as will business restrictions and consumer uncertainty before a vaccine is developed. If additional spikes in infections leads to further lockdowns, the economic consequences will be even more severe. Making up for this lost revenue means relying on a limited number of options resulting from Pennsylvania's constitutional requirement to balance the operating budget every fiscal year: (1) Raise taxes and fees; (2) Cut spending and investments; (3) Float bonds; (4) Spend down reserve funds; and/or (5) Leverage federal stimulus spending to balance the budget.

Pennsylvania received $3.9 billion in discretionary federal stimulus dollars through the CARES Act. This money cannot be used to fill holes in the state budget, and can only be spent on coronavirus-related expenditures. The state legislature has developed a plan to spend $2.6 billion for nursing homes, county block grants, intellectual disability care, small business grants, research and development of a coronavirus vaccine, relief for farmers, higher education, and housing security. The remaining $1.3 billion has not yet been allocated as of the writing of this report (Caruso & Shanahan, 2020).

So far, the Pennsylvania legislature is opting to make budget decisions later in the year. In late May, the state passed a short-term, five month stop-gap budget that provides level funding (compared to FY19-20) for all state agencies and programs from July 1, 2020 through November 30, 2020. Legislators will then convene a special sine die session after the General Elections in November to debate a budget that accommodates the remaining seven months of the fiscal year.

For these future budgets, the recovery from the Great Recession provides a useful lesson on how to quicken the pace of economic recovery. Relying almost solely on slashing public sector jobs and investments prolongs the economic pain and makes a full recovery more difficult (White, 2019). These cuts have disproportionately affected women of color specifically and black and brown communities broadly as the dramatic cuts to public spending and the privatization of public services simultaneously subject them by further destabilizing their already precarious economic position (Emejulu & Bassel, 2018). Public sector spending still had not bounced back to pre-2008 levels before the pandemic struck.[7] Environmental agencies, including the Department of Environmental Protection (DEP) and the Department of Conservation and Natural Resources (DCNR), have taken the brunt of that workforce decline. The DEP's workforce declined by 25 percent and its budget has been cut by 40 percent (Phillips, 2020). The DCNR has been tasked with managing more parks and more visitors, but doing so with staffing cuts and a $1 billion backlog for maintenance and infrastructure (Pennsylvania Parks & Forests Foundation, 2018). Similar budget cuts have impacted Pennsylvania's wildlife and river basin commissions, as well. These deep cuts have come at a time when the challenges facing those agencies—such as the massive buildout in natural gas infrastructure, drinking water issues, and industrial and agricultural pollution—have greatly increased.

"ANY GREEN PLATFORM FOR PENNSYLVANIA SHOULD BE BUILT FROM THE BASIC PREMISE THAT ITS CORE ENVIRONMENTAL AND CONSERVATION AGENCIES AND PROGRAMS SHOULD REMAIN WHOLE AND, MORE IMPORTANTLY, BE BUILT UPON."

Turning the budget knife on those same agencies again will only prolong our current racial inequality and economic malaise. To this end, the state legislature is not off to a good start. It has debated bills during the pandemic that would freeze investments made from environmental and conservation special funds—separate state accounts created by the legislature to receive earmarked revenue for annual investments in conservation projects (Thrush, 2020). For example, the Environmental Stewardship Fund invests revenue raised from dumping trash in landfills and other state bonds to preserve farmland, clean up acid mine drainage, and build watershed protection projects. Not only do these projects create good-paying jobs, they also reclaim land for economic development and greenspaces for communities—the type of win-win projects the Commonwealth needs right now.

In fact, this green stimulus and recovery platform is a rejection of broad-based austerity measures that are often looked to by policymakers during economic downturns. A more strategic approach is needed, which is why this platform proposes new investments in environmental agencies, programs, and policies to spark economic development. Many economists similarly reject broad-based austerity and point to past use of these policies as detrimental to economic growth and social well-being.[8] In fact, austerity measures during the Great Recession have been linked to significant public health impacts and the inability to enforce environmental protection laws (Collett-White, 2019).[9]

Any green platform for Pennsylvania should be built from the basic premise that its core environmental and conservation agencies and programs should remain whole and, more importantly, be built upon. The proposals in this document assume that the relevant environmental, conservation, agriculture, and wildlife agencies are not cut, and the investments recommended herein would add agency capacity and programmatic dollars. To do otherwise is no less than cutting off our nose to spite the face—Pennsylvania would do well to strategically invest in its green economy to quickly emerge from the current recession.

Preserve Pennsylvania's Nature-Based Small Businesses from Collapse

Small businesses are crucial to Pennsylvania's economy and are being disproportionately impacted by COVID-19. They will need significant assistance to ensure that they do not close or file for bankruptcy. Pennsylvania's nature-based small businesses, such as outdoor recreation and agriculture, are being particularly threatened with financial hardship. State policymakers should prioritize efforts to ensure that these industries are financially protected so they can continue to support hundreds of thousands of jobs through the important summer and fall seasons.

Safely Reopen and Support Pennsylvania's Nature-Based Small Businesses

Jobs Created or Protected: *At least 250,000*
Total Cost: *$127 million to $132 million* [10]

Framing Statement

Nature-based businesses are of particular importance to the state economy due to the tourism and recreation generated by the state's abundant natural resources and natural beauty. The Outdoor Industry Association (2017) estimates that Pennsylvania's outdoor recreation industry generates $29.1 billion in economic activity to the state each year and creates 250,000 jobs. State parks alone generate over $1.1 billion in economic benefit (Mowen et. al., 2010). Safely restarting this industry is crucial to reopening Pennsylvania's economy as well as providing a much-needed respite for residents in need of outdoor recreation during these unsettled times.

The small businesses—hotels, diners, recreation guides, river guides, tackle shops, campgrounds, bike shops, and hunting shops—that are the backbone of this industry need support to make it through this crisis. The stay-at-home shutdown orders hit during the start of the spring tourism season and could greatly impact the summer and fall seasons as well, threatening severe job losses and bankruptcies throughout the Commonwealth's scenic and natural areas. Rural counties would be particularly hard hit as they rely on tourism and outdoor recreation for their local economies (Briggs & Benshoff, 2020).

Recommended Policy Interventions

- In collaboration with Pennsylvania's network of *Small Business Development Centers*, create a one-stop shop online information sharing mechanism at the Department of Community and Economic Development (DCED) for nature-based businesses to quickly provide guidance, financial information, and online business recovery training.
- Develop a "Reopening Pennsylvania Nature Tourism" report in consultation with public health officials, DCED, and nature-based small business leaders that provides a plan on how to reopen tourism businesses, even on a limited basis.
- Launch an "Explore PA's Natural Beauty Campaign" for in-state residents that highlights open businesses and provides ideas about how to enjoy the outdoors and support the economy in a safe and healthy way during the summer and fall seasons.

"RURAL COUNTIES WOULD BE PARTICULARLY HARD HIT AS THEY RELY ON TOURISM AND OUTDOOR RECREATION FOR THEIR LOCAL ECONOMIES."

- Pass legislation that allows small businesses to claim deep cleaning contracts, cleaning supplies, personal protection equipment, and other safety measures as allowable business expenses to reduce their state taxes.
- Increase funding for DCNR's *Community Conservation Partnership Program Grants* program from $60 million to $62 million to support capacity building, training, and project funding to nature-based nonprofits that support areas of outdoor recreational importance.
- Temporarily eliminate the matching requirement for DCNR for two years to allow easier access to funds that will support nature-based businesses, including those that will benefit businesses indirectly through contract work with communities.
- Provide operating grants and program-related investments of at least $25 million to state Community Development Financial Institutions (CDFI), credit unions, and regional economic development entities to support nature-based small businesses in low income, black and brown communities, and environmental justice areas.[11] The Administration should work with state philanthropic foundations to match or augment these state investments so CDFIs are in a healthy financial situation and can quickly scale up operations and provide loans to businesses that haven't been able to access federal assistance.
- Re-capitalize the *COVID-19 Working Capital Access Program* through DCED and the *Pennsylvania Industrial Development Authority* (PIDA) to $100 million and expand eligibility for projected staffing and operating costs to support nature- based businesses in regions of the state that won't be able to open during the summer and fall tourism seasons.[12]

Support Pennsylvania's Small Farmers and Food Producers

Jobs Protected or Created: *45,000 to 102,000*[13]
Total Cost: *$325 million to $340 million*

Framing Statement

Pennsylvania's agriculture industry contributes $135.7 billion, or approximately 18 percent, of the state's gross product and supports 280,500 direct jobs (TeamPA, 2018).[14] This includes products like livestock, fruits and vegetables, dairy, forestry, landscaping and nurseries, beer, wine, hemp, and food processing. According to the most recent agricultural census in Pennsylvania, there are 59,309 farms in the state, 48,039 of which are 179 acres or less (Mondal & Solano, 2017).

Not only are these small farms an important food source and economic engine, they are also a key source of conservation. Whether it is preserving farmland for future generations, protecting streams from pollution, or enacting best practices to encourage soil health, farmers often are traditional stewards of our natural spaces throughout the Commonwealth.

They are also often looked at to reduce pollution, particularly the nutrients and sediment entering Pennsylvania waterways. For instance, runoff from agricultural lands in the Susquehanna and Potomac River Basins are the most significant source of pollution entering the streams and rivers that ultimately feed the Chesapeake Bay, in part causing severe impacts to sensitive species and habitats (PA Department of Environmental Protection, August 2019). The U.S. Environmental Protection Agency (EPA) has mandated that Pennsylvania cut this pollution load by 2025, meaning the state and farmers must collaboratively invest in reducing pollution while utilizing best farmland practices such as riparian forest buffers along streams, manure storage facilities, and healthy soil best practices. Implementing these practices not only reduces pollution, but they improve farm productivity and create jobs. For example, just one state-of-the-art dairy barn with manure management pits required 25 professionals to install from design through completion (Chesapeake Bay Foundation, 2011).

Prior to COVID-19, 75,000 jobs were estimated to be available in this sector over the next decade due to an aging workforce, immigration policies that have reduced the seasonal workforce, and a dairy industry in financial crisis (TeamPA, 2018). Many Pennsylvania farmers were also enduring falling demand and prices because of the United States' trade wars with China and European countries. But the pandemic is creating a new gut punch to the industry because it is reducing or eliminating demand from schools, restaurants, office cafeterias, and meat purveyors, creating a financial environment that will lead to many family-run small farms going out of business (Marroni, 2020). Emergency financial loan programs offered by the federal government are often out of reach for small farmers because they don't have access to the same legal and accounting staff—or any administrative staff—that larger corporate farms benefit from (Finnerty, 2020). To put it simply, small Pennsylvania farmers are in crisis and the pandemic is pushing many to the breaking point, putting into question the farmers' livelihoods, preservation of Pennsylvania's lands, and our ability to limit water pollution.

"TO PUT IT SIMPLY, SMALL PENNSYLVANIA FARMERS ARE IN CRISIS...PUTTING INTO QUESTION THE PRESERVATION OF PENNSYLVANIA'S LANDS."

Recommended Policy Interventions

- Leverage the proposed *Pennsylvania Conservation and Economic Recovery Corps* (CERC) described below to provide farmers access to workers to implement conservation best management practices, watershed protection projects, and new farm practices.[15]
- In addition to the employment opportunities through CERC, the Department of Agriculture should be directed to develop guidelines and online resources, in collaboration with agriculture trade associations, so that unemployed job seekers have user-friendly access to opportunities on farms throughout the Commonwealth.
- Expand DCED's *COVID-19 Working Capital Access Program* (CWCA) to include an additional $250 million program solely aimed at keeping small family farms from cutting payroll and/or going bankrupt during the pandemic. The loan eligibility cap of $100,000 should be increased to up to $250,000 to provide significant cash support to farms through the summer crop and fall harvest seasons. Loan eligibility and interest rates should be low as many small farms don't have access to other sources of credit and are already cash-strapped.
- Re-capitalize the Resource Enhancement and Protection (REAP) tax credit from $13 million in FY 2019-20 to $25 million for FY 2020-21. The credit cap of $250,000 per agriculture operation should remain, but farms should be allowed to trade the credits after 6 months, rather than 12 months. REAP tax credits will cover 50 percent to 75 percent of conservation project costs, including no-till planting, riparian stream buffers, cover crops, and conservation plans. The tax credit was expanded through the *PA Farm Bill* to $13 million and was quickly allocated on a first-come, first-serve basis.
- Expand DCNR's *Riparian Forest Buffer* program from $500,000 to $1 million to directly support buffer projects on agricultural land. Grants should be allowed to cover greater than 50 percent of project costs.
- Double state funds for the Department of Agriculture *Farmland Preservation* program from $38 million in 2019 to $76 million.[16] This is important for two reasons: (1) it provides farmers an additional preservation option during the pandemic that protects the land while still providing a financial benefit; and (2) it offsets any reduction in county investment in farmland preservation due to budget cuts resulting from the recession. County investments accounted for 32.5 percent of farmland preservation funding in 2019.[17]
- Establish an *Agricultural Cost-Share Program* to provide direct support to farmers for installing conservation practices that can improve farm productivity and improve our rivers and streams. Initially fund the program at $25 million per year. Such programs exist in neighboring states such as Maryland and Virginia. A state cost-share program would leverage state and federal dollars and reduce the cost to farmers for stewarding the land.

Creating a Green Jobs Program to Put Pennsylvania Back to Work

Pennsylvania needs to get back to work and there is no easier way to do that than to invest in green jobs programs. The following recovery investments would take advantage of shovel-ready projects to modernize our green spaces, energy system, and water infrastructure. Each would also provide job opportunities in each of the Commonwealth's counties and to workers of various skill sets that reflect the diversity of unemployed, including high school graduates, college graduates, laborers and tradespeople, engineers, planners, and other technical experts.

Create a Pennsylvania Conservation and Economic Recovery Corps

Jobs Created or Protected: *At least 15,000 in Year 1, depending on the salaries per worker and their length of employment.*

Total Cost: *Up to $905,625,000* [18]

Framing Statement

During the height of the Great Depression, the United States implemented a bold idea—provide the unemployed with job opportunities by building and maintaining environmental infrastructure like state park buildings, trails, tree plantings, forest roads, and flood barriers. For nine years, the Civilian Conservation Corps employed 3 million people, provided shelter and food, and required Corps members to send a portion of their earnings back home to their families, providing much-needed support to hard hit rural communities across America.

The program was so popular that even after its elimination because of World War II, states implemented scaled-down versions of the Corps to support youth job creation, conservation projects, and disaster response.[19] DCNR deploys an *Outdoor Corps* for 18-25 year-olds to conduct 10-month, paid employment to work on projects on state park and forest land.[20] In 2015, Representative Marcy Kaptur (D-OH) introduced the *21st Century Civilian Conservation Corps Act* to reestablish a national Corps to provide employment completing conservation and restoration projects.

While the United States is a much different place than in 1933, an equally bold idea is needed to provide Pennsylvania's unemployed with job opportunities during the COVID-fueled recession. That idea is to create a modern-day *Pennsylvania Conservation and Economic Recovery Corps* (CERC) to provide guaranteed work and family-sustaining wages for conservation projects around the Commonwealth. This would not be an expansion of the DCNR Outdoor Corps, but rather a jobs program to leverage the skills of the unemployed to help rebuild and maintain Pennsylvania's natural infrastructure.

While the immediate challenge is addressing the state's historic unemployment, the long-term natural infrastructure needs of Pennsylvania are also immense and provide a win-win opportunity. The Pennsylvania Parks & Forests Foundation calculated that the state park and forest infrastructure and maintenance needs totaled $1 billion (PPFF, 2018). Pennsylvania's *Phase 3 Watershed Implementation Plan* for the Chesapeake Bay Watershed estimates that the cost of pollution reduction projects in the Susquehanna River and Potomac watersheds, such as for forest buffers, soil health, and agricultural projects, is $521 million per year, of which a deficit of $324 million per year remains (PADEP, August 2019, p. 11). Governor Wolf's *Restore Pennsylvania* plan identified billions of dollars-worth of projects to build green stormwater infrastructure, flood control, brownfield cleanup, and other conservation projects (Wolf, 2019).

"WHILE THE IMMEDIATE CHALLENGE IS ADDRESSING THE STATE'S HISTORIC UNEMPLOYMENT, THE LONG-TERM NATURAL INFRASTRUCTURE NEEDS OF PENNSYLVANIA ARE ALSO IMMENSE…"

Put simply, there are billions of dollars-worth of natural infrastructure projects backlogged throughout the Commonwealth. CERC could help put a major dent in this backlog, leveraging existing program funding at state agencies, federal project and stimulus funds, as well as new state investments to put people back to work rebuilding Pennsylvania.

CERC should also support employment for high school students, recent college graduates, unskilled workers, workers in communities of color, and workers interested in the opportunity to learn new skills that will be transferable to future jobs. There is currently no clear trajectory in these populations and communities to develop skills and enter or re-enter the workforce. This plan would provide such a trajectory and likely cause the current lack of skilled workers that many Pennsylvania employers report to shrink (Hoffman, 2018; PA State System of Higher Education, 2016). For example, millennials who entered the workforce during the Great Recession have had, on average, lower wages (adjusted for inflation) and less accumulated net wealth than other generations (Kurz et al., 2018). CERC could help prevent this from happening to the current generation entering the workforce during the economic fallout from COVID-19 as well as help address the significant racial inequality in the state economy.

Recommended Policy Intervention

- Create the CERC as a new, independent commission that is jointly chaired by leadership from relevant environmental, conservation, agriculture, and economic agencies to quickly develop hiring guidelines, prioritize projects, leverage existing state project management expertise to ensure projects are efficiently managed, and ensure the program engages on projects throughout the Commonwealth.[21]
- Set a goal of hiring 15,000 unemployed Pennsylvanians in the first 12 months.[22] Workers would be hired on 6-month terms, which would be extended based on the needs of the workers and projects.[23] This would allow workers flexibility to find permanent full-time work elsewhere, while also providing a steady workforce for project development.

- Significantly expand maintenance, construction and installation of conservation and pollution reduction projects, including the following:
  - State park and forest maintenance
  - Habitat and wildlife management
  - Green stormwater infrastructure
  - Stream buffers
  - Invasive species removal
  - Main Street beautification projects
  - Implement agriculture best-management projects
  - Tree plantings and other conservation activities
  - Upgrade agency IT infrastructure
- Supplementary to the support described for small farmers above, a portion of CERC hires should be used to assist small Pennsylvania farmers if shortages in skilled labor occur. These hires should also be used to help farmers with technical assistance or with administrative burdens that often prevent them from completing best management plans or accessing available loans, grants, or tax credits.
- CERC should also target employment opportunities for recent graduates, workers without a degree, high school students, and workers in communities of color that have been disproportionately impacted by the pandemic.
- Wages should be able to support a family, so either prevailing wages for the area or at least $24/hour, which would provide the equivalent of a $50,000/year salary.
- Workers should also be provided health insurance, paid sick leave, and paid time off. Additional benefits, such as accreditation, community college credits, or other technical training could also be offered alongside the program so that long-term skills are provided. For example, flexibility could be provided that allows CERC hires to be provided access to discounted or free education at a regional state school or community college rather than getting paid a full salary.
- Require all Pennsylvania counties to submit lists of CERC-based job opportunities, such as organizing projects by DCNR's nature-based regions plus heritage areas, urban communities, and environmental justice areas, so that potential workers have access to projects close to their homes and the program is well integrated with county officials.

Create Jobs by Addressing Legacy Drilling and Mining Pollution

Jobs Protected or Created: *8,480 Total (5,400 for abandoned wells [24] & 3,080 for mine reclamation [25])*

Total Cost: *$673.2 million over 4 years ($453.2 million for abandoned wells and $220 million for mine reclamation)*

Framing Statement:

Pennsylvania's oil drilling and coal mining industries have left Pennsylvania with significant legacy pollution issues that endanger lives, pollute water and air, and hold back economic development in the surrounding areas. Over 200,000 acres of Abandoned Mine Lands exist statewide, representing historic mining sites active prior to 1977 that were inadequately reclaimed or protected and are hazardous because of landslides, fires, air pollution, and water pollution caused by acid mine drainage.[26] Another 200,000 to 750,000 unplugged legacy oil and gas wells pockmark the state, representing abandoned operations that were not properly encased and filled, potentially leaching methane, volatile organic compounds, and other pollution into the air and ground water. Any new economic development of these sites will cost private developers potentially millions of dollars in cleanup, making land reuse costly and, often, untenable.

Prior to the COVID-19 pandemic, the existing oil and gas well plugging workforce operated primarily as small businesses and directly employed 300 people. This small industry—backed by very limited state investment and further hampered by bankrupt or unknown well owners —is not operating at nearly the scale necessary (Weber, 2019). Econsult Solutions (2017, pg. 35) estimates that it will cost $8.4 billion to properly address legacy oil and gas wells. For its part, the PADEP only has 9,000 priority, unplugged wells in its database, though statewide assessments have pinned the number at between 300,000 to 760,000 (PADEP, Sept. 2018). While a fully staffed well plugging mapping effort is still needed in Pennsylvania to properly locate and assess all abandoned wells, addressing the priority list is still a significant effort. Plugging the wells on the priority list would be a win-win: improving environment outcomes as well as supporting a diverse mix of construction and labor jobs, many of which could come from workers in the struggling fracked gas industry and construction workers who struggled during the stay-at-home lockdowns.

Abandoned mine reclamation is an equally significant job and economic opportunity. According to the U.S. Department of Interior Office of Surface Mining Reclamation and Enforcement, Pennsylvania's high priority mine reclamation projects are unfunded by $3.9 billion (U.S. Department of Interior, 2020). The DEP believes the cost is closer to $5 billion (Frazier, 2020).

Funding to address these projects is limited by federal policy. The Surface Mining Control and Reclamation Act of 1977 provided for the restoration of historic mine lands inadequately addressed before 1977. Existing mining operations were assessed a fee per ton of coal, which is placed in the national Abandoned Mine Reclamation (AML) Fund and provides annual funding to Pennsylvania and other historic coal states for reclamation projects. Annual allocations to the states continue, albeit lower today because Congress lowered the fee on coal mining.[27] There is a bipartisan movement in the U.S. Congress to pass the *Revitalizing the Economy of Coal Communities by Leveraging Local Activities and Investing More Act* (RECLAIM Act), which would front load $1 billion from the AML Fund into larger allocations to coal

> “PLUGGING OIL AND GAS WELLS...WOULD BE A WIN-WIN: IMPROVING ENVIRONMENTAL OUTCOMES AS WELL AS SUPPORTING A DIVERSE MIX OF CONSTRUCTION AND LABOR JOBS...”

states over 5 years. Based on the legislation’s allocation formula, Pennsylvania would gain roughly $300 million for mine reclamation that must be tied to economic development projects.

Nonetheless, Pennsylvania should go beyond what the federal government and the RECLAIM Act would invest to boost mine reclamation and more quickly generate new economic opportunities for the Commonwealth. Reclamation projects around the state have shown the pollution and economic benefits of investing in these projects as quickly as possible. For example, in the Wyoming Valley, the Earth Conservancy has reclaimed nearly 2,000 acres of mine-scarred lands that are now available for commerce, attracting businesses such as Wegmans, Adidas, Spreetrail, and TruValue.[28] These projects also create ongoing operation and maintenance jobs when passive treatment systems are used (Hughes, 2019). Historically, Pennsylvania has invested in mine reclamation through *Growing Greener* funding and has proposed additional funding for projects through efforts like *RestorePA*.[29]

Creating jobs through addressing the backlog of legacy coal mining impacts and capping unplugged legacy oil and gas wells will spur economic development opportunities in communities hard hit by the pandemic as well as the recession.

Recommended Policy Interventions

- Invest $450 million over 4 years in the DEP’s *Abandoned & Orphan Well Program* to clear out the 9,000 well backlog. Doing so will also require an additional $3.2 million invest- ment in the DEP program to hire eight full-time positions to administer and manage the program.[30] In addition to new state funds, the legislature could shift funds from Act 13 that are transferred to the Commonwealth Financing Authority back to DEP to partially support this effort.
- Appropriate $220 million over 4 years to the DEP to increase the number of mine reclamation projects and accelerate addressing the backlog of legacy coal mining impacts. This equates to providing a state match on federal investments in mine reclamation through the AML Fund, or $55 million per year. This would double the number of projects and allow existing projects to be completed quicker rather than be segmented over multiple funding cycles.[31]
- By pressuring Pennsylvania’s elected federal policymakers, support and pass the RECLAIM Act, which would provide at least $300 million in mine reclamation funding to the state.

Deploy Shovel-Ready Energy Efficiency Projects to Modernize Our Homes and Businesses

Jobs Protected or Created: *7,940* [32]
Total Cost: *$397 million total*

Framing Statement

The energy efficiency sector is the single largest employer in the clean energy sector with 69,000 jobs, representing everything from insulation manufacturing and installers to efficiency engineers and high-efficiency windows production (E2, 2019). The energy efficiency sector is also the clean energy industry hardest hit by the COVID-19 crisis. The losses in the energy efficiency sector account for about two-thirds of all clean energy unemployment filings as electricians, plumbers, construction workers, energy auditors and others were unable to enter homes, offices and other buildings because of coronavirus quarantines (Renewable Energy World, 2020). As a large, growing, and sustainable industry, policymakers should focus investments on supporting these workers and projects.

Protecting existing and creating new jobs in energy efficiency will have three major impacts. First, it will help restore and grow our regional job market for skilled labor. Second, it will lower the cost of utilities for homeowners and businesses at a time when everyone is trying to make ends meet. Third, it will improve the overall quality of life for Pennsylvanians while they're stuck at home. The new normal is that staying at home also means staying safe from infection, but many people do not have access to safe, healthy, and affordable housing. As we move into the warm summer months, high cooling bills and energy inefficient homes will stress our already energy burdened region (Drehobl & Ross, 2016).[33]

Recommended Policy Interventions

- Increase the borrowing authority of the *Redevelopment Assistance Capital Program* (RACP) by $250 million to issue grants for energy efficiency retrofits in schools around the Commonwealth. In 2020, Governor Wolf proposed a $1 billion increase in RACP for lead and asbestos removal in schools, an important and priority investment. This additional increase would complement these potential toxic removal projects and allow for a more robust retrofit of school buildings at a time when they are closed and school years may be shortened.
- Re-capitalize the *Pennsylvania Energy Development Authority* (PEDA) by $100 million to provide low-interest loans, grants, and loan guarantees for large energy efficiency projects around the Commonwealth.[34]
- Work with the Public Utility Commission to convene energy distribution and energy efficiency companies to share best practices, develop new virtual tools for efficiency providers and explore issuing advance payments on contracts.[35]
- Invest in energy efficiency projects for small businesses by increasing funding for the DEP *Small Business Advantage* grants program from $1 million to $10 million. The grant cap should be increased from $7,000 to $10,000 and the matching cap increased from 50 percent to 75 percent. The program provides grants to small businesses of 100 employees or less to construct projects that save the business at least 25 percent on their energy bills annually.
- Expand the *Small Business Pollution Prevention Assistance Account* loan program at DEP from $2 million to $20 million to provide for large, low-interest loans up to $100,000 for energy efficiency projects such as HVAC, lighting, energy efficient machinery upgrades. Program loans provide up to 75 percent of project costs and are eligible for businesses of 100 employees or less, but the program should be expanded for multi-family buildings, providing an additional tool for landlords to provide better quality of life for its lessors.
- Expand DCED's *Weatherization Assistance Program* by investing $20 million to match the federal government's FY20-21 investment. The weatherization program through DCED is funded by the U.S. Department of Energy to provide grants, averaging $7,000, to low-income residents for energy assessments and housing retrofits.

Modernize Clean Water Infrastructure

Jobs Protected or Created: *5,775* [36]
Total Cost: *$385 million* [37]

Framing Statement

The COVID-19 crisis has placed a burden on water and wastewater utilities because of an expected loss of revenue, threatening the Commonwealth's clean water, rivers, and streams. Pennsylvania's water utilities have continued to operate as an essential service during the crisis, enacting moratoriums on utility shut offs and restoring connections to ensure residents continue to have access to water during the stay-at-home shutdowns (PUC issues, 2020). Much needed water infrastructure projects have also been delayed (American Water Works Association, 2020). Wastewater treatment facilities have seen an increase of trash in their systems because residents are flushing their personal protective equipment down toilets or littering on streets that then washes into combined sewer systems (Tanenbaum, 2020).

These COVID-19 impacts are putting a significant strain on water utilities. The American Water Works Association (AWWA) estimates an aggregate financial impact on water and wastewater utilities exceeding $27 billion or a 16.9 percent impact on water sector revenues nationwide (AWWA, 2020). Expected delays and reductions in capital expenditures will result in communities experiencing a reduction in economic activity by as much as $32.7 billion (AWWA, 2020). This adds to a significant funding problem for Pennsylvania's water utilities. The DEP's *Pennsylvania Water and Wastewater Gap Study* indicated a $18.6 billion "gap" in funding for drinking water and wastewater infrastructure from 2015 to 2025 (PADEP, 2015).[38]

The financial strain is not fleeting and will impact water utilities for years. Utilities will likely defer rate increases—their main source of revenue—in the short term to help residents cope with the pandemic and recession, which will further exacerbate revenue shortages (AWWA, 2020); however, the economic impacts on water utilities may mean larger rate increases are necessary over time to meet the costs of providing service and make up for lost revenue. Even before the COVID-19 water crisis, nationwide water rates were unaffordable for nearly 13.1 million households (Mack & Wrase, 2017). In Philadelphia, prior to the implementation of its income-based tiered-assistance program, nearly 40 percent of residents could not afford to pay their water bills (Nadolny, 2017). In other words, the pandemic is going to set back the ability of water utilities to modernize their infrastructure and put a future strain on residents' ability to afford clean water.

These impacts threaten the Commonwealth's ability to provide clean water. Whether it is from direct impacts like more garbage flowing into our rivers or fewer green infrastructure projects keeping sewage from entering our streams, a financially strained water utility system means more pollution in the future. Water utilities are anchor institutions in their communities, providing essential public health service and family-sustaining jobs. Water infrastructure projects provide an important opportunity to jumpstart the state economy, while safeguarding clean water by investing in shovel-ready water and wastewater infrastructure projects as well as maintenance and repairs of the existing system.

Recommended Policy Interventions

- Appropriate $360 million over 4 years to the *Pennsylvania Infrastructure Investment Authority* (PENNVEST) for drinking water and wastewater infrastructure projects. Funds should be set aside to support the design of green infrastructure alternatives in project development, which would support higher numbers of jobs including architects, planners, and laborers. Funding should also initially prioritize completing existing projects to get the most immediate job creation benefit as well as investments that leverage federal cost-share to increase the number of funded opportunities.[39]
- Prioritize modern, green infrastructure water infrastructure solutions in state water investments—e.g. vegetated buffers, gardens, rooftops, and green spaces that naturally capture water—rather than traditional gray infrastructure—e.g. large tunnels, storage basins, treatment facilities —be-cause they're quicker to develop, create immediate jobs, and provide equitable environmental benefits to communities (Neukrug and Koehler, 2020).
- Amend Act 30 of 2018 to include green stormwater infrastructure in the definition of "Water Conservation Project." This change would significantly increase available private capital through municipal Commercial PACE programs for green stormwater retrofits and projects without costing the state any funds.
- Create a *Green Stormwater Infrastructure Grant* program at DEP and initially capitalize the program at $25 million. Currently, there is no central funding mechanism for green stormwater projects at the state level, aside from PENNVEST, that are open to any type of water project.[40] This grant program would provide financial assistance to projects currently in the design phase so that they can be fully engineered. This would retain and create immediate jobs because much of this work can be done remotely by land-scape architects, engineers, and planners. It could also be leveraged by municipal water utilities and municipal separate storm sewer system (MS4) permittees to support their green infrastructure projects through the design phase.

Advancing Economic Recovery by Doubling Down on Pennsylvania's Clean Energy Industries

The investments in nature-based industries and green job policies described in this platform are a down-payment on a more vibrant and sustainable economy. The policy recommendations would keep nature-based industries from collapsing as well as put many Pennsylvanians back to work at a time of great public health and economic uncertainty. Recovering from the pandemic should not stop with short-term stimulus efforts though. Policymakers should go further and shift the state economy away from the industries that have put the Commonwealth in the shaky economic position it is in by doubling down on Pennsylvania's growing clean energy economy.

For too long, Pennsylvania has relied on oil, steel and coal—and now fracked gas—to prop up its regional economies through natural resource extraction, putting the state at a competitive disadvantage during times of recession and national crisis. And it is now almost singularly focused on the petrochemical industry as another fossil fuel enterprise that would monopolize future economic activity, leaving small and mid-sized towns without long-term sustainable industries as well as a disastrous environmental legacy.

What all these industries have in common is the brutal economic and environmental conditions they leave behind. Small and mid-sized towns and cities throughout the Commonwealth have seen populations decline, youth flee their hometowns, and wealth leave to surrounding states with more stable and diverse opportunities. Boom-and-bust economic cycles have become the norm for blue collar and union workers. Towns are constantly on edge for the next big fossil fuel industry bankruptcy. Green spaces and landscapes are left scarred with culm piles, brownfields, and abandoned wells, affecting how municipalities can attract new businesses and tourism.

"EVEN BEFORE THE PANDEMIC, THE FOSSIL FUEL INDUSTRY WAS HEADING TOWARDS A FINANCIAL CLIFF AND THE COVID-19 PANDEMIC HAS ONLY MADE THE LIKELIHOOD INEVITABLE."

Transitioning Pennsylvania away from its dedication to natural resource extraction won't happen overnight, but doing so isn't impossible either. Even before the pandemic, the fossil fuel industry was heading towards a financial cliff and the COVID-19 pandemic has only made the likelihood inevitable (Richards, 2019). A recent report by CarbonTracker Institute predicted that the COVID-19 pandemic could cause a $25 trillion collapse in future fossil fuel profits (CarbonTracker Institute, 2020).

The fossil fuel industry has relied heavily on government interventions to stay afloat, but those come at a significant cost to taxpayers. Pennsylvania taxpayers provide more than $3.2 billion in fossil fuel subsidies, which equals $794 per Pennsylvania taxpayer (PennFuture, 2015, p. 5). Fossil fuel companies have already benefited from $1.9 billion in CARES Act tax credits to keep them afloat during the pandemic (Dlouhy, 2020). The very business model of the fossil fuel industry, even though it is well over a century old, requires taxpayers to pick up its tab before, during, and after its operation. In other words, industry profits are privatized, but its costs are born on society writ large.

Supporting a vibrant, thriving clean energy industry in Pennsylvania is critical to the future success of Pennsylvania's economy and the well-being of its environment. Clean energy employs more than twice the number of workers as fossil fuel industries (E2, 2019). Diversifying and future-proofing the state's energy portfolio is one way to position the Commonwealth as an economic leader, providing new and environmentally-safe opportunities for its residents. Prior to the pandemic, one in three jobs in Pennsylvania were clean energy jobs (E2, 2019) and clean energy was adding jobs five times faster than the overall state employment growth rate. According to the U.S. Bureau of Labor Statistics Occupational Outlook, the fastest growing occupations between 2018 and 2028 will be solar photovoltaic installers and wind turbine service technicians. The median pay in 2018 for solar photovoltaic installers was $42,680 per year and for wind service technicians it was $54,370 per year. Overall, as of 2019, there were 90,000 jobs in clean energy industries (E2, 2019).

While Pennsylvania was an early leader in renewable development and we have significant potential for solar generation, surrounding states have seen far stronger solar growth in recent years. According to the Solar Energy Industries Association, Pennsylvania ranks 22nd in the nation in solar development with New Jersey, Maryland, New York, and even Massachusetts having more solar installed and more solar jobs than Pennsylvania. A joint project of the PADEP and the U.S. Department of Energy recently concluded a 30-month stakeholder-led project to investigate actions that could increase the amount of in-state solar generation from our current target of 0.5 percent by mid-2021 to 10 percent by 2030. Reaching these goals could create more than 100,000 job-years of construction jobs and over 1,000 direct ongoing jobs (PADEP, April 2019).

The U.S. Department of Energy also reports over 71,000 energy efficiency jobs in 2019 with a year-over-year increase of 2,623 jobs (U.S. DOE, 2020). As the independent statewide evaluator reports, significant additional cost-effective energy efficiency reductions are available through the Act 129 program and there is considerable potential for increased energy efficiency jobs (PA Pennsylvania Public Utility Commission, 2020).

In addition to clean energy being a job creator, it is also a key tool for creating a cleaner environment. Projections indicate that to avert the worst impacts of climate change we must achieve net-zero carbon emissions by 2050. Achieving that target will likely require renewable generation being used for 70 to 85 percent of electricity by 2050, limiting emissions from industrial sources between 60 and 90 percent, and sharply limiting gas to around 8 percent of generation (Intergovernmental Panel on Climate Change, 2018). Despite the job growth, many market and legislative barriers still hamper Pennsylvanians from fully benefiting when compared to other states. Pennsylvania can continue this trajectory by adopting the following recommendations. They will not necessarily provide job opportunities immediately, but would instead support strong, forward-looking clean energy industries to continue growing in the state so that our recovery from the pandemic is swift.

Enable Community Solar

While the distributed (largely rooftop) solar market has been strong for the past few years, it is estimated that 50 to 75 percent of residents lack effective access to solar power. Those impacted includes those living in multifamily housing, renters, low-income families, houses located in shady areas, and other situations. One solution to immediately expand access to solar development is to enable community solar in Pennsylvania, allowing solar consumers to buy or lease a share of a centralized solar system and count the resulting generation much like if it came from their rooftop. Bipartisan bills in the House (HB531) and Senate (SB705) would accomplish this goal. As soon as this program is enacted, private solar developers would be able to invest in developing community solar systems in Pennsylvania.

Incentivize Grid-Scale Solar

In addition to small distributed solar systems that often range from 5 kilowatts (kW) to 3 megawatts (MW) in size, Pennsylvania also has significant potential to install larger grid-scale solar systems such as the 70MW system that BP Lightsource is building under contract with Penn State University, or the similarly-sized system that Community Energy is building to supply power to the city of Philadelphia. One issue holding back development is the inability to craft long-term contracts to sell the power generated, making it more difficult to secure private investment.

To incentivize development, a requirement could be added to the State's Alternative Energy Portfolio Standards Act to ensure a certain percentage of the energy and alternative energy credits be obtained through competitively-bid long-term contracts of between 12 and 20 years.[41]

For example, state legislators could pass SB600 to extend and expand the current Alternative Energy Portfolio Standards Act to require the state obtain 30 percent of its electricity from clean Tier 1 energy sources by 2030 with a significant carve-out for solar photovoltaic generation.[42] The solar targets in that bill alone could create over 100,000 construction jobs and over 1,000 on-going jobs at a net increase in consumer energy spending of 1.2 to 1.4 percent over the next 15 years (PADEP, November 2018), while making the necessary changes to allow for long-term contracting.

Expand Energy Efficiency Opportunities for Businesses, Homeowners, and Renters

Currently, Pennsylvania is in Phase III of the Act 129 Energy Efficiency Program and is working on developing Phase IV. As part of the Phase IV development, the Independent Statewide Evaluator (SWE) analyzed the potential for additional energy efficiency improvements and found that “if Pennsylvania were to pursue all cost-effective achievable potential per the Achievable Potential scenario, the SWE team estimated it would provide $5.80 billion in present value benefits to the economy, at a present-value cost of $4.75 billion. In other words, on average at full scale, for every dollar invested in efficiency, Pennsylvania would accrue $1.22 in economic benefits.” Crucially, this is based on a very limited cost-benefit analysis and does not consider public health and environmental benefits. Nonetheless, it shows the significant benefit increasing investments in energy efficiency can have. To take advantage of this economic opportunity and expand the efficiency industry, three policies are recommended:

> “ON AVERAGE AT FULL SCALE, FOR EVERY DOLLAR INVESTED IN EFFICIENCY, PENNSYLVANIA WOULD ACCRUE $1.22 IN ECONOMIC BENEFITS.”

- ***Update Act 129:*** Unfortunately, Act 129 was designed with investment caps built into the program, which means many energy efficiency measures that can be deployed at no net cost to the consumer will not be required under the program. If legislation were passed removing the investment caps, the Public Utility Commission (PUC) would have the ability to ensure the program can maximize cost-effective emissions reductions.
- ***Consider Energy Efficiency in Utility Rate Cases:*** Currently, when an electric utility files for a rate increase with the PUC, the Commission must ensure that the proposed rate is “just and reasonable” (66 Pa.C.S. § 1301) before approval. Legislation could specify that such a determination requires the Commission to inquire if investment in reasonably available and cost-effective energy efficiency measures could achieve the same goals as a proposed rate increase.
- ***Expand Commercial Property Assessed Clean Energy (C-PACE):*** Pennsylvania recently took a positive step to encourage private investment in energy efficiency by enabling C-PACE. This program lets most commercial entities in participating municipalities obtain loans for clean energy investments that are paid for through property assessments. By lowering the risk for lenders, this makes private capital available at competitive rates. However, this program excludes commercial entities operating multi-family residential units. Nationwide data indicates that approximately 20 percent of the $1.5 billion of C-PACE financings have been for mixed use and multi-family projects (PACENation, 2019). In Philadelphia alone, over $40 million of mixed-use or multifamily projects have been prevented from accessing competitive capital that facilitates cleaner, healthier buildings. Based on C-PACE deal data from across the country, every $1 million of C-PACE financing deployed equates to a carbon impact of removing approximately 1,000 cars from the road (PACENation, 2019). Through 2019, $1.54 billion of C-PACE financing had been deployed, which created 17,848 jobs (Environmental Protection Agency, 2020). The average C-PACE project creates approximately 7 jobs and every $1 million of C-PACE investment and will generate approximately 12 job-years (PACENation, 2019). Legislators can expand private investment in energy efficiency by amending the state’s C-PACE law to include multi-family residential units. This would provide a much-needed tool for landlords to retrofit apartment buildings and other multi-family dwellings.[43]

Build Clean Transportation Infrastructure

In many areas of the country, transportation emissions are the largest source of carbon pollution and create significant adverse health impacts—particularly in densely populated areas.

The market for electric vehicles is expected to experience significant growth as internal combustion vehicles are expected to decrease to 40 percent of the market share by 2030, and with appropriate investment, the Northeast and Mid-Atlantic could see a 60 to 80 percent reduction in carbon pollution by 2050. Reaching this level would require regional investments of $12 to $25 billion, but would return over $150 billion in savings to consumers. When both economic and environmental benefits are considered, net benefits grow to over $311 billion. Two policies are important to consider:

- ***Invest in infrastructure to support vehicle electrification:*** One avenue to expand electric vehicle infrastructure is to work with our existing electric distribution companies regulated by the Public Utility Commission by passing SB 596 (Mensch). This bill would require the preparation of a transportation electrification opportunity assessment, a statewide goal for vehicle electrification 50 percent above the business-as-usual case by 2030, and the development of a framework and plans to electrify transportation infrastructure.
- ***Implement a cap-and-invest program funding clean vehicles and infrastructure***
Currently, a number of states in the Northeast are working together on the "Transportation Climate Initiative Regional Policy Development Process" and have released a framework for a draft of the proposal. Under this framework, fuel suppliers would be required to report emissions to participating states consistent with state monitoring and verification requirements. They would also be required to obtain allowances sufficient to cover those emissions, most of which would be obtained through an auction. Proceeds from the auction would be returned to the participating state and would be invested to achieve carbon emission reductions, reduced air pollution, affordable access to transportation, and other policy goals.

Convening a Green Recovery Summit for Municipal Officials

It is important that the state stimulus and recovery efforts recommended in this framework do not lose sight of the county commissioners, mayors, and municipal officials often tasked with carrying out infrastructure projects. Ensuring that Pennsylvania's recovery is equitable across communities and the state is critical so that an uneven economic renewal does not settle in like it did after the Great Recession.

To this end, Governor Tom Wolf should convene a statewide *Green Recovery Summit* of local and county officials to develop and adopt an economic recovery framework. The convening would discuss a green economy, assess its existing reach across the Commonwealth, and develop prioritized clean and sustain- able infrastructure projects for investment so that state agencies and local officials are collaboratively working together and advancing projects as quickly as possible. Furthermore, it could be an avenue for federal officials and congressional staff to learn about shovel-ready projects and local sustainability needs while developing federal legislation.

Ultimately, the goal of the Summit is to build consensus and get state policy leaders on the same page. Stimulus and recovery dollars should be invested quickly to put people back to work, but it should also be done smartly. This platform document could provide a useful framework for such a convening, particularly because of its focus on infrastructure projects.

Paying for a Green State Stimulus and Recovery Package

The COVID-19 pandemic has created both a public health and economic crisis for Pennsylvania. Bold policies and investments are needed to fully recover from these historic challenges in a way that does not make the Commonwealth more prone to environmental devastation and boom-and-bust economies that have held our state back for generations.

To do this, state policymakers must explore diverse revenue options. The total cost of investing in this short-term stimulus and green jobs platform—$2.83 billion annually—is significant, but proportional to the circumstances the state finds itself in. Long-term economic recovery through doubling down on the clean energy economy would require additional policy changes. Ensuring that deep budget cuts will not hinder environmental protection and job recovery would require even more. In this time of crisis, we should not confine ourselves to how Pennsylvania has attempted—and often failed— to stimulate its economy in the past, lest we relegate ourselves to another slow, mediocre recovery. We can, and should, do better.

State Leaders Should Shape Federal Stimulus Investments

It is widely expected that the federal government will continue to leverage its ability to print and borrow money at historically low interest rates to provide stimulus investments for states and municipalities. Some—if not much—of those dollars may be used for many of the types of programs described in this platform. State policymakers will have some discretion on how those dollars will be used and can shape their stimulus investments accordingly.

More importantly, Pennsylvania's leaders, particularly Governor Tom Wolf, should not play a passive role in federal stimulus policy. States play a significant role in the development of federal stimulus response through formal channels created by the federal government (e.g. a task force) or informal avenues (e.g. Congressional delegation). For example, Governors played a key role in shaping the American Recovery and Reinvestment Act (ARRA) during the Great Recession, leading to roughly $275 billion of the $831 billion in total stimulus investments going directly to state and municipal governments (Pew Charitable Trusts, 2019). This collaboration between state and federal officials allows for federal stimulus dollars to be directed at targeted programs as well as help plug important budget holes caused by the recession. This frees up the state to make even more targeted recovery investments that are tailored to state needs.

Implement New State Revenue Options

Federal stimulus dollars will not provide full funding for stimulus and recovery efforts, so policy-makers will have to develop new revenue. Additional revenue options are available to match the bold initiatives proposed herein to either directly fund the programs or support the payback of a larger bond initiative. Below is a list of innovative options, in no particular order, we believe the state should explore and implement as we recover from this unprecedented crisis:

- ***Establish a Pennsylvania Green Bank***
  A number of proposals have been made, including a green bank and Energy Investment Partnerships, [44] that have the same goal in mind: create a state entity that leverages federal, state, and private sector dollars to invest in clean energy and clean water infrastructure projects. The entity would be capitalized by the state and offer low interest or low-cost loans and other financing mechanisms to support the types of projects described in this platform.
- ***Close the "Delaware" Loophole***
  Establish combined reporting that requires corporations to more accurately report revenues earned in the state, rather than shift its tax burden between Pennsylvania and Delaware, where many businesses incorporate, but do not operate.
- ***Increase the Tipping Fee on Landfills***
  State lawmakers could amend Title 27 to increase the disposal fee for solid waste disposed of at municipal waste landfills. Not only should the fee be increased, but it should be expanded to also be levied on those who dump from waste treatment processes such as fracked gas well operations.
- ***Levy a State Fee on Single Use Plastic Bags***
  Implement a fee on single-use plastic bags to not only disincentivize plastic consumption and reduce litter in our streets and waterways, but also raise revenue for additional environmental programs.

- ***Eliminate Sales Tax Exemption for Bottled Water***
  Under Pennsylvania's tax code, bottled water is exempt from sales tax unlike other bottled drinks. This exemption could be eliminated to raise revenue as well as disincentivize the significant use of plastic water bottles.
- ***Expand Pennsylvania's P3 Program to Include All State Projects***
  Public-private partnerships (P3) are an opportunity to bring in private dollars into clean water restoration work. There are several types of P3s, such as pay-for-performance, Environmental Impact Bonds, and credit trading programs. In establishing a P3 program, Pennsylvania could leverage state money with private dollars to increase the funding available for clean water BMPs.
- ***Fully Implement Pennsylvania's Entrance into the Regional Greenhouse Gas Initiative***
  Pennsylvania is promulgating new rules that would create a carbon emission reduction program that is aligned with the Regional Greenhouse Gas Initiative (RGGI). Through this program, polluting entities would purchase annual credits to emit carbon and those revenues would be reinvested in pollution reduction programs. Fully implementing the program would create a pool of funds that could be used to support some of the recovery efforts described in this platform.

- ***Implement the Fair Share Tax Plan***
  The Fair Share Tax plan would divide Pennsylvania's personal income tax into a separate tax on wages and interest as well as a tax on income from passive wealth (e.g. dividends, capital gains, etc.). The plan would cut the income tax on wages from 3.07 percent to 2.8 percent and sets a new rate of 6.5 percent on income from passive wealth. According to analysis by the Pennsylvania Budget and Policy Center, the proposal would generate at least $2.2 billion in new annual revenue, while cutting or leveling taxes for most in the Commonwealth aside from out-of-state taxpayers and the richest fifth of taxpayers in the state (Pennsylvania Budget and Policy Center, 2019).

- ***Eliminate Long-Standing State Subsidies for Fossil Fuels***
  In 2015 PennFuture published an analysis identifying $3.2 billion worth of subsidies received by the fossil fuel industry in Pennsylvania each year (PennFuture, 2015). That amounted to $724 per taxpayer in the prior year. This includes exempting oil and gas reserves from property tax assessments—itself worth nearly $1 billion, a handout to Shell for the development of their ethane cracker plant worth $1.6 billion, and numerous other tax breaks.

  In the intervening years, we have seen a steady stream of proposals for many millions of dollars in new subsidies that will only take us further from reaching our climate goals. This includes HB1100 that, if passed, would result in hundreds of millions of dollars in additional subsidies for petrochemical plants, and SB 618 that would turn a $10 million subsidy for waste coal plants into a $45 million subsidy. Our recommen- dation remains that Pennsylvania should periodically review these fossil fuel subsidies, analyze the costs and benefits, and redirect these tax expenditures to cleaner alternatives.

- ***Levy a Severance Tax on Fracked Gas Drilling Production***
  The Commonwealth remains the only fracked gas drilling state that doesn't levy a severance tax. Instead, the industry and the legislature struck a deal during the early days of the industry to implement a so-called Impact Fee, which provides a flat fee per well that phases out over time. In comparison, a severance tax would generate revenue based on the amount of natural gas produced by the wells. In other words, Pennsylvania's fracked gas industry is paying far less than in other states, particularly as the number of new wells drilled decreases over time. A severance tax could be enacted to support the green stimulus proposals in this framework, particularly as Pennsylvania transitions away from the fracked gas industry to more sustainable economic development opportunities.

Summary of Green Stimulus and Recovery Reforms and Investments

Pennsylvania is contending with historic public health and economic challenges that require a bold vision for economic stimulus and recovery to put the Commonwealth on a stronger footing in the wake of the pandemic than what existed before. This report lays out a policy roadmap that leverages Pennsylvania's growing nature-based, clean energy, and sustainable industries to create at least 389,000 jobs and build a more resilient and sustainable economy. The policy proposals described herein have four overarching goals:

1. **Safely restarting the state economy in a way that limits the pandemic, reduces pollution, and protects human health.**
2. **Avoiding state budget cuts that will negatively harm economic recovery and nature-based businesses.**
3. **Targeting short-term economic stimulus investments that put Pennsylvanians back to work and provide family sustaining wages.**[45]
4. **Advancing long-term economic recovery investments to support environmentally sustainable infrastructure and industries that underpin resilient and equitable communities.**

Using these basic principles, the following policy recommendations are made to put people back to work, reduce pollution, and rebuild toward a more sustainable economy.

Investments and Policy Reforms Requiring Executive or Agency Action

Convene a Green Recovery Summit for Municipal Officials *(see page 29)*

Governor Tom Wolf should convene a statewide *Green Recovery Summit* of local and county officials to develop and adopt a sustainable economic recovery framework. The convening would develop a priority list of clean infrastructure projects so that state agencies can take quick action as well as provide a consensus framework document for future stimulus and recovery investments at the local level.

Safely Reopen and Support Nature-Based Small Businesses *(see page 12)*

- Create a one-stop shop of business recovery guidance for nature-based businesses.
- Develop a *Reopening Pennsylvania Nature Tourism* report on safely reopening during the pandemic.
- Launch an *Explore PA's Natural Beauty Campaign*, targeting in-state residents on how to safely take advantage of outdoor tourism during the pandemic.

Support Small Farmers and Food Producers *(see page 14)*

- Develop resources to connect job seekers to opportunities on farms during harvesting.

Address Legacy Drilling and Mining Pollution *(see page 19)*

- Pressure Pennsylvania's federal policymakers to support and pass the RECLAIM Act, which would provide at least $300 million in mine reclamation funding to the state.

Modernize Our Homes and Businesses through Energy Efficiency Projects *(see page 21)*

- Work with the PUC to convene stakeholders to share best energy practices, develop new tools, and build consensus on advance payment provisions.

Invest in Clean Transportation *(see page 29)*

- Implement a cap-and-invest program to fund clean vehicles and infrastructure investments. One such initiative is the Transportation Climate Initiative Regional Policy Development Process.

Investments and Policy Reforms Requiring Legislative Action

Avoid State Budget Cuts that Will Harm Economic Recovery *(see page 10)*

- Reject broad-based austerity measures to balance the state operational budget, particularly by rejecting cuts to environmental, conservation, wildlife, and agriculture programs, and instead advancing policies that build-on these important agencies to jumpstart the economy.

Safely Reopen and Support Nature-Based Small Businesses *(see page 12)*

- Pass legislation allowing small business tax deductions for implementing safety measures and expenses.
- Increase funding for DCNR's *Community Conservation Partnership Program Grants* and temporarily eliminate the matching requirement.
- Provide operating grants of at least $25 million to state *Community Development Financial Institutions* and other regional economic development entities to support nature- based small businesses, including in low-income black and brown communities and environmental justice areas.
- Re-capitalize the *COVID-19 Working Capital Access Program* by at least $100 million to support nature-based businesses in regions that may not be able to reopen during the summer and fall tourism seasons.

Support Small Farmers and Food Producers *(see page 14)*

- Expand the *COVID-19 Working Capital Access Program* by $250 million and increase eligibility to keep small family farms from cutting payroll or averting bankruptcy during the pandemic.
- Re-capitalize the *Resource Enhancement and Protection* tax credit by $25 million and allow for more flexible credit trading.
- Expand DCNR's *Riparian Forest Buffer* program to $1 million.
- Increase PDA's *Farmland Preservation* program to $76 million to preserve more farmland during the pandemic and offset reductions in county investments.
- Establish an *Agricultural Cost-Share Program* and initially fund it at $25 million per year to invest in farm pollution reduction projects that also improve land productivity.

Create a PA Conservation and Economic Recovery Corps (CERC) *(see page 16)*

- Set a goal of hiring at least 15,000 unemployed Pennsylvanians in the first 12 months for at least 6-month terms, which could be extended based on their needs and project needs.
- Projects would focus on state park and forest maintenance, habitat management, green storm-water infrastructure, stream buffers, Main Street beautification, agriculture projects, tree planting, and other natural infrastructure needs.
- CERC should supplement support for the agriculture sector as well as provide family-sustaining wages of at least $24/hour, plus health benefits, paid sick leave, and paid time off.
- Counties should submit lists of CERC-based job opportunities, organized by DCNR's nature-based regions plus heritage areas so that projects are equitably spread across the Commonwealth.

Address Legacy Drilling and Mining Pollution *(see page 19)*

- Invest $453 million over 4 years in DEP's *Abandoned & Orphan Well Program* to clear a backlog of 9,000 abandoned wells that are "shovel-ready."
- Invest $220 million over 4 years to DEP for mine reclamation projects, doubling the number of projects sourced through existing funds.
- Create a public-private program, through the *Environmental Good Samaritan Act*, to expand the number of PA small businesses working to plug and reclaim abandoned wells and mine land.

Modernize Our Homes and Businesses through Energy Efficiency Projects *(see page 21)*

- Increase borrowing authority of the *Redevelopment Assistance Capital Program* by $250 million to issues grants for energy efficiency retrofits in schools.
- Re-capitalize the *Pennsylvania Energy Development Authorit*y by $100 million to provide financial vehicles for large efficiency projects.
- Increase funding for DEP's *Small Business Advantage* program to $10 million and increase projects caps for efficiency projects at small businesses.
- Expand the DEP *Small Business Pollution Prevention Assistance Account* to $20 million and expand loan eligibility to multifamily buildings.
- Expand DCED's *Weatherization Assistance Program* by $20 million to support grants to low-income housing retrofits.

Support Shovel-Ready Clean Water Infrastructure Projects *(see page 23)*

- Appropriate $360 million over 4 years to PENNVEST for drinking water and wastewater infrastructure projects, including set-asides for designing and implementing green infrastructure projects.
- Amend Act 30 of 2018 to include green stormwater infrastructure in the definition of "water conservation project," so that clean water projects are eligible for Commercial PACE programs.
- Create a *Green Stormwater Infrastructure Grant* program at DEP, initially funded at $25 million, to support projects in the design phase, including support for municipalities designing local projects.

Enable Community Solar *(see page 27)*

- Pass legislation that allows for community solar, increasing to 50 to 75 percent the number of PA residents with access to solar power if they choose to do so. Current bipartisan bills exist to do so, including HB 531 and SB 705.

Incentivize Grid-Scale Solar *(see page 27)*

- Amend the state *Alternative Energy Portfolio Standards Act* to ensure that a certain percentage of energy credits are obtained through competitively-bid long-term contracts as well as increase the share of electricity the state must source from renewable energy. Current bills exist to do so, including SB 600.

Expand Energy Efficiency Opportunities *(see page 28)*

- Remove the investments caps in Act 129 to allow for more energy efficiency projects at no net cost to consumers.
- Enact legislation to require the PUC to inquire if investment in available energy efficiency measures could achieve the same goals in proposed electric utility rate increases.
- Amend Act 30 of 2018 to include multi-family residential units as eligible to participate in commercial PACE programs so that landlords can retrofit apartment buildings.

Invest in Clean Transportation *(see page 29)*

- Prepare a transportation electrification opportunity assessment and set a statewide goal for vehicle electrification of at least 50 percent above business-as-usual by 2030. Existing bipartisan legislation exists to do so, including SB 596.

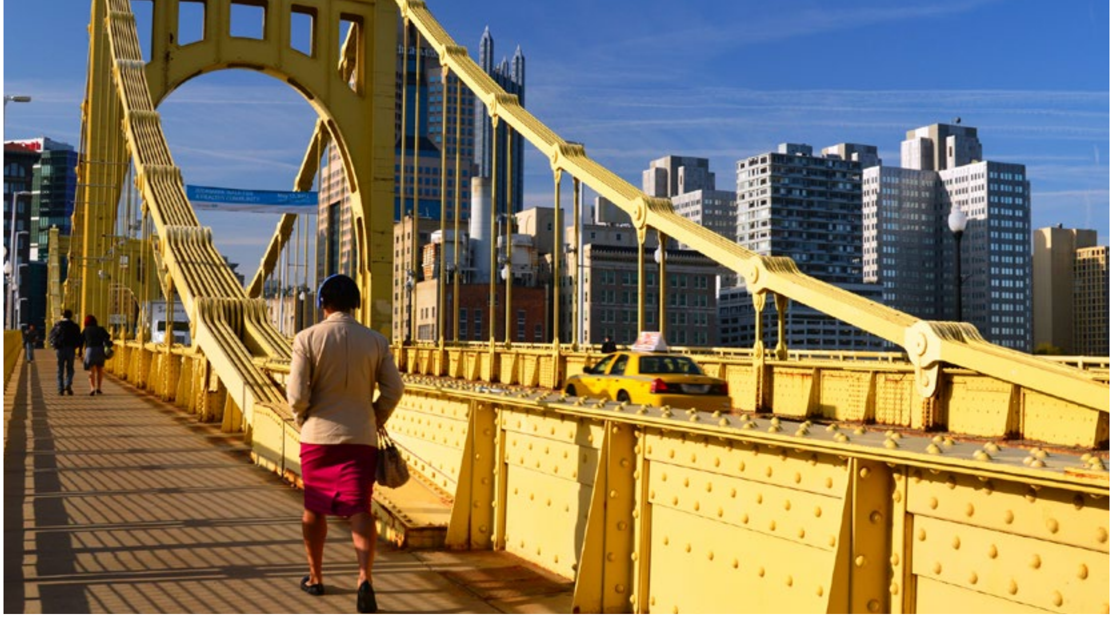
Conclusion

It is truly an unprecedented time in both Pennsylvania and the United States. A short decade after a historic global financial collapse, the state economy is being brought to its knees by a pandemic unseen in 100 years. Businesses are closing shop—many for good—as state leaders are all but forced to place restrictions on commerce and social interactions to limit the spread of the coronavirus and keep people safe and healthy. Until a viable vaccine or treatment is developed, the fear of infection will keep the state economy in a precarious limbo.

> "THERE IS NO PLAYBOOK ON HOW TO NAVIGATE SUCH A CRISIS, BUT WE MUST PERSEVERE, ADAPT, AND ADJUST UNTIL THE THREAT OF THE VIRUS IS ELIMINATED."

There is no playbook on how to navigate such a crisis, but we must persevere, adapt, and adjust until the threat of the virus is eliminated. While the safety of the state population is the first priority for any elected official, the economy is a close second. Unemployment and business closures bring about their own version of social pain that must also be limited as much as possible. Pennsylvania entered the pandemic in an already precarious position. Many counties and regions still had not recovered from the Great Recession, if not the longer-term economic decline caused by the collapse of heavy industry in the United States. While unemployment was low pre-pandemic, warning signs were blaring as the fracked gas and petrochemical industry hit yet another series of financial headwinds, farmers were injured by the Trump Administration's trade wars with China and Europe, racial inequality continued to grow across the state, and the state's ability to spark innovation and entrepreneurship had run flat. The pandemic has accelerated the economic decline that many observers warned was already starting to happen.

Unfortunately, the economy has declined rapidly, putting millions out of work in a few short months. Pennsylvania's leaders should be working overtime to address the unemployment crisis, and this report lays out tangible investments to get people back to work safely. Historic times call for bold measures, and this policy agenda does not keep within the boundaries of past recessions because our current situation is not anything like those previous circumstances. Instead, it calls for bold investments and proposes new programming to rebuild our natural infrastructure, which not only provides people meaningful, profitable work, but it also creates a better, cleaner future—a true win-win.



> "IMPLEMENTING THE REFORMS AND MAKING THE INVESTMENTS RECOMMENDED IN THIS POLICY PLATFORM WOULD BE IMPORTANT STEPS TOWARD BUILDING A MORE SUSTAINABLE, EQUITABLE, AND RESILIENT ECONOMY THAT PUTS PEOPLE BACK TO WORK TODAY..."

While this report is aimed at helping address the economic crisis, it is also an evergreen model for how state policymakers can diversify and modernize the economy. For too long, Pennsylvania has relied on natural resource extraction. The state has failed to grow its economy beyond this basic pillar, backing it into a corner whenever there is a national crisis or when the whims of the global market, investors, or even other countries hold it hostage. Stuck in this boom-and-bust cycle are its workers. Skilled labor, engineering, computer science, farm, white collar, blue collar, and service workers alike are impacted with little recourse. Black and brown communities continue to be beset by pollution and fewer economic opportunities. Decade after decade, state policymakers point to the same industries for help and the state gets the same results—a few boom years followed by environmental devastation and economic bust. A simple drive through small town Pennsylvania proves this point.

This time feels different. Many states surrounding Pennsylvania are diversifying their economies and pointing in new, more sustainable directions. Clean energy and the broader nature-based and sustainable industries have become bigger players than traditional fossil fuels, hiring a far more diverse set of workers for good wages. There is no reason why Pennsylvania cannot have the same. In fact, as this report details, we already have the underpinnings of these industries and they are ready to grow and expand operations. Natural resource extraction industries, like fracked gas and petrochemicals, are not offering a bold alternative as they scale back operations and face bankruptcies. Their time as economic leaders is waning. The traditional policy answer to an economic crisis—throw more taxpayer money at natural resource extraction industries—just does not fit Pennsylvania anymore.

Implementing the reforms and making the investments recommended in this policy platform would be important steps toward building a more sustainable, equitable, and resilient economy that puts people back to work today, but also advances industries to keep them employed in the future. We are also not shy about the platform's co-benefits: far less air, climate, and water pollution that makes people sick and impacts our communities. It is what makes these policies unique compared to other stimulus proposals. They simply cannot offer the important pollution reduction benefits that will greatly improve the quality of life of all Pennsylvanians.

Former Republican Governor of Pennsylvania and visionary leader of the U.S. Forest Service Gifford Pinchot once said that, "The vast possibilities of our great future will become realities only if we make ourselves responsible for that future." [46] We call on Pennsylvania's leaders to take responsibility for the future of the Commonwealth and charter a sustainable path through the fog of a global pandemic and economic crisis. Bold leadership is needed and the pieces of a broad and prosperous green recovery are in place, if only our political leaders choose to take advantage of them.

Endnotes

1 Cases are tracked daily through the Pennsylvania Department of Health, accessed on July 7, 2020.

2 Pennsylvania has moved 67 counties to either a "yellow" or "green" phase reopening. A yellow phase re-opening includes continuing telecommuting, if feasible, prohibiting large gatherings of 25 or more people, continued closure of gyms, spas, nail salons, and entertainment businesses, as well as limiting restaurants and bars to carry-out and delivery. The "green" phase allows for further easing of restrictions on economic activity as long as CDC and Department of Health guidelines are strictly followed, including larger gathering sizes and more business capacity. Nonetheless, even a green phase includes restrictions and recommends strict social distancing guidelines.

3 The United Way Worldwide defines Family-Sustaining employment as employment that pays a family-sustaining wage, offers benefits including paid sick leave, and offers career pathways that provide opportunities for wage and career advancement. Also, the family-sustaining wage calculator through MIT estimates that in Pennsylvania a single adult with one child needs $50,000 a year.

4 Note that Pennsylvania's Department of Labor and Industry does not county agriculture employment due to the difficulty in gathering timely data. Nonetheless, it's been well reported that farmers expect to be impacted by the pandemic, particularly as harvesting seasons begin in May. Referencing this state data does not ignore these issues, but rather is using the best available data for comparison.

5 A broad look at manufacturing can be found at Soergel (2020). A look at the trade impacts on steel and metal producers can be found at Daniel Moore (2020). A brief summary of impacts on Pennsylvania farmers before the Phase 1 U.S.-China trade deal, can be found at Pittsburgh Post Gazette Editorial (2019).

6 For a broader assessment of the industry, see Eavis (2020). In addition, it's clear that the fracked gas industry must rely on subsidies to prop it up due to its economic fragility. For a summary, see Stonesifer (2020).

7 The total workforce complement in 2005 was 84,038 compared to 78,242 in 2019 according to the Pennsylvania Office of the Administration State Government Workforce Statistics—2020 report.

8 A significant body of literature exists that point to the economic and social troubles caused by austerity measures implemented, most recently, in response to the Great Recession. For recent input from economic experts, see the impacts of austerity in the United Kingdom (New Statesman, 2020), the impacts of austerity throughout Europe (Krugman, 2015), the lack of impact of fiscal expansion on debt/GDP ratios (Coppola, 2017), and a longer look back at the impact of austerity during the Great Recession in the United States and Europe (Krugman, 2019).

9 See Stuckler and Basu, 2013.

10 Beyond the direct costs of the two loan program projected costs, the additional policies listed are assumed to cost between $500,000 and $1 million to develop a hub of information on the DCED website as well as develop the industry-specific reopening plan. In addition, it's difficult to estimate the cost in forgone tax revenue by allowing small businesses the ability to write-off clean and safety supplies, so a range in costs is provided.

11 The Department of Environmental Protection defines an environmental justice area as any census tract where 20 percent or more individuals live in poverty, and/or 30 percent or more of the population is minority. This is based on the most current census tract data from the U.S. Census Bureau and the federal guidelines for poverty. https://www.dep.pa.gov/Public Participation/OfficeofEnvironmentalJustice/Pages/PA-Environmental-Justice-Areas.aspx

12 The COVID-19 Working Capital Access Program was created to support small businesses (less than 100 employees) in the Commonwealth by providing low or no-interest loans of $100,000 to cover 3 months of working capital costs. The Program was funded at $61 million and is fully expended as of the drafting of this report.

13 If the programs are targeted correctly toward small family farms, the goal is to protect the 48,039 small farms that are less than 179 acres, but also assume this support will induce additional economic benefits for landscape, food and beverage manufacturing, and forestry segments of the industry. As such, a range is provided. It's also difficult to assess new job creation potential of these programs, but increasing the conservation, buffer, and farmland preservation programs will provide new project support for both the CERC workforce described above as well as existing land accessors, watershed engineers, and project designers. A conservative range of 1,000 to 2,000 jobs for these policies is provided to reflect on this expected job creation.

14 TeamPA (2018) breaks employment data down further by noting that agriculture production (crops and animals) employ 80,645; forestry employs 64,078; food and beverage manufacturing employs 90,217; and landscaping employs 45,569.

15 It's assumed that these costs include the proposed program costs described in the section above for the Pennsylvania Conservation and Economic Recovery Corps.

16 The PA Department of Agriculture Bureau of Farmland Preservation manages and tracks preservation funding. Their most recent 2019 spending allocation data for state funds totaled $38 million.

17 According to the Bureau of Farmland Preservation, county governments invested $18,265,081 in 2019 compared to $56,264,081 total.

18 Cost estimate is based on the following calculation: $50,000/year salary plus 15 percent for benefits, or $57,500 total. For 15,000 new hires, this equals $862,500,000. Administration costs are assumed to be 5 percent or $28,750,000 for a total estimated cost of $905,625,000. It's assumed this is a maximum cost as the state will provide different salary grades for projects and this estimate assumes workers stay for a full year.

19 Many states have programs similar to the core ethic of the conservation corps, including the California Conservation Corps, Texas Conservation Corps, Montana Conservation Corps, and the Washington Conservation Corps. Many programs are certified through AmeriCorps.

20 Information about the Pennsylvania Outdoor Corps can be found here: https://www.dcnr.pa.gov/outdoorcorps/Pages/default.aspx

21 Leadership from the following agencies would be important to consider: Department of Environmental Protection, Department of Conservation and Natural Resources, Department of Community and Economic Development, Department of Agriculture, Game Commission, Fish & Boat Commission, and the County Conservation Districts.

22 CERC should consider diverse skill sets and job opportunities so that employment opportunities are available for laborers, engineers, architects, recent graduates, unskilled workers, and other trades.

23 This would be a 156 percent increase in workforce for environmental protection, agriculture preservation, and general conservation projects. According to the Pennsylvania Office of Administration Workforce Statistics Dashboard for 2020, DCNR's full-time workforce totals 1,245, plus an additional 1,300 seasonal employees during peak park and forest visitor season. DEP's full-time workforce totals 2,326. The Department of Agriculture totals 541, the Game Commission employs 642 workers, and the Fish & Boat Commission employs 348 workers. The total, existing workforce for the main environmental and conservation state agencies is 6,402.

24 Through conversations with the DEP and current well plugging companies, we estimate the existing well plugging workforce accounts for 15 Pennsylvania companies, each employing approximately 20 employees, or 300 total direct jobs. If the 15 currently operating companies were to add one crew of 6 to 8 employees to fulfill the proposal of plugging 9,000 wells over the next 4 years, this would add 100 new, direct jobs. The DEP internally estimates that the construction workforce needed to support plugging 9,000 wells would create 4,700 additional full time jobs. Broadly, the DEP estimates that 300 total jobs are created per $25 million invested in abandoned well plugging, or 5,400 jobs.

25 Dixon & Bilbrey (2015) calculated the economic benefit of abandoned mine reclamation by using the Department of Interior (DOI) annual economic benefit reports. For FY2012, 7,817 jobs were created from $490 million in AML investment and 4,761 jobs were created in FF2013 on $322 million. Respectively, this equates to 15.9 and 14.7 jobs created per $1 million invested in abandoned mine reclamation. A more recent FY2018 DOI economic report provides data that suggests 2,027 jobs were created in Pennsylvania on $55.7 million in AML grants, or 36.4 jobs per $1 million investment. Using a more conservative estimate—14 jobs created per $1 million invested—it's estimated that $220 million in investment would create 3,080 new jobs.

26 Pennsylvania has mined coal since 1790, beginning just 14 years after the Declaration of Independence was signed. Coal and mining was essential to this state, to families and to communities, and to the success of the country, but its hey-day is past. It has left a bewildering legacy of harm: Tens of thousands of lives have been lost in mining accidents and many more have been lost to a horrendous disease called black lung.

27 In 2008, Congress reduced the per ton fee on surface mined coal by 10 percent to 31.5 cents and underground mined coal by 10 percent to 13.5 cents. In 2013, the fees were reduced again to 28 cents and 12 cents respectively. Combined with an industry-wide reduction in coal mining, Pennsylvania's share of AML funds has fallen from a high of $67 million in 2012 to $33 million in 2019.

28 For a look at some of Earth Conservancy's reclamation projects, see: https://www.earthconservancy.org/projects/

29 For more information on Growing Greener, see: https://pagrowinggreener.org. For more information on RestorePA, see: https://www.governor.pa.gov/newsroom/governor-wolf-releases-seven-detailed-white-papers-on-restore-pennsylvania-initiative/

30 Through conversations with DEP, the approximate cost of properly plugging each abandoned well will cost $50,000. To clear out the 9,000 well backlog on DEP's priority list, it would cost $450 million or $112.5 million per year over 4 years. Eight new DEP full-time employees to support managing this program would each cost $100,000 per position for 8 positions or $800,000. The total cost over 4 years would be $3.2 million.

31 According to the DEP, AML Fund grants to Pennsylvania were $33 million in 2019 and are projected to increase to $55 million in 2020 and $54 million in 2021.

32 The American Council for an Energy-Efficient Economy provides job multipliers for investments in energy efficiency. Because of the diverse, and more labor intensive, nature of energy efficiency activities, projects average 20 gross jobs per $1 million of investment, of 7,940 projected new, gross jobs.

33 In an "Energy Burden" review of 48 major U.S. metropolitan areas that African-American and Latino households spend disproportionate amounts of their income on energy and that more energy efficiency measures would help close the gap by at least one-third. Philadelphia ranked 8th, with low-income households paying 8.8 percent of their household income on utilities - more than three times the amount than higher income households that pay on average 2.3 percent.

34 PEDA last awarded funds for 21 projects in 2014 for a total investment of $81 million. With an investment of $100 million, it's estimated that 25 large projects could be provided funding.

35 This convening was proposed by the Keystone Energy Efficiency Alliance (KEEA) in their Act 129 Phase IV public comments, found here: https://keealliance.org/keea-covid-policy-response/

36 The Value of Water Campaign study The Economic Benefits of Investing in Water Infrastructure finds that for every $1 million invested in clean water and wastewater projects, between 15 and 18 jobs are created. Using the more conservative number of 15 jobs, this includes 6 direct jobs and another 9 indirect jobs triggered by the initial investment. Therefore, based on a total proposed investment of $385 million, we estimate 5,775 jobs would be retained and created.

37 It's unknown what kind of job impact changes to the state C-PACE law would have, though it's estimated it would generate immediate project opportunities. As a result, the economic impact of that policy change is not included in the estimates for this report.

38 The study assumed that increasing rates on water and wastewater by 1.5 percent each would reduce the funding gap to $4.2 billion. Federal funds would further reduce the gap, leaving Pennsylvania with a $900 million state investment gap, of $90 million per year.

39 Federal water infrastructure investment vehicles, such as the EPA's Water Infrastructure Finance and Innovation Act (WIFIA) and the USDA Rural Water Program, all limit the percentage of projects that can be funded by federal or program resources.

40 Other states, including New York, Massachusetts, and New Jersey provide much broader state grant programs for green infrastructure, in addition to traditional methods of financing water projects.

41 In addition to small distributed solar systems that often range from 5 kilowatts (kW) to 3 megawatts (MW) in size, Pennsylvania also has significant potential to install larger grid-scale solar systems such as the 70MW system that BP Lightsource is building under contract with Penn State University, or the similarly-sized system the Community Energy is building to supply power to the City of Philadelphia. One issue holding back development is that, without long-term contracts to sell the power generated, it's difficult to secure private investment. To incentivize development, a requirement could be added to the State's Alternative Energy Portfolio Standards Act to ensure a certain percentage of the energy and alternative energy credits be obtained through competitively-bid long-term contracts of between 12 and 20 years.

42 See e.g. SB 600, Section 3.2.

43 It's unknown what kind of job impact changes to the state C-PACE law would have, though it's estimated it would generate immediate project opportunities. As a result, the economic impact of that policy change is not included in the estimates for this report.

44 For example, the Coalition for Green Capital and the Nature Conservancy have proposed a Pennsylvania Energy Investment Partnership as a way to support distributed energy projects.

45 The United Way Worldwide defines Family-Sustaining employment as employment that pays a family-sustaining wage, offers benefits including paid sick leave, and offers career pathways that provide opportunities for wage and career advancement. Also, the family-sustaining wage calculator through MIT estimates that in Pennsylvania a single adult with one child needs $50,000 a year.

46 Gifford Pinchot's quote can be found in his compendium of essays under the title The Fight for Conservation.

References and Citations

Alter, T., Fuller, T., Hoy, R., Martino, N., Schmidt, C., & Sontheimer, T. (2019, June). *Pennsylvania: Bust to boom? Great recession to recovery & beyond.* Penn State Center for Economic and Community Development. https://aese.psu.edu/research/centers/cecd/publications/market-trends/pennsylvania-bust-to-boom-great-recession-to-recovery-beyond-2008-2018

American Water Works Association. (2020, April 14). *The Financial Impact of the COVID-19 Crisis on U.S. Drinking Water Utilities.* https://www.awwa.org/Portals/0/AWWA/Communications/AWWA-AMWA-COVID-Report_2020-04.pdf

Bozuwa, J., Cha, M.A., Cohen, D.A., Fleming, B., Goodman, J., Johnson, A.E., ... Pelican, S. (2020, March 22). *A green stimulus to rebuild our economy: An open letter and call to action to members of congress.* https://medium.com/@green_stimulus_now/a-green-stimulus-to-rebuild-our-economy-1e7030a1d9ee

Briggs, R., & Benshoff, L. (2020, April 13). Here's where coronavirus is causing unemployment to spike in PA. *WHYY.* https://whyy.org/articles/heres-where-coronavirus-is-causing-unemployment-to-spike-in-pa/

Carbon Tracker Institute (2020, June 4). *Decline and fall: the size & vulnerability of the fossil fuel system.* https://carbontracker.org/reports/decline-and-fall/

Caruso, S. & Shanahan, J. (2020, May 28). Lawmakers advance plan to spend $2.6 billion of Pennsylvania's coronavirus stimulus. *Pennsylvania Capital Star* https://www.penncapital-star.com/government-politics/lawmakers-advance-plan-to-spend-2-6-billion-of-pennsylvanias-coronavirus-stimulus/

Ceres. (2020, May 12). *More than 330 major businesses call on U.S. Congress to build back a more resilient, sustainable economy from COVID-19.* https://www.ceres.org/news-center/press-releases/more-330-major-businesses-call-us-congress-build-back-more-resilient

Chesapeake Bay Foundation. (2011, December). *Debunking the "Job Killer" Myth: How Pollution Limits Encourage Jobs in the Chesapeake Bay Region—report.* https://www.cbf.org/document-library/cbf-reports/Jobs-Report-120103-FINALe2ef.pdf

Collett-White, R. (2019, August 23). *Environmental enforcement agencies have been crippled by austerity—report*. Desmog UK. https://www.desmog.co.uk/2019/08/23/environmental-enforcement-agencies-crippled-austerity-report

Dlouhy, J. (2020, May 15). 'Stealth Bailout' shovels millions of dollars to oil companies. *Bloomberg*. https://www.bloomberg.com/news/articles/2020-05-15/-stealth-bailout-shovels-millions-of-dollars-to-oil-companies

Drehobl, A., & Ross, L. (2016, April 20). *Lifting the high energy burden in America's largest cities: How energy efficiency can improve low-income and underserved communities*. American Council for an Energy-Efficient Economy. https://www.aceee.org/research-report/u1602

E2. (2019, June 18). *Clean Jobs Pennsylvania*. https://www.e2.org/wp-content/uploads/2019/06/E2-Clean-Jobs-Pennsylvania-2019.pdf

EConsult Solutions. (2017, Feb. 22). *The local economic impact of the conventional oil and gas industry in Western Pennsylvania*. http://www.senatorscotthutchinson.com/wp-content/uploads/sites/11/2017/05/Local-Economic-Impact-of-Conventional-Oil-and-Gas-Industry-in-Wester.pdf

Environmental Protection Agency (2020, March). *Greenhouse Gas Calculator*. https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator

Emejulu, A. & Bassel, L. (2018). Austerity and the Politics of Becoming. *Journal of Common Market Studies*. https://doi.org/10.1111/jcms.12774

Finnerty, J. (202, May 11). Farmers skeptical that federal loans will have much impact. *New Castle News.* https://www.ncnewsonline.com/news/local_news

Fischler, J. (2020, May 10). Can lessons from the Great Recession help states avoid budget disasters? *Pennsylvania Capital-Star*. https://www.penncapital-star.com/covid-19/can-lessons-from-the-great-recession-help-states-avoid-budget-disasters-analysis/

Frazier, R. (2020, February 6). *Feds lower coal mine cleanup funding for Pa.* StateImpact Pennsylvania. https://tinyurl.com/ybfmzhtg

Gelinas, N. (2020, April 15). Pennsylvania is place to watch for whether post-shutdown recovery works. *New York Post*. https://nypost.com/2020/04/15/pennsylvania-is-place-to-watch-for-whether-post-shutdown-recovery-works/

Hoffman, C. (2020, Oct. 4). *Careers in Construction Month*. Pennsylvania Builders Association. https://www.pabuilders.org/news/6707541

Holder, M. (2020, May 4). *Investors holding trillions of dollars of assets join calls for green COVID-19 recover*. BusinessGreen. https://www.businessgreen.com/news/4014732/investors-holding-trillions-dollars-assets-join-calls-green-covid-19-recovery

Hughes, R. (2019, March 28). *Legislative Hearing: Abandoned Mine Land Reclamation: Innovative Approaches & Economic Development Opportunities*. Subcommittee on Energy and Mineral Resources. https://docs.house.gov/meetings/II/II06/20190328/109176/HHRG-116-II06-Wstate-HughesR-20190328.pdf

Independent Fiscal Office. (2020). *Initial Revenue Estimate: FY 2020-21*. http://www.ifo.state.pa.us/download.cfm?file=Resources/Documents/Revenue-Estimate-2020-05.pdf

Intergovernmental Panel on Climate Change. (2018). *Global Warming of 1.5°C*. https://www.ipcc.ch/sr15/

Kochhar, R. (2020, March 23). New, emerging jobs and the green economy are boosting demand for analytical skills. *Pew Research Center*. https://www.pewresearch.org/fact-tank/2020/03/23/new-emerging-jobs-and-the-green-economy-are-boosting-demand-for-analytical-skills/

Kurz, C., Li, G., & Vine, D.J. (2018, November). *Are Millennials Different?* Federal Reserve Board. https://www.federalreserve.gov/econres/feds/files/2018080pap.pdf

Leonhardt, D. (2020, May 20). A struggling stimulus program. *New York Times*. https://www.nytimes.com/2020/05/20/briefing/coronavirus-johnson-and-johnson-michigan-your-wednesday-briefing.html

Mack E.A., & Wrase S. (2017). A Burgeoning Crisis? A Nationwide Assessment of the Geography of Water Affordability in the United States. *PLoS ONE* 12(1). https://doi.org/10.1371/journal.pone.0169488

Marroni, S. (2020, April 26). As meat-processors accept fewer animals during coronavirus, Pa. farmers take financial hit. *PennLive*. https://www.pennlive.com/news/2020/04/as-meat-processors-accept-fewer-animals-during-coronavirus-pa-farmers-take-financial-hit.html

Maxim, R., & Muro, M. (2019, August). *Ideas for Pennsylvania innovation: Examining efforts by competitor states and national leaders*. The Brookings Institute. https://www.brookings.edu/research/ideas-for-pennsylvania-innovation-examining-efforts-by-competitor-states-and-national-leaders/

McCann, A. (2020, June 17). *2020's State Economies with the Most Racial Equality*. WalletHub. https://wallethub.com/edu/state-economies-with-most-racial-equality/75810/

Mondal, S., & Solano, R. (2017, January). *Analysis of 2012 Census on Agriculture Data*. The Center for Rural Pennsylvania. https://www.rural.palegislature.us/documents/reports/Analysis_of_2012_Census_of_Agriculture_Data.pdf

Mountford, H. (2020, March 12). Responding to coronavirus: Low-carbon investments can help economies recover. *World Resources Institute*. https://www.wri.org/blog/2020/03/coronavirus-economy-low-carbon-investments

Mowen, A., Graefe, A., Trauntvein, N., & Stynes, D. (2012, February). *The economic significance and impact of Pennsylvania State Parks: An updated assessment of 2010 park visitor spending on the state and local economy*. PennState Department of Recreation, Park and Tourism Management. http://www.docs.dcnr.pa.gov/cs/groups/public/documents/document/dcnr_007019.pdf

Nadolny, T. (2017, June 27). For Low-income residents, Philadelphia unveiling income-based water bills. *Philadelphia Inquirer*. https://www.inquirer.com/philly/news/politics/city/for-low-income-residents-philadelphia-unveiling-income-based-water-bills-20170620.html

Neukrug, H., & Koehler, C. (2020, May 4). Coronavirus stimulus packages should help green our water infrastructure. *Philadelphia Inquirer*. https://www.inquirer.com/opinion/commentary/philadelphia-green-infrastructure-plan-stormwater-coronavirus-20200504.html

Outdoor Industry Association. (2017). *The Outdoor Recreation Economy: Pennsylvania*. https://outdoorindustry.org/wp-content/uploads/2017/07/OIA_RecEcoState_PA.pdf

PACENaton. (2019). *Pace Market Data*. https://pacenation.org/pace-market-data/

PennFuture. (2015, April). *Fossil Fuel Subsidy Report for Pennsylvania*. https://www.pennfuture.org/Publication-Fossil-Fuel-Subsidy-Report

Pennsylvania Budget and Policy Center. (2019, April 15). *A fair tax plan for Pennsylvania—2019 update*. https://www.pennbpc.org/fair-share-tax-plan-pennsylvania-—-2019-update

Pennsylvania Department of Environmental Protection. (2015). *The Pennsylvania water and wastewater gap study*. http://www.depgreenport.state.pa.us/elibrary/GetDocument?docId=4446&DocName=3810-RE-DEP4432%20Water%20Wastewater%20Gap%20Study.pdf

Pennsylvania Department of Environmental Protection. (2018, September). *Abandoned and orphan oil and gas wells and the well plugging program*. www.dep.pa.gov/O&G_factsheets

Pennsylvania Department of Environmental Protection. (2018, November). *Pennsylvania's Solar Future Plan*. https://tinyurl.com/yapv2n8q

Pennsylvania Department of Environmental Protection. (2019, April 28). *Pennsylvania Climate Action Plan*. https://www.dep.pa.gov/Citizens/climate/Pages/PA-Climate-Action-Plan.aspx

Pennsylvania Department of Environmental Protection. (2019, August). *Pennsylvania phase 3 Chesapeake Bay watershed implementation plan*. http://files.dep.state.pa.us/Water/ChesapeakeBayOffice/WIPIII/FinalPlan/PA_Phase_3_WIP_Final.pdf

Pennsylvania Parks & Forests Foundation. (2018). *The legacy of Pennsylvania's state parks and forests: The future is in our hands*. https://paparksandforests.org/initiatives/infrastructurestudy/

Pennsylvania Public Utility Commission. (2020, February). *Pennsylvania Act 129 - Phase IV Energy Efficiency and Peak Demand Reduction Market Potential Study Report*. http://www.puc.pa.gov/pcdocs/1656474.pdf

Pennsylvania State System of Higher Education. (2016). *Pennsylvania Workforce Needs Assessment*. https://public.analytics.oei.passhe.edu/StateSystemEdHub/#!/Workforce

Pew Charitable Trusts. (2019, September). *How the federal government and states coordinate in times of recession*. https://www.pewtrusts.org/-/media/assets/2019/09/federal-statecoordinationrecession.pdf

Phillips, S. (2020, February 4). Wolf proposes boosting staff at depts. of environmental protection, conservation and natural resources. *WHYY*. https://tinyurl.com/y7demrxd

PUC issues moratorium on utility shutoffs. (2020, March 15). *Observer-Reporter*. https://observer-reporter.com/series/coronavirus/puc-issues-moratorium-on-utility-shutoffs/article_0354f0e4-6603-11ea-b219-cf7b6da276cf.html

Renewable Energy World (2020, April 15). *Clean energy job losses mount as COVID-19's economic toll continues*. https://www.renewableenergyworld.com/2020/04/15/clean-energy-job-losses-mount-as-covid-19s-economic-toll-continues/

Richards, H. (2019, September 19). Is U.S. shale facing an 'unmitigated disaster'?. *E&E News*. https://www.eenews.net/stories/1061136849

Ricketts, S., Cliffton, R., & Oduyeru, L. (2020, April 30). *States are laying a road map for climate leadership. Center for American Progress*. https://www.americanprogress.org/issues/green/reports/2020/04/30/484163/states-laying-road-map-climate-leadership/

Science Based Targets Initiative. (2020, May). *Uniting business and governments to recover better*. https://sciencebasedtargets.org/wp-content/uploads/2020/05/Climate-CEO-Statement_v3.pdf

Southwick, R (2020, June 19). Pa. unemployment rate in May was 13.1%, which actually represents an improvement. *Penn Live*. https://www.pennlive.com/news/2020/06/pa-unemployment-rate-in-may-was-131-which-actually-is-a-drop.html

S&P Market Intelligence. (2020, June 26). *The evolution of sustainable investing rewards*. https://www.spglobal.com/marketintelligence/en/news-insights/blog/the-evolution-of-sustainable-investing-rewards

Tanenbaum, Michael. (2020, April 28). Don't flush disinfectant wipes; put them in trash alongside face masks and gloves, Philly officials plead. *Philly Voice*. https://www.phillyvoice.com/philly-covid-19-ppe-wipes-flushing-water-department-masks-gloves-ppe-coronavirus/

Team Pennsylvania. (2018). *Pennsylvania Agriculture: A Look at the Economic Impacts and Future Trends*. https://teampa.com/wp-content/uploads/2018/05/TEAM-PA-AGRICULTURE-FINAL-REPORT.pdf

Thrush, E. (2020, May 5). PA house leaders push bills to thwart environmental protections, attack conservation funding. *PennFuture Blog*. https://www.pennfuture.org/Blog-Item-PA-House-Leaders-Push-Bills-to-Thwart-Environmental-Protections-Attack-Conservation-Funding

U.S. Bureau of Labor Statistics (2020, June). *Pennsylvania Economy at a Glance*. https://www.bls.gov/eag/eag.pa.htm#eag_pa.f.1

U.S. Department of Energy (2020, January). *U.S. Energy and Employment Report*. https://www.usenergyjobs.org/

U.S. Department of Interior. (2020). *e-Amlis State and Tribal Summary: Pennsylvania*. https://amlis.osmre.gov/Summaries.aspx

Weber, I. (2019, August 8). *Abandoned wells in Pennsylvania: We're not doing enough*. Fractracker Alliance. https://www.fractracker.org/2019/08/pa-abandoned-wells/

White, D. (2019, October 27). PA is completely unprepared for the next recession. *Philadelphia Inquirer*. https://www.inquirer.com/philly/opinion/commentary/pennsylvania-budget-reserves-zero-recession-20171027.html

Wolf, T. (2019). *Restore Pennsylvania*. https://www.governor.pa.gov/wp-content/uploads/2019/06/20190506-Restore-Pennsylvania-Green-Infrastructure.pdf

Wu, X., Nethery, R.C., Sabath, B.M., Braun, D., Dominici, F. (2020, April 27). Exposure to air pollution and COVID-19 mortality in the United States. *medRxiv*. https://doi.org/10.1101/2020.04.05.20054502

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He has testified before Congress and his work has appeared in numerous national and state news and media outlets. Matthew was also a Christine Mirzayan Science and Technology Fellow at the National Academies of Science, where he worked with the Transportation Research Board to analyze light duty vehicle energy reduction policy strategies. He also served as fellow at the Breakthrough Institute, where he focused on clean energy innovation policy opportunities, and participated in the inaugural Millennial Trains Project.

Matthew holds a B.Sc. in Meteorology from Millersville University as well as a M.Sc. in Science, Technology, and Public Policy from the Rochester Institute of Technology.

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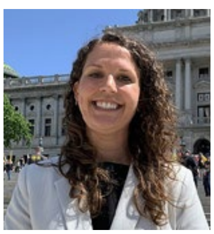

Lena serves as a Campaign Manager for Clean Water Advocacy for PennFuture. In this role, Lena leads a high-impact campaign around clean water issues, focusing on elevating green stormwater infrastructure as a key environmental issue among Philadelphia's municipal leaders and residents.

Before joining PennFuture, Lena was a Senior New Jersey Organizer and Policy Advocate with Food & Water Watch, where she organized communities to protect the right to public water in Atlantic City and block fracked gas pipelines in the Pinelands. She also successfully lobbied the New Jersey Senate and other state policy makers around a fracking waste ban, as well as renewable energy policies.

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Rob previously spent nearly 22 years with the Pennsylvania Department of Environmental Protection. He calculated and predicted emissions from factories, vehicles, and off-road equipment. That led to predicting concentrations of air pollutants for the Bureau of Air Quality using computer models. He served as an executive policy specialist in DEP's policy office advising the governor's office and department executive staff on a variety of environmental and public health issues.

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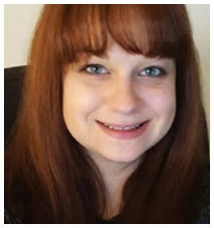

Emily manages PennFuture's issue campaigns, organizes coalition efforts, and maintains relationships with policymakers, members of the organization, and the general public. Overseeing a staff of experts, she is familiar with numerous environmental issues including watersheds, sustainability, urban issues, forest conservation, climate action, air pollution, and consumer energy issues.

She is the state lead for both the Coalition for the Delaware River Watershed (CDRW) and Climate Action Campaign (CAC). Emily also manages the "Our Pocono Waters" campaign, an Exceptional Value (EV) stream designation community and legislative outreach campaign in the Pocono Mountains region.

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Prior to joining PennFuture, Renee served as an Associate Director of Clean Water Supply at American Rivers working in both the Delaware and Susquehanna river basins. At American Rivers, Renee focused on green stormwater infrastructure and municipal stormwater management. In her capacity as Associate Director, Renee also served on the Pennsylvania Department of Environmental Protection's Chesapeake Bay Stormwater Workgroup and on the Department of Conservation and Natural Resources' Riparian Forest Buffer Advisory Committee.

Renee holds a B.S. in Environmental Geography and a M.S. in Environmental Studies, both from Ohio University.

Organization Bio

PennFuture

PennFuture is leading the transition to a clean energy economy in Pennsylvania and beyond. We are protecting our air, water and land, and empowering citizens to build sustainable communities for future generations.

Citizens for Pennsylvania's Future—PennFuture—was created in 1998 as a statewide environmental advocacy organization. Since our founding, we have achieved significant legal and policy victories that reduce pollution and protect the environment. We have provided millions of dollars in pro bono legal services while setting critical precedents and enforcing environmental laws across the commonwealth.

Our team is working daily to protect public health, restore and protect natural resources, and move Pennsylvania toward a clean energy future. With offices in Harrisburg, Pittsburgh, Philadelphia, Erie, and Mt. Pocono, our team litigates cases before regulatory bodies and in local, state, and federal courts; advances legislative action on a state and federal level; provides public education; assists citizens in public advocacy; engages with grassroot citizenry to support environmental causes; and engages with communities to increase participation in democratic processes.

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